A Systematic Review and Meta-Analysis of Factors Associated with Burnout Among Early Childhood Education and Care Providers

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ABSTRACT

A SYSTEMATIC REVIEW AND META-ANALYSIS OF FACTORS ASSOCIATED WITH BURNOUT AMONG EARLY CHILDHOOD EDUCATION AND CARE PROVIDERS

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Northern Illinois University, 2023
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Burnout among the early childhood workforce has gained widespread attention in research and policy due to greater awareness of the negative impacts on children, providers, and organizations. Early childhood education and care (ECEC) providers create supportive and nurturing environments that facilitate early learning and development for young children. Accordingly, ECEC providers are the connective tissue between program intentions and outcomes. Despite the critical nature of the field, early childhood providers continue to be underpaid, under resourced, and undervalued leading to a high risk of burnout. With turnover rates of ECEC providers higher than ever, the link between burnout and attrition has drawn considerable attention. Now, more than ever, it is imperative to understanding the variables impacting ECEC provider burnout. To date, no systematic review and meta-analysis has been conducted to examine the relation between ECEC-, child-, and work-related variables and the dimensions of burnout among ECEC providers.

The present study utilizes systematic review and meta-analysis to quantitatively synthesize and systematically examine the relation between the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment) and ECEC-, child-, and work-related variables. The comprehensive search strategy identified 14 cross-sectional studies
utilizing a version of the Maslach Burnout Inventory. Effect sizes, along with study and participant characteristics, were coded and analyzed.

The meta-analytic findings identified distinct relations between each burnout dimensions and related variables. ECEC-related variables, job satisfaction (Fisher’s Z = -0.476, emotional exhaustion; Fisher’s Z = -0.392, depersonalization; Fisher’s Z = 0.336, depersonalization), psychological capital (Fisher’s Z = -0.416, emotional exhaustion; Fisher’s Z = -0.414, depersonalization; Fisher’s Z = 0.380), and perfectionism (Fisher’s Z = -0.214, emotional exhaustion; Fisher’s Z = -0.397, depersonalization; Fisher’s Z = -0.158) were significantly linked to burnout. Whereas, work-related variables, work conditions (Fisher’s Z = -0.536, emotional exhaustion; Fisher’s Z = -0.308, depersonalization) and social relationships (Fisher’s Z = -0.371, emotional exhaustion, Fisher’s Z = -0.326, depersonalization, Fisher’s Z = 0.428, personal accomplishment), were the meaningfully and significantly associated with burnout. No relationship was found between child-related variables and burnout. Given the growing body of literature and global advocacy for high-quality ECEC services, these findings highlight the need for ongoing research, policy, and practice that supports ECEC provider well-being and buffers against the impacts of burnout.
A SYSTEMATIC REVIEW AND META-ANALYSIS OF FACTORS ASSOCIATED WITH
BURNOUT AMONG EARLY CHILDHOOD EDUCATION AND CARE PROVIDERS

BY

LEE WELLS
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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
DOCTOR OF PHILOSOPHY

COLLEGE OF HEALTH AND HUMAN SCIENCES

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Chair: Thomas Pavkov, PhD
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DEDICATION

For my unconditionally supportive and loving spouse, Courtney, and my most treasured friends and family.
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CHAPTER 1
INTRODUCTION

Background

The well-being of the early childhood education and care (ECEC) workforce is critical to child development and service outcomes. There is no shortage of research demonstrating the important short- and long-term impacts of high-quality early childhood services on health and wellness (Campbell et al., 2014; Cannon et al., 2018; Heckman et al., 2010; Vandell et al., 2010). Responsive and sensitive interactions between ECEC providers and young children have substantial impacts on learning and developmental outcomes (Horm et al., 2016) and can buffer the impacts of adversity (Yazejian et al., 2017). As such, the field of ECEC carries an enormous responsibility when considering the outcomes of young children.

The role of ECEC providers is complex, requiring resilience, stability, and continuous professional development (Beltman et al., 2020; West et al., 2018). Yet, the ECEC profession faces challenging work conditions, leading to work-related stress and turnover (Schaack et al., 2020; Thorpe et al., 2020; Totenhagen et al., 2016). International efforts to improve ECEC quality and professionalize the field have only increased workforce expectations and demands (Cumming et al., 2021; Sakai et al., 2014; Thorpe et al., 2020). Notwithstanding policy efforts and the changing landscape of ECEC, providers are undervalued, underappreciated, poorly paid, and have few opportunities for career growth or professional development (Cumming, 2017; Cumming et al., 2020; Thorpe et al., 2020; Whitebook et al., 2014a). There is little surprise that
ECEC providers report notable levels of burnout, emotional exhaustion, and turnover (Ansari et al., 2022; Schaack et al., 2020; Wells, 2015).

The ECEC workforce includes many types of providers, from home visitors to early childhood mental health providers. However, turnover among center-based early childhood educators and care (ECEC) providers is uniquely high. In a recent study, a quarter of classroom-based early childhood teachers and about half of early child care providers left their respective positions at the end of the year (Bassok et al., 2021). Furthermore, early childhood educators have lower retention rates than most other occupations worldwide (Colton M & Roberts S, 2007; Rolfe, 2005). Within the United States alone, scholars have denoted the profession as “alarmingly” unstable (Whitebook et al., 2001, p.37) with high, yet poorly understood turnover rates (Bassok et al., 2021). One study found attrition among early childhood educators to be nearly 3.5 times higher than K-12 educators (30% versus 8.6%) (Zhai et al., 2011). The alarm is even greater when considering retention among ECEC providers of color, wherein research indicates that turnover is much higher (Achinstein et al., 2010; Cheruvu et al., 2015). The pernicious and pervasive nature of ECEC turnover threatens quality improvement efforts and children’s social-emotional and academic development (Hoglund et al., 2015; Jeon et al., 2016; Ota et al., 2013). In response, leading ECEC researchers and advocates have proclaimed that the ECEC workforce is woefully under supported and demand a call to action for research, policy, and practice changes (Kwon et al., 2021).

ECEC providers are the mainstay between program intentions and short- and long-term outcomes, yet limited attention has been paid to center-based ECEC providers’ well-being. In the United States, like nations worldwide, staff turnover and occupational stress jeopardize policy and program efforts to improve ECEC accessibility and quality (Phillips et al., 2000; Whitebook
et al., 2014a). High-quality ECEC requires a stable, resilient, and competent workforce. Yet, an increasing number of early childhood professionals are leaving or intend to leave their jobs and/or the field due to emotional exhaustion, burnout, and job stress (Cumming, 2017; Hall-Kenyon et al., 2014; Schaack et al., 2020). For those who stay, it can be challenging to balance work and well-being. Burnout and emotional exhaustion among ECEC professionals have been linked to poorer classroom quality and teacher-child relationships, resulting in poorer compassion, connection, and nurturing (Curbow et al., 2000; Whitaker et al., 2015; Zinsser, Denham, et al., 2016).

The current study will examine center-based ECEC provider personal and contextual variables and their relation to burnout with an aim to inform and guide research, policy, and program efforts targeting ECEC stability, resilience, and well-being. This manuscript begins with a discussion of ECEC burnout and follows with a discussion of theory and research on burnout and helping professionals. Finally, a rationale and overview of the systematic review and meta-analytic approach and outcomes are discussed.

**What is Burnout?**

Although ECEC providers experience positive feelings regarding their work, high levels of stress and emotional exhaustion plague the occupation (Pavkov & Wells, 2021; Skaalvik & Skaalvik, 2015). Burnout is often understood as the cumulative impact of job demands and stressors that result in reduced capacity to meaningfully engage in the work. Burnout is a complex experience and construct characterized by three primary dimensions: *emotional exhaustion, depersonalization*, and *personal accomplishment* (Maslach et al., 2001). Emotional exhaustion is most easily understood as the feeling of depletion. While depersonalization, also known as cynicism, can be thought of as the mental distancing from the work, as well as having
negative feelings toward the job. Personal accomplishment is the diminishment of one’s perceived professional efficacy (Maslach & Leiter, 2021) and is often measured in its inverse, inefficiency. Burnout is most frequently measured using the Maslach Burnout Inventory (MBI; Maslach et al., 2001), which includes three subscales reflective of the three dimensions of burnout. Although other useful burnout scales exist, the MBI is the most well-established and commonly used burnout measure appearing in nearly 90 percent of all burnout research (Boudreau et al., 2015). As such, this study solely focuses on data that was measured burnout using a version of the MBI.

**Early Childhood Education and Care (ECEC) Providers and Burnout**

Burnout has become an emerging area of concern in the field of ECEC due to its association with job instability (Maslach & Leiter, 2016; Russell et al., 2020) and poorer classroom climate (Buettner et al., 2016; Li Grining et al., 2010; Whitaker et al., 2015). In fact, studies show that children in classrooms of burnt-out educators demonstrate poorer academic achievement (Hoglund et al., 2015) and greater behavioral concerns (Friedman-Krauss et al., 2014; Jeon et al., 2014). With reports of burnout as high as 56 percent among early childhood teachers (Koch et al., 2015), burnout is of considerable concern to center-based ECEC program goals and outcomes.

The value of early childhood provider-child relationships on child outcomes cannot be understated when considering program goals and outcomes. According to some research, teacher-child relationships may be a better indicator of outcomes than professional credentials or education (Early et al., 2007). Unfortunately, burnout can interfere with the quality of these vital relationships (Whitaker et al., 2015). Research links higher levels of occupational stress and burnout among early child care providers to lower child engagement (Ota et al., 2013), poorer
emotional and behavioral adjustment (Jeon et al., 2014), and weaker academic progress (Hoglund et al., 2015), which are often considered ECEC service goals. Furthermore, in a study of 1129 early childhood center-based care providers and preschool teachers, stress and emotional exhaustion were linked to negative reactions to children, as well as waning professional commitment (Buettner et al., 2016). There is also evidence that workplace stress may impact the effective implementation of behavior management strategies (Li Grining et al., 2010).

Accordingly, program and policy efforts to improve professional well-being among ECEC providers are a critical part of strengthening child and program outcomes. Because positive relationships are at the heart of service quality, investing in the well-being of ECEC professionals is one of the best things we can do to improve service outcomes.

The negative influence of burnout does not end there. The physical and psychological impacts of burnout affect workforce stability and resilience. Burnout is linked to several health impairments such as cardiovascular disease, gastrointestinal issues, headaches, depression, substance use, and risk of suicide in human service workers (Maslach & Leiter, 2016; National Academies of Sciences, Engineering, and Medicine et al., 2019; Stamm, 2010). Such health impacts have negative consequences for programs and organizations, such as absenteeism, worsened work quality, adverse effects on colleagues, and turnover (Maslach & Leiter, 2016; Swider & Zimmerman, 2010). This is a serious issue for already underfunded ECEC programs as absenteeism and turnover can increase organizational costs and stress (Azzi-Lessing, 2011; Maslach & Leiter, 1997). Regardless of organizational impacts, Pavkov and Wells (2023) highlight the importance of ECEC occupational well-being in and of itself, suggesting that continued research on ECEC burnout and related factors is also an ethical responsibility.
Purpose of the Study

In recent years, interest in ECEC professional well-being has surged (Benevene et al., 2018; Cumming, 2017; Cumming et al., 2020, 2021; Eadie et al., 2021; Kwon et al., 2021; Madill et al., 2018; Zinsser, Christensen, et al., 2016). Researchers, advocates, and policymakers around the globe agree that developing a stable and resilient workforce requires a better understanding and support of ECEC providers’ well-being (Cumming, 2017). As such, the purpose of the current study was to identify, evaluate, and summarize the evidence of burnout and its relation to center-based ECEC variables to make the research more accessible to decision-makers and stakeholders. The study aims were (1) to appraise and synthesize the quality of evidence that exists regarding correlates of burnout among center-based early childhood education and care providers, (2) to identify and synthesize variables of burnout and assess the magnitude of the overall effect sizes, and (3) to determine the direction of the relationship between the variables and burnout.

The literature clearly denotes the deleterious impacts of burnout on the ECEC workforce (Hall-Kenyon et al., 2014; Schaack et al., 2020; Whitaker et al., 2015; Zinsser, Denham, et al., 2016); yet there is no clear consensus on the factors that contribute to burnout among center-based ECEC providers. Notwithstanding a systematic review of early childhood educators' burnout (Ng et al., 2023), a shared understanding of individual, occupational, and organizational factors linked to burnout across the literature is absent. To address this gap and support a healthy and resilient early childhood workforce, a systematic review and meta-analysis of variables was conducted.
Guided by a strengths-based, developmental bioecological framework, the study examines the impact of individual, occupational, and organizational factors on center-based ECEC professional quality of life, namely burnout. In phase one of the study, a systematic review protocol was collaboratively developed with the research team and ECEC community members and submitted for registration through PROSPERO, an international database of proposed systematic reviews in the health and social sciences (National Institute for Health Research, 2022). ECEC researchers, practitioners, and trainers were involved in developing the questions that guide this review. In phase two, the scientific, systematic review process was undertaken using Distiller SR (Evidence Partners, 2021), a systematic review software that supports efficacy and efficiency throughout the review process. Interrater reliability was measured to ensure minimal bias throughout the review process. The results of the systematic review were used to inform the meta-analysis. In phase three, a meta-analysis was conducted utilizing Comprehensive Meta-Analysis Version 4 (Borenstein et al., 2022) to synthesize the results of several studies into quantitative estimates to answer the research questions.

**Research Questions**

Meta-analysis is a statistical approach for synthesizing the findings of primary studies and holds a greater capacity to identify effects than primary studies. Through meta-analysis, the effect sizes of variables can be compared regardless of varying methodological factors (Borenstein et al., 2009; Lipsey & Wilson, 2001). Thus, this study conducted a meta-analysis to understand center-based ECEC provider burnout associated with ECEC-, child-, and work-related variables. The meta-analysis sought to accurately assess the magnitude and direction of the related variables on ECEC burnout. The research questions are as follows:
Which individual (ECEC-related), occupational (child-related), and organizational (work-related) factors are associated with burnout in center-based early childhood education and care providers?

- What are the overall effect sizes among factors?

Rationale for the Present Review

There is no doubt that high-quality ECEC programs influence children's short- and long-term social-emotional and academic outcomes, as well as narrow the opportunity gap (Campbell et al., 2014; Cannon et al., 2018; Duncan & Magnuson, 2013; Heckman, 2006). Investing in early childhood has been shown to have life-long benefits, such as greater educational attainment, decreased participation in the criminal justice system, increased earnings, and improved health (Campbell et al., 2014; Cannon et al., 2018; García et al., 2021; Heckman et al., 2010). These findings have led to substantial investments in early childhood. For instance, the 2021 American Families Plan committed 200 billion dollars to free, high-quality preschool (The White House, 2021). In Australia, funding for ECEC has increased by 140 percent since 2008 in hopes of improving program quality and access (Hurley et al., 2020). Investing in early childhood holds many benefits so long as the providers can implement the services.

Researchers across the globe are increasingly recognizing the connection between ECEC well-being and program intentions and outcomes. Studies on ECEC work climate (Zinsser, Christensen, et al., 2016), professional well-being (McMullen et al., 2020), and mental health (Corr et al., 2015) unanimously agree that high-quality services require a dedicated, proactive approach to ECEC professional development. At this stage in the journey, it is fair to say that ECEC professionals are at the heart of effective program delivery. Despite all this, the ECEC
workforce continues to disclose high rates of burnout and work-related stress jeopardizing service outcomes (Jennings et al., 2020; Whitaker et al., 2015).

Decades of burnout research has established that individual, occupational, and organizational factors influence occupational stress. More recent research suggests that these variables closely align with the daily work experiences and realities of those in education and care (Brunsting et al., 2014; Park & Shin, 2020). Therefore, understanding these variables provides a pathway to proactively addressing burnout through research, policy, and practice. High-profile early childhood organizations, such as Start Early (formally Ounce of Prevention Fund) in the United States, identify supporting the early childhood workforce as a critical area of ongoing research (Start Early | Research, n.d.). However, to date, no systematic review or meta-analysis has been conducted on individual, occupational, and organizational factors associated with the three dimensions of burnout among ECEC providers. The findings of this study are intended to impact emerging efforts to alleviate provider burnout in the field of ECEC. A comprehensive review offers a singular location to obtain a synthesis of the extant literature and a platform to launch additional research. This study adds to growing efforts to create an evidence base that supports funding sources and policy development for high-quality ECEC.
CHAPTER TWO
LITERATURE REVIEW

The current systematic review and meta-analysis were rooted in the assumption that center-based early childhood education and care (ECEC) providers develop critical relationships with young children through their work, and thus ECEC providers' quality of life impacts their work with children. As the research will show, professional well-being is critical to early childhood provider stability, resilience, and competence. More specifically, the variables influencing professional well-being are keys to promoting effective early childhood services and outcomes.

The review of literature begins by providing terminological clarity on early childhood education and care (ECEC) providers and burnout. The duration of the chapter will demonstrate that, although we are beginning to understand burnout among the ECEC workforce, there is no known consensus on individual, occupational, and organizational factors of burnout in the field. Furthermore, we see few interventions for burnout. As such, understanding the proximal and distal variables that impact the proximal processes of helping professionals may help move the needle on professional well-being. Additionally, the review will examine the literature on the prevalence, as well as discuss known variables related to burnout among early childhood education and care providers.
Terminology

Early Childhood Education and Care (ECEC)

Early childhood education and care (ECEC) is a broad term that includes infant care, family support, early childhood education, child care, and home visiting. ECEC services generally provide care for infants through children five years of age. ECEC can include part- and full-time programming delivered and funded, exclusively or in combination, by public or private sectors. Some programs are housed in larger educational settings (i.e., elementary schools), while others are part of social service organizations, religious centers, or commercial early learning centers (Kamerman & Gatenio-Gabel, 2007). Licensed family child care providers, parent and relative care, as well as intermittent childminding are also considered ECEC services. The expansive terminological nature of ECEC has led to a splintered approach to research, advocacy, collaboration, and services (Bassok et al., 2021; Brooks-Gunn, 2003; Kamerman & Gatenio-Gabel, 2007).

Given the complexity of the term, the current study narrowed the population to center-based ECEC providers. Center-based ECEC programs include preschool and child care housed in religious, commercial, educational, or social services organizations under public or private auspices. More detailed descriptions of center-based preschool and child care are provided below. This approach provides the opportunity to look at ECEC providers with the most closely related environmental and professional experiences. Furthermore, despite being an invaluable resource, nearly 100,000 family-based child care programs have closed in the United States since 2003, increasing the importance of center-based programs (National Center on Early Childhood Quality Assurance, 2019). In fact, Head Start, the largest compensatory ECEC program in the United States, reports that most preschool programs and more than half of Early Head Start

This study derived center-based ECEC program definitions from Sheila B. Kamerman and Shirley Gatenio-Gabel’s contribution to the international Organization for Economic Co-operation and Development (OECD) Thematic Review of Education and Care (2003), as well as their overview of ECEC policy in the United States (2007).

**Center-based ECEC Programs**

**Preschool**

Preschool also referred to as pre-kindergarten, pre-K, and nursery school, predominately provides care for children ages three- and four- years old but also enrolls a minority of 5-year-olds (Kamerman & Gatenio-Gabel, 2003, 2007). Preschool programs can be located in religious, commercial, educational, or social services organizations. Many programs are under public and/or private educational auspices, while some are compensatory under particular legislation, like Head Start (Kamerman & Gatenio-Gabel, 2003, 2007). In the United States, nearly 48 percent of eligible children were enrolled in preschool in 2019 (*Preschool Programs | Childcare.Gov*, n.d.), with enrollment as high as 70 percent in some states toward the end of 2020 (Friedman-Krauss et al., 2021). Additionally, pre-K programs in the U.S. have seen a 20 percent increase in 4-year-old enrollment over the past decade (Friedman-Krauss et al., 2021). Despite these optimistic statistics, families who may benefit most from preschool are less likely to access these services. For instance, Head Start is a federally-funded ECEC program for low-income families. Yet, less than half of families eligible (40%) for Head Start preschool services enroll in the United States. (Barnett & Friedman-Krauss, 2016). Moreover, Barrett and
Friedman-Krauss (2016) report stark Head Start preschool enrollment disparities among states, from 100 percent in North Dakota to just 17 percent in Nevada. The COVID-19 pandemic exacerbated the enrollment disparity by making Head Start less accessible (Friedman-Krauss et al., 2022). Despite rebounding enrollment in recent years, variability in funding, access, and quality across states continues to drive low enrollment (Friedman-Krauss et al., 2022).

During the COVID-19 pandemic, preschool enrollment declined. Low enrollment was predominately due to low access, facility closures, health concerns, and state budget cuts (Friedman-Krauss et al., 2021; US Census Bureau, 2021). However, a rebound in enrollment, as well as a resurgence of attention on the value of preschool, was already underway as of mid-2021 (Friedman-Krauss et al., 2021; The White House, 2021). New legislation promoting the expansion and accessibility of preschool in the U.S. has urged programs to prepare for enrollment increases in the upcoming years (The White House, 2021). As such, the U.S. Bureau of Labor Statistics (2021a) predicted an 18 percent increase in the need for preschool providers over the next ten years.

**Center-based Child Care**

Center-based child care most frequently refers to part- or full-day programming housed under social welfare auspices or in independent programs (Kamerman & Gatenio-Gabel, 2003, 2007). A majority of these programs correspond to traditional, Westernized work hours (e.g., 9:00 am to 5:00 pm) and work weeks (e.g., Monday through Friday). However, some may offer extended care or after-school options. Center-based child care programs may serve infants and toddlers (0 to 3 years old), in addition to preschool-age children (3- to 5- years old) (Kamerman & Gatenio-Gabel, 2003, 2007). Most centers are regulated and monitored for health and safety through licensing and state/country standards. Some programs, like Head Start in the United
States, use specific data-collection and evidence-based approaches to ensure services are promoting child well-being and development (Head Start and Early Head Start | Childcare.Gov, n.d.).

Unlike preschool, child care centers may be thought of as focused more on “care” than educational readiness, yet there is no clear delineation between preschool and center-based child care (Kamerman & Gatenio-Gabel, 2007). In the United States, to assist in dispelling this myth and increasing educational opportunities in all center-based ECEC programs, the National Association for the Education of Young Children (NAEYC) (2016) launched the Power to the Profession initiative in 2016. The initiative focused on nationwide efforts to collaboratively unify competencies for greater professional well-being and service outcomes. Despite these efforts, turnover impacts child care centers at nearly double the rate of ECEC programs under educational auspices (Bassok et al., 2021).

Between 2019 and 2020, 62 percent of young children in the U.S. participated in non-parental care (Cui & Natzke, 2021), and nearly 60 percent in Australia were enrolled in center-based care (Australian Government, 2020). In Korea, over 30 percent of daycare facilities are private center-based programs with rising enrollment rates (Kim, 2021). Early Head Start (EHS), a U.S.-based program serving children up to 3 years of age, saw twice as many enrollments from 2007 to 2015 (Barnett & Friedman-Krauss, 2016). As previously noted, more than half of EHS programs are center-based (Head Start Program Facts, 2020). Like preschool, the U.S. Bureau of Labor Statistics (2021b) predicted a greater need (8%) for center-based child care providers over the next ten years. However, this increase may be a result of staff turnover (U.S. Bureau of Labor Statistics, U.S. Department of Labor, 2021b).
**Burnout**

For decades burnout has been identified as an occupational hazard for educators, health providers, and human service workers. Coined by Freudenberger in 1974 and solidified by Maslach (1982), burnout started as a “grassroots” idea (Kristensen et al., 2005, p. 192) and quickly developed into a well-established construct. Today, we understand burnout as a multi-dimensional, contextual concept consisting of three primary dimensions: emotional exhaustion, depersonalization, and personal accomplishment. Burnout is a work-related phenomenon most saliently defined by emotional exhaustion (Maslach & Leiter, 2016; Sprang et al., 2011). Maslach and Leiter (2016) explain that emotional exhaustion can be understood colloquially as feeling worn out, depleted, and/or overextended. Despite debate on whether to reduce burnout to a single dimension of emotional exhaustion, depersonalization, and personal accomplishment continue to be important factors in burnout (Schaufeli, 2021). Depersonalization, also referred to as called cynicism in the literature, refers to reduced idealism, increased negativism toward clients, and, in some instances, withdrawal (Maslach & Leiter, 2016). Personal accomplishment is defined by difficulties in coping and decreased productivity and morale (Maslach & Leiter, 2016). Personal accomplishment is often referred to and measured in its inverse, inefficiency. In any combination, high levels of emotional exhaustion, depersonalization, and reduced personal accomplishment undercut one’s ability to support clients and help themselves in the workplace.

Burnout is often conflated with secondary traumatic stress (STS) (Stamm, 2010). Also referred to as vicarious trauma (Pearlman & Saakvitne, 1995) or compassion fatigue (CF) (Figley, 1995), STS refers to symptoms that parallel those of Post-traumatic Stress Disorder (PTSD) such as avoidance, changes in mood, intrusive re-experiencing, and changes in arousal or reactivity among helping professionals (Figley, 1995; Sprang et al., 2019; Stamm, 2010).
Whereas STS is a sudden, client-dependent, work-related phenomenon, burnout emerges from prolonged exposure to empathy-heavy, emotionally demanding work (Maslach & Leiter, 1997; Stamm, 2010). Consequently, burnout may lead to worsening work quality, absenteeism, and attrition (Maslach & Leiter, 2016; Swider & Zimmerman, 2010). In fact, a systematic review of healthcare workers and other professionals highlighted the detrimental relationship between worsening work performance and emotional exhaustion (Taris, 2006).

Burnout is conceptually similar to occupational stress as they are both defined by work-related psychological suffering rooted in work demands, environmental stressors, and personal conflict (Quick & Henderson, 2016; Simionato & Simpson, 2018). As such, burnout and occupational stress are seen as related constructs and are used interchangeably in the literature. One of the most cited ways occupational stress is measured is through emotional exhaustion, a dimension of burnout. According to Maslach and Leiter (2016, p106), emotional exhaustion is “closest to an orthodox stress variable and therefore more predictive of stress-related health outcomes than the other two dimensions.” Given the significant conceptual and measurement overlap (Bagnall et al., 2016), this review includes occupational stress as a search term.

**Theoretical Foundations**

This study was guided by a strengths-based, developmental bioecological framework to understand the development of burnout and, subsequently, the depletion of well-being among ECEC providers. These frameworks are helpful in that they (a) highlight the mediating effect of individual and contextual variables on ECEC provider development and (b) acknowledge the inherent strengths of individual and contextual variables. An initial discussion regarding the theoretical underpinnings of Bronfenbrenner’s developmental bioecological framework will
provide a foundation for understanding the study. Furthermore, a brief introduction to resilience theory and a strengths-based perspective provides context for the study approach.

**Developmental Bioecological Framework**

Like the theory itself, Urie Bronfenbrenner’s bioecological theory of human development was in continuous development until his death in 2005 (Rosa & Tudge, 2013). Bronfenbrenner was a self-reflective theorist, making numerous changes and adaptations to his theory over time, even questioning much of his earlier model in his later work (Bronfenbrenner & Morris, 1998). His early model focused on the ecological landscape which consisted of the person nested within the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1994). Rather than distinct and separate environments encapsulating one another (i.e., like that of Russian dolls), each system was said to interact with the others around it. As a result, transactions that occur in one system would impact other systems, ultimately affecting the individual (Bronfenbrenner, 1989). Bronfenbrenner called into question the salience of his own model in the 1990s noting too great a focus on context and too little focus to the role the individual plays in their own development (Rose & Tudge, 2013).

The most important change from his early work is his emphasis on *proximal processes* (Bronfenbrenner & Morris, 1998). This change coincided with the development of a four-component model, wherein proximal processes, personal characteristics, context, and time (PPCT model) are synergistically interconnected (Bronfenbrenner, 2001). The PPCT model is at the core of the Bronfenbrenner’s theory today and proximal processes play a critical role in human development (Avellar Mercon-Vargas et al, 2020). Bronfenbrenner and Morris (1998) state,

*Human development takes place through progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the*
person, objects, and symbols in its immediate environment. Such enduring forms of interaction in the immediate environment are referred to as proximal processes. Examples of enduring patterns of proximal processes are found in… reading, learning new skills, problem solving, caring for others in distress, making plans, performing complex tasks, and acquiring new knowledge and know-how. (p. 996)

The activities we engage in - from conversing to problem-solving - change the individual and the environment, as well as lead to sustained, enlightened, or altered constructions of understanding (Shelton, 2019). In other words, proximal processes are the drivers of human development. However, their power and direction vary based on individual and contextual factors (Bronfenbrenner & Morris, 1998).

Researchers, including Bronfenbrenner, suggest that proximal processes must be at the heart of research that utilizes the bioecological model (Tudge et al., 2016, Rosa & Tudge, 2013, Bronfenbrenner & Morris, 1998). Bronfenbrenner does not insist that every aspect of the PPCT model is involved in a study. Rather, he suggests a focus on the impact of proximal processes, as well as the influence of individual and contextual factors, on the developmental outcome of interest (Tudge et al., 2009, Tudge et al. 2016).

Proximal processes are invariably positive according to Bronfenbrenner and Morris (1998). Yet, they “cannot function effectively in environments that are unstable and unpredictable… (p. 1019).” Individual and contextual variables serve as moderators to developmental outcomes of interest. These variables indirectly impact the power and direction of proximal processes as the fuel for development (Bronfenbrenner & Morris, 1998).

When considering the developmental outcomes of interest among ECEC providers, proximal processes such as ECEC-child activities, problem-solving, caring for children, and performing complex tasks serve as the “engine” of growth (Bronfenbrenner & Morris, 1998, p. 999). ECEC providers in the context of their work environment are developing over time, and
proximal processes drive optimal and competent ECEC development. According to Bronfenbrenner’s model, individual and contextual factors mediate the impact of proximal processes buffering unhelpful outcomes and fostering competence (Tudge et al., 2013, Tudge et al., 2016). Figure 1 shows the relations between proximal processes and the developmental outcome of interest, burnout, for ECEC providers, as well as the mediating effects of individual and contextual factors.

Bronfenbrenner’s model works well as a framework for this study. It considers impact of individual and contextual factors on proximal processes, the drivers of development. This model is also well-suited as an organization framework for this study as it allows us to order variables from proximal (ECEC-related) to distal (work-related) within the system.

**Strengths-based Approach**

Although not officially theoretical in nature, this study is rooted in a strengths-based approach. Resiliency theory provides a conceptual framework for understanding a strengths-based approach. Resilience theory purports that individual strengths, which include cultural, racial, indigenous, and other knowledge, assist people in successfully navigating challenges (van Breda, 2018). With its foundations in social work, a strength-based approach is centered around identifying and expanding individual strengths, as well as those of the individual’s environment (Atkins, n.d.). Aligned with Bronfenbrenner’s bioecological theory, resiliency theory acknowledges that individuals engage in various coping and recovery dependent on the micro or macro level of the adversity (van Breda, 2018). A strengths-based approach leans into resilience and invites an examination of difficulties at the individual, occupational, and organizational levels, as well as asks how individuals can use their strengths to move in a direction that is important to them.
Figure 1. Relation Between Proximal Processes and Burnout Dimensions

Note. Adapted from Bronfenbrenner & Morris, 1998. EE = emotional exhaustion; D = depersonalization; PA = personal accomplishment; EV = ECEC-related variable; CV = child-related variable; WV = work-related variable.
The World Health Organization recently classified burnout as an “occupational phenomenon,” ultimately rejecting it as a pathological condition (World Health Organization (WHO), 2019). Similarly, this study aims to promote individual strengths by identifying inherent challenges in early childhood education and care and highlighting opportunities to capitalize on strengths, resilience, and resources by identifying protective correlates of burnout. Conversely, a focus on risk factors acknowledges the inevitable individual, occupational, and organizational constraints as opposed to pathologizing them, while noting that many of these factors are malleable.

**Burnout Measures**

There are several instruments that measure burnout and occupational stress. Some of the most common measures include the Professional Quality of Life Scale (ProQOL; Stamm, 2010), Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005), Oldenberg Burnout Inventory (OLBI; Demerouti, 2008), Maslach Burnout Inventory (MBI; Maslach et al., 2001). Although all these measures are widely accepted and well-researched, the MBI is the most frequently used measure in ECEC research. The following provides an initial overview of the aforementioned measures followed by a brief discussion regarding the use of the MBI in this study.

**Professional Quality of Life Scale (ProQOL)**

The Professional Quality of Life Scale (ProQOL; Stamm, 2010) assesses compassion satisfaction and compassion fatigue with subscales including burnout and secondary traumatic stress (STS). According to Stamm (2010), the ProQOL is a popular tool widely used among researchers and has been used in over 200 studies since its creation. Yet, the ProQOL had been critiqued for limited clarity regarding psychometric properties (Bride, 2007). Stamm (2010) notes good internal consistency reliabilities (α = 0.82, 0.71, and 0.78 for compassion satisfaction,
burnout, and STS, respectively), and Geoffrion et al. (2019) found good construct validity supporting the theoretical underpinnings of the measure. However, some studies report poor validity and reliability among the Burnout and Secondary Traumatic Stress Subscales for the ProQOL-5 (Hemsworth et al., 2018; Heritage et al., 2018). To remedy these mixed findings, researchers created updated (ProQOL 21; Heritage et al., 2018) and shorter (ProQOL Short; Galiana et al., 2020) versions of the ProQOL that retain items with no psychometric issues while maintaining Stamm’s construct conceptualizations. Despite critiques, studies continue to utilize this measure. However, few, if any, ECEC studies use this measure in the study of burnout.

**Oldenberg Burnout Inventory (OLBI)**

Some data suggest that professional efficiency may be a prompting factor or consequence of burnout, leaving emotional exhaustion and depersonalization (cynicism) as the core dimensions (Taris et al., 2005). In response, the OLBI was developed, focusing on the two key dimensions of burnout, emotional exhaustion, and work disengagement. The work disengagement dimension is like the depersonalization dimension of burnout as it focuses on negative attitudes or ill will toward work-related experiences (Demerouti, 2008). The OLBI is a 16-item free, self-report survey that uses a combination of positively and negatively worded questions. This measure demonstrates reasonable scale reliability ($\alpha = 0.63$), as well as across the exhaustion and disengagement subscales ($\alpha = 0.87$ and $\alpha = 0.81$, respectively) (Reis et al., 2015). Additionally, studies have found high convergent validity between the MBI (General Scale) and the OLBI (Demerouti et al., 2003; Halbesleben & Demerouti, 2005). Like the ProQOL, few ECEC studies have used this measure.
Copenhagen Burnout Inventory (CBI)

Like that of the OLBI, the CBI was developed in response to differing views on the core components of burnout (Kristensen et al., 2005). The measure is rooted in the understanding that burnout is primarily characterized by emotional exhaustion and impacts three core domains (Shirom, 2005). The domains include personal exhaustion, work-related exhaustion, and client-related exhaustion and offer a combined burnout score. The CBI is a 19-item free, self-report inventory that uses a Likert scale ranging from 0 to 4 (0 means never and 4 means always). The measure demonstrates good reliability for the burnout ($\alpha = 0.936$), as well as among the subscale personal burnout ($\alpha = 0.906$), work-related burnout ($\alpha = 0.765$), and client-related burnout ($\alpha = 0.901$) (Piperac et al., 2021). This is one of the reasons it has been used in numerous studies worldwide. As related to ECEC providers, a recent study demonstrated the instrument was appropriate for use with preschool teachers with good test-retest reliability, strong internal validity, and reasonable construct validity (Piperac et al., 2021). However, to date, few ECEC studies have utilized this measure.

Maslach Burnout Inventory (MBI)

The MBI has been the most widely used measure for burnout research for almost two decades (Dolan et al., 2015; Schaufeli & Enzmann, 1998), appearing in nearly 90 percent of all burnout publications (Boudreau et al., 2015). First published in 1981, the MBI is now in its fourth edition and has been studied in multiple countries and languages (Maslach & Leiter, 2021). Despite its popularity, the MBI is a proprietary tool carrying licensure fees. Fee-bearing measures can be cost-prohibitive for employers and researchers and create barriers to follow-up research and ongoing assessment (Dolan et al., 2015). Nonetheless, the MBI is often considered the gold standard of burnout assessment tools (Kristensen et al., 2005; Schaufeli, 2021).
The MBI has a number of versions, including the 16-item General Scale (MBI-GS), the 22-item Educators Scale (MBI-ES), the 22-item Human Service Survey (MBI-HSS), the 16-item Student scale (MBI-GS (S)), and the 22-item Human Services Survey for Medical Personnel scale (MBI-HSS (MP)). The MBI-GS was created to use in any occupation, while the others are more specific to health and education fields. Regardless of the version, all MBI scales include 3 subscales that assess for emotional exhaustion, depersonalization, and professional accomplishment. Each subscale is rated on a 6-point Likert scale (never to every day). Higher exhaustion and depersonalization and lower professional accomplishment scores on the MBI indicate greater burnout. The three subscales cannot be combined for a single score as the three dimensions of burnout are not highly correlated in a manner that leads to a single burnout score. Additionally, the MBI does not use cut-off scores nor assumes cut-off scores as they have no “diagnostic validity” and are overarching problematic (Mind Garden, n.d.). However, new research has proposed an updated scoring procedure that reveals five potential worker profiles (e.g., burnout, overextended, ineffective, disengaged, and engagement) (Leiter & Maslach, 2016; Maslach & Leiter, 2021). Studies have noted good reliability with Cronbach alpha ratings of 0.90 for emotional exhaustion, 0.76 for depersonalization, and 0.76 for professional accomplishment (Gold, 1984; Iwanicki & Schwab, 1981).

Discussion

To ameliorate the negative impacts of burnout, a number of measures have been created to identify and evaluate this work-related phenomenon. However, the MBI rises to the top as the most used, cited, and researched tool available to date. One reason is that the MBI was created with a particular focus on helping professionals (e.g., nursing, social work) - an employment field plagued by the impacts of emotional labor. The popularity of this measure led to its
recognition and expansion to other professions, as well as students. Although the developers continue to assess and evaluate the effectiveness and equivalence of tool variations, differences may occur when different measures are given to particular groups. With this information in mind, the current study only identifies and analyzes primary studies using a version of the MBI.

**Key Variables Associated with ECEC Burnout**

The current study uses Bronfenbrenner’s developmental bioecological model (Bronfenbrenner, 2005) as it is well-suited to capture the complexity of ECEC provider development. The model provides an organizing framework for variables associated with center-based ECEC burnout. Thus, this study conceptualized variables from proximal to distal to the ECEC provider: individual, occupational, and organizational (Maslach et al., 2001; Shirom, 2003; Simionato & Simpson, 2018; Stamm, 2010). To best reflect the experiences of providers and make the content accessible to the ECEC workforce, these levels are categorized as ECEC-related (individual), child-related (occupational), and work-related (organizational) in this study.

The literature on causes and correlates of burnout is expansive, with much of the research highlighting the impact of work-related factors. However, ECEC-related and child-related factors play an important role in risk and prevention. ECEC-related factors refer to sociodemographic, personality, psychological, adverse, and coping variables. Child-related factors can be understood as sociodemographic factors of children or students, behaviors of children or students, and ECEC-parent interactions. Work-related factors include areas such as work conditions, social relationships, compensation, supervision, emotional experiences, and training. A synthesis of the available evidence on associated factors of burnout among ECEC providers and adjacent professionals, such as mental health providers, child protective workers, and educators, is provided.
ECEC-related Variables

Sociodemographic Variables

Sociodemographic variables, such as age, gender, education level, and experience, are associated with varying levels of occupational stress and burnout. ECEC studies suggest that fewer years in the field and younger age increase burnout (E. Lee et al., 2013; Moon & Lee, 2005; Pavkov & Wells, 2023) and intent to leave (Sandstrom, Benatar, et al., 2020). Pavkov and Wells (2021) reported similar results among early childhood educators suggesting that older age is linked to lower levels of burnout and young age is associated with greater emotional exhaustion. Although early career ECEC providers may be vulnerable to burnout, studies of early childhood home visitors suggest that greater time in the field increases the potential for secondary traumatic stress and burnout (Begic et al., 2019), as well as higher emotional exhaustion and poorer job satisfaction (Gill et al., 2007). This information may suggest that center-based ECEC providers may experience different risk factors than early childhood home visitors.

In the U.S., there is an increased demand for formal early childhood preparation and credentialling, with a bachelor’s degree being the ideal goal of those who aspire to work with children under 5 (Hyson et al., 2012). The literature is rich when it comes to the benefits of attaining formal early childhood education and high-quality programming for young children. Early studies indicate that more education and training were linked to greater personal accomplishment (Manlove, 1993), as well as lower overall burnout (Powell & Stremmel, 1989). More recent studies denote low educational attainment as a systemic challenge impacting ECEC burnout and stress (Logan et al., 2020; Stein et al., 2022).
Gender identity, namely female and male gender, has been studied in burnout research for many years with mixed results. While some studies report no differences in burnout among male and female genders (Gonzalez et al., 2019; Prost & Middleton, 2020), others indicate higher burnout among women (Purvanova & Muros, 2010; Sprang et al., 2007). When it comes to ECEC research, the results are similarly varied. In a Turkish study of early childhood educators, male teachers were found to be more burnt out than their female counterparts (Sak, 2018). More research is needed to understand the impact of sociodemographic factors, such as gender, on burnout.

**Personality Variables**

Evidence indicates that personality characteristics can predict burnout among human services and early childhood providers (Cordes & Dougherty, 1993; Pardess et al., 2014; Simionato & Simpson, 2018; West et al., 2018). Results of a meta-analysis found personality factors such as cognitive rigidity, over-involvement with clients, perfectionism, and neuroticism were associated with greater burnout (Simionato & Simpson, 2018), while extroversion appears to be unrelated (Manlove, 1993) or inversely related to burnout (Clark & Watson, 1999). In a meta-analysis using the Five-Factor Model of personality traits, researchers found emotional exhaustion was linked to negative and positive affectivity, as well as emotional stability (Alarcon et al., 2009). Via a meta-analytic path model, Swider and Zimmerman (2010) found that burnout mediated the relationship between personality characteristics and outcomes (e.g., turnover, absenteeism, and job performance, respectively). As such, occupational and organizational factors of burnout may serve as moderators between personality traits and outcomes (West, 2016).
In a systematic review, West (2015) identified a positive relationship between burnout and insecure adult attachment style among early childhood home visitors. Baugerud and colleagues (2018) corroborated the work by Pardess et al. (2014), finding that anxious attachment was associated with burnout among child protective workers in Norway and Israel, respectively. Pardess et al. (2014) noted that dispositional attachment insecurities were linked to greater compassion fatigue with anxious attachment, more specifically associated with burnout and secondary traumatic stress.

**Coping Factors**

Teacher occupational stress has been shown to increase with perceived student behavior challenges (Jeon & Wells, 2018). As a response, teachers may use suppression strategies to inhibit negative emotions in order to handle immediate stressors in the classroom (Jeon & Wells, 2018; Taylor & Stanton, 2007). Suppression is an avoidance-based emotional regulation strategy focused on inhibiting emotion. While suppression serves as an effective short-term coping skill, it has been linked to burnout and emotional exhaustion (Chang, 2009, 2013). In a study of 1129 classroom-based preschool teachers in the U.S., suppression was associated with unsupportive reactions and responses to children (Jeon et al., 2016). In fact, Chang (2013) found that the active use of avoidance strategies, such as suppression and withdrawal, led to higher rates of burnout among educators.

Conversely, cognitive reappraisal, or re-interpreting arousal, has an inverse relationship with emotional exhaustion (Tsouloupas et al., 2010). One study found that less cognitive reappraisal was associated with poorer supportive responses to children (Jeon et al., 2016). These same authors suggest that emotional regulation strategies, such as cognitive reappraisal, are critical to the quality of early childhood provider responses and reactions to students.
Other coping strategies include *problem-focused* and *emotion-focused coping*. Although neither strategy is inherently good or bad, a meta-analysis found that problem-focused coping was more effective than emotion-focused coping regarding health outcomes (Penley et al., 2002). In regard to early childhood providers, problem-focused coping, or directly dealing with the stressor, is linked to more helpful responses to children’s obstructive emotions (Buettner et al., 2016). Cheuk and colleagues (2011) posit that problem-focused coping would assist preschool teachers in actively changing behavior that may positively impact collegial support.

*Psychological Variables*

A number of studies have examined the relationship between depression and burnout. Although these terms seem to overlap, research has clearly denoted they are distinct and separate constructs (Maslach et al., 2001). Glass, McKnight, and Valdimarsdottir (1993) found that depression as an outcome of burnout was a better model fit than the reverse when using structural equation modeling. In support of this early finding, Moon and Lee (2005) found that burnout was impacted by depression among Korean early childhood educators. Similarly, in a study of Chinese preschool teachers, depression was significantly linked to burnout (Li et al., 2020). These findings are concerning as depressed teachers engage less with children (Hamre & Pianta, 2001) and promote poorer quality child care (Jeon et al., 2014).

*Self-efficacy*, grounded in Bandura’s Social Cognitive Theory (Bandura, 1997), has received considerable attention as an individual protective factor for teachers (Zee & Koomen, 2016). Teacher self-efficacy is often defined as the belief in the ability to execute particular teaching tasks (Kennedy et al., 2021) and is considered one of the most important factors in professional success (Reyhing & Perren, 2021; Zee & Koomen, 2016). Regardless of grade level, research has established that greater self-efficacy among educators results in improvements in
well-being and job satisfaction, as well as reductions in burnout and occupational stress (Skaalvik & Skaalvik, 2007, 2010; Zee & Koomen, 2016). Preliminary research has come to similar conclusions regarding child care workers (Mata & Tarroja, 2022). Accordingly, those in the field with greater self-efficacy perform better (Holzberger et al., 2013; Klassen & Tze, 2014) and are more excited about the work (Allinder, 1994).

Self-efficacy is also subsumed in the higher-order construct of *psychological capital* (*PsyCap*), along with optimism, hope, and resilience (Luthans & Youssef-Morgan, 2004). Psychological capital is often defined as the internal resources individuals develop throughout their lifespan to manage difficult situations (Freire et al., 2020). This positive psychological construct assumes when taken together, the core components of PsyCap are predictive of burnout and play an important role in the professional experience of teachers and ECEC providers (Cheung et al., 2011; Demir, 2018; Ferradás et al., 2019; Freire et al., 2020; Peng et al., 2019a; Zhang et al., 2019). A number of studies on teacher burnout have solidified an inverse relationship between PsyCap and burnout (Cheung et al., 2011; Demir, 2018; Ferradás et al., 2019; Freire et al., 2020; Pu et al., 2017; Zhang et al., 2019), which indicates that PsyCap may be an effective buffer against the negative impacts burnout.

*Job Satisfaction*

Job satisfaction is the positive feeling resulting from how one views their job (Locke, 1976) and is linked to turnover and workplace well-being. Jeon and Wells (2018) found that, regardless of demographic and program characteristics, workplace satisfaction predicted attrition among early childhood educators. With only 34 percent of the early childhood providers feeling satisfied with their work - as compared to nearly half of the national workforce -, job satisfaction may be an important variable in workforce stability (Farewell et al., 2022). When it comes to
burnout, ECEC job satisfaction has long been associated with it and, in turn, linked to attrition (Manlove, 1993; Moon & Lee, 2005). In a recent study, Polishchuk et al. (2022) confirmed the link between burnout and ECEC job satisfaction, finding decreases in job satisfaction were significantly associated with increased burnout.

**Child-Related Variables**

**Sociodemographic Variables**

Child and student factors such as *child age, diagnosis/disability, behavior challenges,* and *socioeconomic status (SES)* have been shown to impact occupational stress and burnout among educators and ECEC providers. Very little, if any, research has been conducted on ECEC provider burnout and child-related factors. Yet, some studies suggest that ECEC providers working with young children with emotional or behavioral challenges experience greater burnout and job stress (Friedman-Krauss et al., 2014; Jeon et al., 2014). Zhai et al. (2011) note that while managing difficult child behaviors is complex for all early childhood providers, it can be especially so for providers working in low-income and urban communities. Systemic oppression and related factors may leave some children in historically underserved and low socioeconomic communities more vulnerable to adverse childhood experiences - increasing the likelihood of emotional and behavioral difficulties (Hamre & Pianta, 2001; Zhai et al., 2011). Additionally, Kvande et al. (2018) found that the likelihood of special education services increased for students with lower SES resulting in feelings of helplessness among educators as these students struggled to meet educational expectations. Given that high job stress is linked to teacher burnout (Goelman & Guo, 1998), there is a reasonable assumption that the stress of supporting youth with emotional, behavioral, and other challenges or disabilities may lead to emotional exhaustion and burnout.
Work-related Variables

Work Conditions

Work conditions have been implicated in the development of burnout among human service professionals (R. T. Lee & Ashforth, 1996; Mor Barak et al., 2001). Although early childhood providers may value working with young children and their families, the work conditions, such as resources, caseload, time constraints, and others, can impact professional well-being (Begic et al., 2019). Even as early as 1996, researchers were noticing that greater workload was linked to emotional exhaustion, the primary dimension of burnout (R. T. Lee & Ashforth, 1996). Large caseloads consisting of many families with high needs have been associated with greater burnout among early childhood home visitors (Begic et al., 2019). In a recent study, Baugerud and colleagues (2018) found that workload significantly predicted burnout among child protection workers in Norway. Like that of ECEC providers, the aforementioned authors explain that child protection workers often carry high caseloads and are overburdened with job-related tasks. However, high caseloads or large class sizes may impact providers differently. Yildiz Çiçekler and colleagues (2020) found that Turkish classrooms often have more children and experience overcrowding, yet U.S. preschool teachers experience comparatively higher levels of burnout as child numbers increase. Nonetheless, work conditions continue to be a probable predictor of burnout among ECEC providers.

Emotional Experiences

Beyond the classroom environment, a dismissive, harmful, and toxic organizational culture and workplace has been shown to increase the risk of burnout, secondary traumatic stress, and intent to leave among early childhood home visitors (Begic et al., 2019; West et al., 2018). Begic and colleagues (2019) note that a supportive work environment sets the stage for
protective factors such as holding appropriate boundaries and healthy compartmentalization on the job. In particular, leadership and management are associated with the organizational climate, thus impacting the quality of care and the stability of the child care workforce (Lower & Cassidy, 2007).

**Supervision**

Of the numerous organizational factors to consider, supervisory support is one of the most critical for early childhood education and care providers. According to Mor Barak et al. (2001) inadequate supervision leads to diminished coping and intent to leave among those who work with high-need populations. In comparison, greater supervisory support is linked to lower burnout (Lee et al., 2013), decreased job stress (Watson & Gatti, 2012), and increased job satisfaction (Mena & Bailey, 2007) in early childhood providers. Interestingly, job satisfaction may be a protective factor against burnout (Smith & Clark, 2011). A growing body of research suggests that supervision positively impacts occupational stress and job satisfaction for early intervention providers (Begic et al., 2019; Gallen et al., 2016; Watson et al., 2014; Watson & Gatti, 2012, Pavkov & Wells, 2023). In a study of 150 early intervention providers, Gallen et al. (2016) found that supervisees who rated their supervisor and related experience higher on the Reflective Supervision Rating Scale experienced lower burnout. Similarly, Begic and colleagues (2019) suggest the quality of the supervisory relationship is often linked to intent to leave, burnout, and secondary traumatic stress among early childhood home visitors.

**Setting**

Early childhood environments may be important predictors of ECEC burnout. Friedman-Krauss et al. (2014) found occupational stress among Head Start and Early Head Start teachers is associated with the center or classroom environment. For instance, elements of classroom
structure and support personnel, such as paraprofessionals, co-teachers, and space, may impact teacher stress (Lambert et al., 2009). Confirming these findings, Jeon and colleagues (2016) note that a chaotic child care setting is linked to poorer coping strategies and diminished cognitive appraisal among preschool teachers. The authors highlight that a reduction in these coping mechanisms may impact the quality of preschool teacher responses to children. However, the full impact of classroom structure on burnout is unknown.

The environmental culture or work climate may be impacted by center type, such as whether the ECEC organization is under public and/or private auspices (Goelman & Guo, 1998). For instance, in the United States, Head Start and public preschools receive more reliable funding leading to higher wages which may impact perceptions of the environment and culture (Jeon & Wells, 2018). Another study suggests early child care providers in for-profit settings report a poorer organizational climate than those in non-profit settings (Lower & Cassidy, 2007). Yet, Head Start and Early Head Start providers support a greater number of high-need youth with challenging behaviors, which is linked to occupational stress (Friedman-Krauss et al., 2014). In contrast, Li and colleagues (2020) found that public school preschool teachers in China were more burnt out than those in private schools. Li et al. (2020) note that Chinese public schools have more oversight and employment expectations than private schools, potentially impacting occupational stress. The authors also report that type of school was a significant predictor of burnout among preschool teachers. These findings support previous research conducted with 881 Brazilian teachers in which public school teachers were found to experience greater burnout (Carlotto, 2011).
Compensation

In the United States, preschool teachers are known to receive poor compensation, administrative support, and appreciation (Boyd, 2015; Goelman & Guo, 1998; Li Grining et al., 2010). Countries with more gender egalitarian policies, like Sweden and Germany, treat ECEC providers with more respect and match that with livable wages, training, and benefits (Collins, 2019). However, many countries continue to view ECEC as a low-wage profession, which is linked to burnout and emotional exhaustion. In a study of job satisfaction and burnout among 333 early childhood teachers in Korea, Moon and Lee (2005) found that low pay was linked to greater exhaustion and poorer job satisfaction. Li and colleagues (2020) found similar outcomes with income being a significant predictor of burnout among Chinese educators. They also found compensation dissatisfaction with burnout among Chinese preschool teachers. Although many U.S. early childhood providers feel good about their jobs, research indicates that they worry about feeding their family and paying the bills because of low wages (Schlieber & McLean, 2020).

Meanwhile, Pavkov and Wells (2021) note a positive association between higher wages and emotional exhaustion among early childhood educators. They posit that this finding may be moderated by other factors, such as workload. Yet another study found that wages were not linked to emotional exhaustion at all but were positively associated with the quality of early childhood educators’ practice (Jeon et al., 2016). The mixed results suggest a need for a more comprehensive understanding of compensation and burnout among ECEC providers.

Social Relationships

Although work-based social support and social relationships are often considered a potential protective factor (Knudsen et al., 2008), the research is mixed regarding the impact on
burnout (Boyas et al., 2015; Maslach et al., 2001; Simionato & Simpson, 2018). Nonetheless, the research identifies various ways collegial support may impact well-being. Among human service providers, social support has been a key factor in predicting intent to leave and turnover (Mor Barak et al., 2001). Australian early childhood providers with greater social support were found to have better well-being (Corr et al., 2015). Nislin and colleagues (2016) note that the quality of collegial relationships was important to ECEC provider well-being. In a study of Polish therapists, Rzeszutek and Schier (2014) found that the perception of social support appeared to be a stronger predictor of burnout than genuine social support. From another perspective, poor relationships at work are just as impactful as positive ones. According to Cheuk and colleagues (2011), preschool teachers in Hong Kong experienced greater depersonalization when spurned by colleagues than elementary and secondary school educators. The authors suggest that being rejected or turned down by peers increases job stress. Similarly, Rentzou (2012) found that poor collegial relationships are associated with emotional exhaustion and depersonalization. Collectively, these studies support Løvgren (2016) results that collegial support is one of the most important correlates of emotional exhaustion among ECEC providers.

**Training and Professional Development**

Among ECEC providers, *professional development and training* are linked to better child engagement, a service outcome goal (Ota et al., 2013). Training may also be a key factor in assisting child care providers in developing better problem-focused coping and managing stress when working with young children (Baumgartner et al., 2009). To support this, Raver and colleagues (2009) note that there is a link between child behavioral issues and teacher stress. As such, these authors posit that the negative link has roots in insufficient training in behavioral management. Similarly, the use of evidence-based therapy approaches has been shown to
decrease compassion fatigue among mental health providers (Craig & Sprang, 2010). In a study of 1121 rural mental health providers, Sprang, Clark, and Whitt-Woosley (2007) found that trauma-informed care training was associated with greater compassion satisfaction. Overall, the research supports ongoing training and professional development for those working with children and vulnerable populations, like ECEC providers, as a buffer against occupational stress.

**Burnout Prevalence among ECEC Providers**

Working with very young children can be stressful. Despite the difficulties of the job, data suggest that many early childhood providers are highly committed to the organizational mission (Pavkov & Wells, 2021). Yet, nearly 70 percent of teachers have exhibited symptoms of burnout during their careers (Garcia-Arroyo et al., 2019), and rates among child care workers have been found to be as high as 56 percent (Koch et al., 2015). In the first study of burnout prevalence among Chinese preschool teachers, Li and colleagues (2020) found over half of educators experienced burnout, with slightly higher rates among male teachers. Over fifty percent of participants in an Italian study of nursery and kindergarten teachers reported emotional exhaustion (53.4%) and depersonalization (cynicism) (50%) (Converso et al., 2015). Adjacent to burnout, Clipa and Boghean (2015) report that over 95 percent of Romanian preschool teachers studied perceived their job as very stressful. In South America, elementary school educators in countries such as Brazil and Venezuela report increasing rates of burnout (29% and 21%, respectively) (Batista et al., 2010; Fernandez, 2007). These results suggest that burnout is a worldwide phenomenon that impacts ECEC providers in various ways. Further research is needed to better understand the prevalence and correlates as related to regions of the world.
Interventions for ECEC Burnout

There are few burnout interventions for center-based early ECEC providers. However, research has suggested that mindfulness-based training is a promising approach to mitigating the impacts of burnout (Roeser et al., 2013). Originating from ancient Eastern and Buddhist philosophy, mindfulness is a deliberate practice of nonjudgmental, present-focused awareness popularized in behavioral and health sciences (Thomas & Otis, 2010). According to Abenavoli and colleagues (2013), mindfulness is inversely linked to burnout among educators. Furthermore, research indicates that mindfulness-based practices are associated with increased retention (Sandstrom, Willenborg, et al., 2020) among early childhood home visitors. In a randomized control trial of 113 elementary and high school educators in North America, the mindfulness intervention condition demonstrated statistically significant declines in occupational stress and burnout than the control group in the U.S. and only a marginally significant difference among Canadian educators (Roeser et al., 2013). Although more specific research is needed, the data to date indicates mindfulness training and interventions may be helpful in mitigating the effects of burnout for ECEC providers.

Among mental health providers, the use of evidence-based practices or empirically tested interventions that demonstrate evidence of improved psychological symptoms has been shown to alleviate compassion fatigue and burnout (Craig & Sprang, 2010). A recent pre-post single group design study of Irish educators (N = 368), most of whom taught children four to seven years of age, found similar results (Kennedy et al., 2021). The authors investigated the impacts of evidence-based classroom management program training on burnout and psychological well-being. The study found a significant improvement in the burnout dimension of professional accomplishment and a smaller, yet significant, reduction in emotional exhaustion. The authors
suggest that evidence-based training and practice is a promising strategy to support educator well-being and buffer against burnout.

Ongoing education and professional training may buffer against the impacts of burnout. Roberts et al. (2020) explored the impacts of online professional training to mitigate the risks of burnout for U.S. preschool teachers. This randomized control study of 89 early childhood educators assigned participants to one of four groups: an Effective Classroom Interactions Course (Online), a Coaching Condition, a Reflective Writing Condition, and a control group. Professional training yielded greater impacts than the other conditions.

Summary

Although little research has been conducted on interventions for burnout and compassion fatigue, a good deal of data exists on the antecedents and determinants of burnout. Yet, the above review of the literature highlights the gap in the research regarding burnout among center-based ECEC providers. Although the existing literature suggests that ECEC-, child-, and work-related factors impact burnout, a clear understanding of which factors are highly associated with burnout among center-based ECEC providers is absent. Identifying the most salient correlates of burnout would help to inform initiatives that support a stable and resilient center-based ECEC workforce.

Prior theory and research on educators, mental health providers, and ECEC providers offer some guidance on the most salient risk and protective factors. As reviewed above, the research highlights several ECEC-related factors that play a role in occupational stress such as sociodemographic, coping, self-efficacy, personality, satisfaction, and psychological factors. Child-provider interactions have also been linked to professional well-being. Particularly, child behavior, disability, and socioeconomic status appear to be associated with increases in job stress. Alongside child-related factors, research has shown environmental and work-related
characteristics, including workload, supervision, compensation, social support, setting, support personnel, emotional experiences, and training, to be linked to employee wellness. In sum, these factors provide a roadmap but do not clarify the relationship between burnout and center-based ECEC providers. Moreover, understanding which characteristics are highly associated with burnout may open the door to opportunities for improvements and new evidence-based, trauma-informed interventions in the workforce development of early educators.
CHAPTER THREE

METHODOLOGY

Introduction

A systematic review and meta-analysis was conducted to examine and quantitatively synthesize studies focusing on ECEC-, child-, and work-related factors and burnout among center-based early childhood educators and care (ECEC) providers to apprise policy and practice.

Systematic review methodology was used to organize and prioritize the empirical data in the existing literature in order to clarify the harmful and protective correlates of burnout as they impact ECEC providers. As Petticrew and Roberts (2006) note, more can be learned in service of policy and practice by synthesizing the data of many studies and examining the base evidence. Systematic reviews utilize a clear, rigorous process for delineating, coding, and analyzing relevant studies when there is uncertainty in the overarching view of the evidence. As such, systematic reviews strive to provide a balanced, up-to-date overview of a collection of primary studies (Higgins et al., 2019). This approach offers the benefits of identifying research gaps and future directions, as well as providing early recognition of potential interventions (Petticrew & Roberts, 2006).

Systematic reviews should include and involve stakeholders and those impacted by the review. Higgins and colleagues (2019) note the involvement of consumers and stakeholders can “increase relevance, promote mutual learning, and decrease research waste.” Best practice in the process of systematic review question development calls for the input of stakeholders and
consumers (Higgins et al., 2019; Petticrew & Roberts, 2006). In the current study, the following diverse, credible, and relevant stakeholders contributed to question development and protocol development.

- Early childhood content experts and researchers in the United States and Australia
- Regional senior director of research for a national early childhood education agency
- Director of training for a state early childhood agency
- Coordinator of a local early childhood program
- Early childhood educators and care providers

Systematic reviews and meta-analyses offer a structured, explicit approach to evaluating research that bridles the limitations of traditional, narrative summaries. Narrative reviews and vote counting utilizes nonobvious processes making bias difficult to detect and the value of results challenging to interpret (Littell et al., 2008). These methods determine results by tallying statistically significant positive results regardless of sample size. Given the inability to determine the magnitude or direction of significance tests, these results may be inaccurate or misleading (Card, 2012; Littell et al., 2008). Unlike narrative and vote-counting methods, meta-analyses use statistical methods to summarize the results of studies. One benefit of meta-analysis over a narrative approach is the focus on relevant facts by the reviewers, minimizing review bias (Bushman & Wells, 2001; Petticrew & Roberts, 2006). Narrative reviews are also not equipped to account for moderators. Moderator analysis assists in determining the generalizability of the results and helps determine which factors are the most supportive to the population at hand (Littell et al., 2008).
The current study utilized the gold-standard tool for transparent and thorough reporting of systematic reviews and meta-analyses, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for protocols checklist (Page et al., 2021). As such, the methods section includes exclusion and inclusion criteria, as well as detailed information on database searches, data collection, the data extraction process, and statistical methods used.

**Eligibility Criteria**

Specific inclusion and exclusion criteria are detailed below. Studies were included in this review and meta-analysis if all criteria were met.

**Participants/Population**

Center-based early childhood education and care (ECEC) providers were included in this review. Home visitors, family-based child care, and parental or relative care were excluded from the review. This study specifically focused on center-based ECEC providers because they have the most closely related environmental and professional experiences. Providers outside of these settings, particularly those that go into the home, have different experiences, as well as risk and protective factors.

**Intervention**

Not applicable (this review looks at the factors associated with burnout in center-based early childhood education and care providers)

**Comparator/Control**

Not applicable.

**Outcomes**

The primary objective of this review was to assess the information on variables of burnout among center-based early childhood education and care providers.
1. Burnout outcomes as measured by Maslach Burnout Inventory (MBI)

2. ECEC-related (individual), child-related (occupational), or work-related (organizational) variables of burnout.

Types of Studies

The current study included cross-sectional research to identify ECEC-, child-, and work-related variables of burnout among ECEC providers providing services to infants through preschool. Petticrew and Roberts (2006) suggest specifically focusing on retrospective studies, such as cross-sectional studies, when exploring risk and protective factors in a systematic review and meta-analysis. Studies included those using the Maslach Burnout Inventory (MBI) that assess emotional exhaustion and/or all three dimensions of burnout (e.g., emotional exhaustion, depersonalization, and personal accomplishment). Studies that report the correlation coefficients between ECEC-, child-, and work-related factors and any of the three burnout dimensions (i.e., emotional exhaustion, depersonalization, or professional efficacy) were included. Studies that used a measure of burnout conceptually different than the MBI, such as the Copenhagen Burnout Inventory (CBI), Oldenburg Burnout Inventory (OBI), or Professional Quality of Life Scale (ProQOL; Stamm, 2010) were excluded. Studies that solely reported the total MBI score were excluded from the review as calculating a total score confounds the construct and diminishes the reliability of the scale (Maslach et al., 2001).

Geographical Context

There were no geographical limitations in this review. Although searching for literature in all languages is an ideal practice to minimize language bias, research demonstrates that the inclusion of English-only studies has minimal impacts on the results or conclusion of most
systematic reviews (Dobrescu et al., 2021; Hartling et al., 2017; Pham et al., 2005). Due to the feasibility of the study, only studies published or accessible in English were included.

**Time Period**

The review included studies published over the past two decades, from January 1st, 2002, to December 30th, 2022, to ensure relevance to the ECEC providers today.

**Search Strategy**

A robust, pre-defined search strategy was implemented to identify studies that meet the inclusion criteria. Forward and backward searches were used to identify and retrieve eligible studies for the review. The search strategy and initial screening are included in the following sections.

**Information Sources**

In collaboration with the librarian through Northern Illinois University, three databases were identified as most relevant for this review. Table 1 details the databases, and Table 2 specifies the initial keyword searches within each database.

**Table 1**

<table>
<thead>
<tr>
<th>Information sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Databases</td>
</tr>
<tr>
<td>1.) ERIC (OVID)</td>
</tr>
<tr>
<td>2.) PsychINFO</td>
</tr>
<tr>
<td>3.) Google Scholar</td>
</tr>
</tbody>
</table>
Table 2

*Initial keyword search strategy*

<table>
<thead>
<tr>
<th>Concept</th>
<th>Concept List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnout</td>
<td>Burnout OR burn-out OR burn out OR emotional exhaustion</td>
</tr>
<tr>
<td>Early Childhood</td>
<td>Early childhood OR preschool OR nursery school</td>
</tr>
</tbody>
</table>

Additionally, reference lists of prior reviews and meta-analysis related to burnout, emotional exhaustion, and occupational stress among adjacent professionals were reviewed for relevant studies. Research indicates that the inclusion of dissertations has minimal impacts on results and could lead to overestimates in systematic reviews (*Hartling et al.*, 2017). Similarly, unpublished literature is often excluded during the systematic review process and rarely impacts the outcomes of the review (*Hartling et al.*, 2017). As such, only published studies were included in this review, and dissertations were excluded.

**Initial Screening**

Distiller SR (*Evidence Partners, 2021*), a systematic review software, was used throughout the review process. Using Distiller SR, articles located during the search process were assessed for relevance for this review based on the information in the title and abstract. Articles located in reference lists were assessed for relevance based on the study title. Duplicate studies were removed. Using Distiller SR, article titles, citations, and inclusion decision information were documented. When a study title, abstract, or keywords warranted inclusion, the full text was obtained and reviewed using the Screening Form to confirm inclusion (see Appendix A). All full texts were stored in Distiller SR. A full report was compiled of identified,
screened, and included studies utilizing the PRISMA flow chart for data extraction (See appendix C).

**Data Extraction**

Fourteen studies met the criteria and were included in this study (Aldhafri, 2016; Ansari et al., 2022; Buyukbayraktar & Temiz, 2015; Carson et al., 2010; Cech et al., 2021; J. Kim et al., 2022; Peng et al., 2019b; Polishchuk et al., 2022; Rentzou, 2015; Tasic et al., 2020; Turhan & Ergel, 2015; Višnjić Jevtić & Halavuk, 2021; Yoleri, 2018; Zhou & Li, 2021). Relevant study information was extracted from each article that met inclusion criteria using a detailed coding guide developed collaboratively with the research team (Appendix B). In circumstances where insufficient information was available to compute an effect size or valuable study information is missing, if possible, the study authors were contacted to acquire the missing information. For instance, in cases where appropriate studies only indicated linear regression results of unstandardized B or standardized β, the research authors were contacted to solicit pairwise correlation data.

Using Distiller SR, this author and research assistant coded the following variables: age, gender, burnout measures, experience, education, related variables, and correlation coefficients between dimensions of burnout and related variables. Per the inclusion criteria, this study only looked at research utilizing versions of the Maslach Burnout Inventory (MBI) or studies that exclusively used the emotional exhaustion scale of the MBI. The subscales generate independent scores wherein higher scores on the emotional exhaustion and depersonalization subscales indicate greater burnout, while higher scores on the personal accomplishment subscale indicate positive attitudes (Mind Garden, n.d.). This author and the research assistant reverse-coded seven studies (Aldhafri, 2016; Buyukbayraktar & Temiz, 2015; J. Kim et al., 2022; Peng et al., 2019b;
Polishchuk et al., 2022; Turhan & Ergel, 2015; Yoleri, 2018) that evaluated personal accomplishment as reduced personal accomplishment in the primary research. Using Bronfenbrenner’s (2005) developmental bioecological model as an organizing framework, this study categorized variables as ECEC-, child-, and work-related. Similar systematic review and meta-analyses, including Park and Shin (2020) and Brunsting et al. (2014)’s work on special education teachers, utilized a similar approach to organizing variables in evaluating burnout.

This study included ECEC provider age, education, children, marital status, experience, positive psychological capital, adverse factors, job satisfaction, personality factors, and self-efficacy as ECEC-related variables and work conditions, social relationships, and center type as work-related variables. When too few variables were available to be categorized, or variables could not be categorized under specific variable groups, they were categorized under “other.” As such, child-related variables were categorized under other.

Other ECEC-related variables included Big Five personality traits, valence, amiability, temperaments, self-directedness, and self-transcendence - these were categories under “other personality” variables. Similarly, gender, coping, physical activity, commitment, emotional labor, personal characteristics, and education were categorized under “other factors” for ECEC-related variables. Other child-related variables included instructional strategies, activity setting, and relationship with parents. Other work-related variables included mobbing (workplace harassment), physical activity, number of teachers, accommodations for disabilities, and fairness.

All eligible studies were coded by a doctoral candidate (the author) and a research assistant. Prior to initial coding, this author provided training to the research assistant and engaged in pilot coding of four articles to assess for inter-rater reliability. The coders initially achieved a Kappa of 0.95 after independently coding four articles. The coders reviewed the
disagreements and resolved the issue through discussion of the definition of variables. In the second coding, there was 100% agreement. After training, the two coders independently coded all articles included in this study and cross-checked the completed coding. The average Kappa for inter-rater reliability was 0.96. The two coders reviewed dissimilar information by rechecking the full text together until 100% agreement was achieved on all coding variables. Although not utilized, if an agreement could not be settled on, a third research team member was available to provide assistance.

**Computing Effect Sizes**

Pearson’s r was used as the effect size index by examining the ECEC burnout and related variables. When studies reported linear regression data, we reached out to authors to request pairwise correlations.

Following Borenstein et al.’s (2009) recommendations, correlation coefficients were converted to Fisher’s Z scale. Then the meta-analysis was performed using the transformed Fisher’s Z values. Fisher’s Z transformation is a way to transform the sampling distribution of Pearson’s r so that it is normally distributed. To conduct a correlation analysis of independent groups with different sample sizes, the r values must be transformed to comparable values, such as a z score. In this study, the correlation coefficients were converted to Fisher’s Z scale using the following formula: $z_r = (0.5)\ln((1+r) / (1-r))$. The formula transforms Pearson’s correlation coefficient (r) into a value ($z_r$) that is used to calculate a confidence interval for the correlation coefficient. Without this statistical approach, a reliable confidence interval for Pearson’s correlation could not be achieved.
Analysis was conducted using the computer software Comprehensive Meta-Analysis (CMA) Version 4 (Borenstein et al., 2022). The CMA software computes Fisher’s Z using the most appropriate formula based on available data from each study.

**Statistical Analysis of Effect Sizes**

Random effects modeling was the statistical model used for analysis. Heterogeneity was handled using Forest plots, as well as random effects modeling to compute the pooled mean effect size due to the assumed differences in design and sample of studies. Random effects modeling aims to generate results with more generalizability (Littell et al., 2008). Littell and colleagues (2008) suggest that random effects modeling is the best fit for addressing heterogeneity if studies vary in influential effects. Given that the studies included in this meta-analysis vary in population characteristics, specific outcome measures, and measurement tools, a random effects model was appropriate for this analysis.
CHAPTER FOUR

RESULTS

Using the search mentioned above process, 123 studies were initially identified for full-text examination (Appendix B). A thorough evaluation of these texts yielded fourteen studies that fit the eligibility criteria. Data derived from the fourteen studies were analyzed, and the outcomes are discussed in this chapter. To best understand the data, this chapter will open with descriptive information on study characteristics and participants. The results of the meta-analysis are shared along with an assessment of publication bias.

Study Characteristics and Forest Plots

Table 3 displays a summary of study features of the fourteen included studies that examined ECEC burnout as related to ECEC-, child-, and work-related variables. Per the inclusion criteria, all studies adopted a cross-sectional, quantitative design. They represented research conducted in 10 countries. The World Health Organization (WHO) divides the world into six regions for the purpose of research and reporting (World Health Organization (WHO), n.d.). Utilizing the WHO regions, two studies were conducted in the Region of the Americas (United States). The majority of the studies were conducted in the European Region (50%). While three studies were completed in the Western Pacific Region (China and South Korea) and one in the Eastern Mediterranean Region (Oman). The publication dates spanned approximately
Table 3

**Summary of Study Characteristics**

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>N</th>
<th>Age years (n)</th>
<th>Gender</th>
<th>Years of experience (n)</th>
<th>Education</th>
<th>Related Variables</th>
<th>Measure</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldhafri (2016)</td>
<td>31</td>
<td>NR</td>
<td>319 F</td>
<td>5.09</td>
<td>NR</td>
<td>SE</td>
<td>MBI</td>
<td>Oman</td>
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<td>Ansari et al. (2022)</td>
<td>11</td>
<td>15.68</td>
<td>NR</td>
<td>15.68</td>
<td>NR</td>
<td>O</td>
<td>MBI</td>
<td>United States</td>
</tr>
<tr>
<td>Buyukbayraktar et al. (2015)</td>
<td>82</td>
<td>21-25 (16), 26-30 (15), 31-35 (19), 36-40 (15), 41+ (17)</td>
<td>77 F, 5 M</td>
<td>NR</td>
<td>69.7 O</td>
<td>P</td>
<td>MBI-ES</td>
<td>Turkey</td>
</tr>
<tr>
<td>Carson et al. (2010)</td>
<td>18</td>
<td>33.63</td>
<td>188 F, 1 M</td>
<td>8.19</td>
<td>58.59</td>
<td>AD, 13.23 ECC, 117.8 O</td>
<td>MBI-ES (EE)</td>
<td>United States</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Age Range</td>
<td>Gender</td>
<td>Number, Mean (CI)</td>
<td>Disability</td>
<td>Country</td>
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<td>Čech et al. (2021)</td>
<td>90</td>
<td>26-35</td>
<td>M, F</td>
<td>89, 1 (14.04),</td>
<td>0-1 (3.96)</td>
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<td></td>
<td></td>
<td>-55</td>
<td></td>
<td></td>
<td>5-10 (14.04),</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>56-65</td>
<td></td>
<td></td>
<td>26-35 (14.04),</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>65-75</td>
<td></td>
<td></td>
<td>35+ (16.02),</td>
<td></td>
<td></td>
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<tr>
<td>Kim et al. (2021)</td>
<td>49</td>
<td>&lt;25</td>
<td></td>
<td>NR</td>
<td>&lt;1 (53), 10+</td>
<td>MBI-ES</td>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>26-30</td>
<td></td>
<td></td>
<td>5 (110)</td>
<td></td>
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<td></td>
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<td>31-35</td>
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<td>26-40 (126),</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>36-40</td>
<td></td>
<td></td>
<td>35-55 (12.7),</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>41-45</td>
<td></td>
<td></td>
<td>41-45 (52),</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Peng et al. (2019)</td>
<td>35</td>
<td>26.24</td>
<td></td>
<td>355 F, 4.27</td>
<td>NR</td>
<td>MBI-ES</td>
<td>China</td>
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<tr>
<td>Polishchuk et al. (2022)</td>
<td>90</td>
<td>NR</td>
<td></td>
<td>NR</td>
<td>NR</td>
<td>MBI-ES</td>
<td>Ukraine</td>
<td></td>
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<tr>
<td>Rentzou et al. (2012)</td>
<td>10</td>
<td>30</td>
<td></td>
<td>NR</td>
<td>10.94</td>
<td>MBI-ES</td>
<td>Greece</td>
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</tr>
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</table>
Table 3 continued

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Age Range</th>
<th>Gender Distribution</th>
<th>Role Distribution</th>
<th>Measure</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasic et al. (2020)</td>
<td>30</td>
<td>38.5</td>
<td>302 F</td>
<td>11</td>
<td>39 AD, 261 O</td>
<td>MBI - GS</td>
</tr>
<tr>
<td>Turhan et al. (2015)</td>
<td>39</td>
<td>NR</td>
<td>339 F, 57 M</td>
<td>NR</td>
<td>NR</td>
<td>MBI</td>
</tr>
<tr>
<td>Višnjić Jevtić et al. (2021)</td>
<td>45</td>
<td>18-65</td>
<td>452 F, 4 M</td>
<td>438 AD, 18 O</td>
<td>JS, A, E, PC, O</td>
<td>MBI-ES</td>
</tr>
<tr>
<td>Yoleri (2018)</td>
<td>13</td>
<td>NR</td>
<td>130 F</td>
<td>NR</td>
<td>NR</td>
<td>OP</td>
</tr>
<tr>
<td>Zhou and Li (2021)</td>
<td>94</td>
<td>NR</td>
<td>896 F, 48 M</td>
<td>797 AD, 147 O</td>
<td>AO, O</td>
<td>MBI-ES</td>
</tr>
</tbody>
</table>

Note. F = female, M = male, NR = none reported, AD = academic degree, ECC = early childhood certificate/credential, O = other, Ec = ECEC-related variable, Ch = child-related variable, Wo = work-related variable, MBI = Maslach Burnout Inventory undefined, MBI-ES, Maslach Burnout Inventory for Educators, MBI-GS = Maslach Burnout Inventory General, EE = Emotional exhaustion subscale, WC = work conditions, SR = social relationships, CT = center type, JS = job satisfaction, A = age, M = marital status, C = children, PC = psychological capital, SE = self-efficacy, P = perfectionism, OP = other personality factors, AO = adverse ECEC variables.
twelve years, from 2010 to 2022, with five studies published prior to 2017 and nine published after 2017.

A total of 4,074 ECEC providers were included in the meta-analysis. Sample sizes ranged from 82 to 944. Ten studies reported gender. Of the 3,202 ECEC-reported samples, 3,086 (96%) were female, and 116 (4%) were male. Nine studies reported sample ages, with five of those studies reporting the mean age of participants. ECEC participant ages ranged from 18 to 65, with a mean of 28.81 years old. Similarly, nine studies reported ECEC providers' years of experience. Three of the studies provided disaggregated data on years of experience, while six offered mean years of experience. Experience ranged from 0 to 35+ years, with an average of 9.2 years. Seven studies reported the education level of ECEC providers. Of those studies, 73% had an academic degree (e.g., bachelor’s degree, master’s degree), 24% had other educational attainment below a bachelor’s degree, and 1% had an early childhood certification or credential.

The current study evaluated research that utilized a version of the Maslach Burnout Inventory (MBI). All studies used the full MBI scale or the MBI emotional exhaustion subscale. Ten of the studies specified that the Maslach Burnout Inventory - Educator Scale (MBI-ES) was used. Three studies did not indicate which MBI was used, and one used the Maslach Burnout Inventory - General Scale (MBI-GS).

Tables 4, 5, and 6 provide a graphical overview of the findings in the form of forest plots. The results of meta-analyses are typically represented in the form of forest plots to convey clearly and easily a large amount of data from a review. Forest plots show the point estimate and confidence intervals from each analysis using a box and horizontal line plot offering a visual assessment of statistical significance (Dettori et al., 2021). The overall effects and the specific confidence intervals for each variable category is represented Tables 4, 5, and 6. Each figure
shows different ranges of effect sizes for each ECEC-, child-, and work-related variable. Given
the continuous outcome measures, the line of no effect is zero on each plot. When box and
horizontal lines cross do not cross over the line of no effect, there is statistical significance. For
instance, the ECEC-related variable, job satisfaction, is statistically significant as the point
estimate and confidence intervals do not cross over zero, the line of no effect. In other words,
forest plots provide an alternative view of essential data to inform the interpretation of results
(Dettori et al., 2021).

**Correlation Effects of ECEC-related Variables**

**Sociodemographic Variables**

Most sociodemographic variables, such as *age, children, experience, and marital status*,
were variably linked to the dimensions of burnout as demonstrated in Tables 7. For instance, no
sociodemographic factors were determined to have a significant association with emotional
exhaustion. Regarding depersonalization, *experience* (Fisher’s Z = 0.103, 95% CI = [0.002,
0.204]) was the only sociodemographic variable shown to have a positive association (Table 7).
The data suggests that more years of experience is linked to greater depersonalization.
Interestingly, *age* was positively correlated with personal accomplishment, indicating that
positive attitudes regarding efficacy at work increase as age increases.

**Job Satisfaction**

The data reveals a statistically significant relationship between *job satisfaction* and
burnout, as well as between positive psychological capital and burnout as shown in Table 7. As
job satisfaction increases, emotional exhaustion (Fisher’s Z = -0.476, 95% CI = [-0.555, -0.398])
### Table 4

*A Forest Plot of Emotional Exhaustion*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fisher’s Z</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>Z-Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECEC-Related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.090</td>
<td>-0.072</td>
<td>0.253</td>
<td>1.091</td>
<td>0.275</td>
</tr>
<tr>
<td>Experience</td>
<td>0.118</td>
<td>-0.003</td>
<td>0.239</td>
<td>1.913</td>
<td>0.056</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>-0.476</td>
<td>-0.555</td>
<td>-0.398</td>
<td>-11.926</td>
<td>0.000</td>
</tr>
<tr>
<td>Children</td>
<td>0.072</td>
<td>-0.003</td>
<td>0.147</td>
<td>1.894</td>
<td>0.058</td>
</tr>
<tr>
<td>PsyCap</td>
<td>-0.416</td>
<td>-0.485</td>
<td>-0.347</td>
<td>-11.812</td>
<td>0.000</td>
</tr>
<tr>
<td>Adverse Factors</td>
<td>0.401</td>
<td>-0.080</td>
<td>0.882</td>
<td>1.632</td>
<td>0.103</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-0.159</td>
<td>-0.368</td>
<td>0.050</td>
<td>-1.491</td>
<td>0.136</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>-0.214</td>
<td>-0.366</td>
<td>-0.062</td>
<td>-2.753</td>
<td>0.006</td>
</tr>
<tr>
<td>Other Personality</td>
<td>0.059</td>
<td>-0.276</td>
<td>0.393</td>
<td>0.343</td>
<td>0.732</td>
</tr>
<tr>
<td>Other Factors</td>
<td>-0.085</td>
<td>-0.281</td>
<td>0.112</td>
<td>-0.846</td>
<td>0.398</td>
</tr>
<tr>
<td><strong>Child-Related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Factors</td>
<td>-0.036</td>
<td>-0.097</td>
<td>0.026</td>
<td>-1.123</td>
<td>0.262</td>
</tr>
<tr>
<td><strong>Work-Related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Conditions</td>
<td>-0.536</td>
<td>-0.870</td>
<td>-0.201</td>
<td>-3.139</td>
<td>0.002</td>
</tr>
<tr>
<td>Social Relations</td>
<td>-0.371</td>
<td>-0.476</td>
<td>-0.265</td>
<td>-6.867</td>
<td>0.000</td>
</tr>
<tr>
<td>Center Type</td>
<td>0.169</td>
<td>0.081</td>
<td>0.257</td>
<td>3.764</td>
<td>0.000</td>
</tr>
<tr>
<td>Other Factors</td>
<td>-0.068</td>
<td>-3.147</td>
<td>3.011</td>
<td>-0.534</td>
<td>0.594</td>
</tr>
</tbody>
</table>

**Note.** PsyCap = positive psychological capital; Social Relations = social relationships; CI = confidence interval.
Table 5

*A Forest Plot of Depersonalization*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fisher’s Z</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>Z-Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECEC-Related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.042</td>
<td>-0.108</td>
<td>0.192</td>
<td>0.545</td>
<td>0.586</td>
</tr>
<tr>
<td>Experience</td>
<td>0.103</td>
<td>0.002</td>
<td>0.204</td>
<td>2.008</td>
<td>0.045</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>-0.392</td>
<td>-0.518</td>
<td>-0.265</td>
<td>-6.055</td>
<td>0.000</td>
</tr>
<tr>
<td>Children</td>
<td>0.054</td>
<td>-0.086</td>
<td>0.194</td>
<td>0.756</td>
<td>0.450</td>
</tr>
<tr>
<td>PsyCap</td>
<td>-0.414</td>
<td>-0.483</td>
<td>-0.345</td>
<td>-11.756</td>
<td>0.000</td>
</tr>
<tr>
<td>Marital Status</td>
<td>0.142</td>
<td>-0.186</td>
<td>0.471</td>
<td>0.850</td>
<td>0.395</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-0.338</td>
<td>-0.602</td>
<td>-0.074</td>
<td>-2.509</td>
<td>0.012</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>-0.397</td>
<td>-0.784</td>
<td>-0.010</td>
<td>-2.008</td>
<td>0.045</td>
</tr>
<tr>
<td>Other Personality</td>
<td>-0.221</td>
<td>-0.434</td>
<td>-0.007</td>
<td>-2.028</td>
<td>0.043</td>
</tr>
<tr>
<td>Other Factors</td>
<td>-0.082</td>
<td>-0.235</td>
<td>0.070</td>
<td>-1.058</td>
<td>0.290</td>
</tr>
<tr>
<td>Child-Related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Factors</td>
<td>-0.036</td>
<td>-0.097</td>
<td>0.026</td>
<td>-1.123</td>
<td>0.262</td>
</tr>
<tr>
<td>Work-Related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Conditions</td>
<td>-0.308</td>
<td>-0.389</td>
<td>-0.226</td>
<td>-7.412</td>
<td>0.000</td>
</tr>
<tr>
<td>Social</td>
<td>-0.326</td>
<td>-0.586</td>
<td>-0.065</td>
<td>-2.450</td>
<td>0.014</td>
</tr>
</tbody>
</table>

*Note.* PsyCap = psychological capital; CI = confidence interval.
Table 6

*A Forest Plot of Personal Accomplishment*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fisher’s Z</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>Z-Value</th>
<th>p-value</th>
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<tr>
<td><strong>ECEC-Related</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.091</td>
<td>0.004</td>
<td>0.177</td>
<td>2.052</td>
<td>0.040</td>
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<tr>
<td>Experience</td>
<td>0.048</td>
<td>-0.010</td>
<td>0.106</td>
<td>1.629</td>
<td>0.103</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>0.336</td>
<td>0.204</td>
<td>0.467</td>
<td>4.999</td>
<td>0.000</td>
</tr>
<tr>
<td>Children</td>
<td>-0.003</td>
<td>-0.112</td>
<td>0.117</td>
<td>-0.045</td>
<td>0.964</td>
</tr>
<tr>
<td>PsyCap</td>
<td>0.380</td>
<td>0.311</td>
<td>0.449</td>
<td>10.784</td>
<td>0.000</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.333</td>
<td>0.257</td>
<td>0.409</td>
<td>8.607</td>
<td>0.000</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>-0.158</td>
<td>-0.310</td>
<td>-0.006</td>
<td>-2.035</td>
<td>0.042</td>
</tr>
<tr>
<td>Other Personality</td>
<td>-0.074</td>
<td>-0.470</td>
<td>0.322</td>
<td>-0.365</td>
<td>0.715</td>
</tr>
<tr>
<td>Other Factors</td>
<td>0.070</td>
<td>-0.047</td>
<td>0.186</td>
<td>1.172</td>
<td>0.241</td>
</tr>
<tr>
<td><strong>Work-Related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Conditions</td>
<td>0.087</td>
<td>-0.229</td>
<td>0.403</td>
<td>0.541</td>
<td>0.589</td>
</tr>
<tr>
<td>Social Relations</td>
<td>0.428</td>
<td>0.109</td>
<td>0.746</td>
<td>2.632</td>
<td>0.008</td>
</tr>
<tr>
<td>Other Factors</td>
<td>0.085</td>
<td>-0.086</td>
<td>0.257</td>
<td>0.974</td>
<td>0.330</td>
</tr>
</tbody>
</table>

*Note.* PsyCap = psychological capital; Social Relations = social relationships; CI = confidence interval.
and depersonalization (Fisher’s $Z = -0.392$, 95% CI = [0.004, -0.518]) decrease, and personal accomplishment (Fisher’s $Z = 0.336$, 95% CI = [-0.204, -0.467]) increases (Table 7).

**Psychological Capital**

As *Psychological capital* (self-efficacy, hope, optimism, and resilience) increases, there is a reduction in emotional exhaustion (Fisher’s $Z = -0.416$, 95% CI = [-0.485, -0.347]) and depersonalization (Fisher’s $Z = -0.414$, 95% CI = [-0.483, -0.345]) and greater sense of personal accomplishment (Fisher’s $Z = 0.380$, 95% CI = [0.311, 0.449]) (Table 7).

**Self-Efficacy**

Research suggests that *self-efficacy* is a buffer against work-related stress (Bernales-Turpo et al., 2022). Although this study does not show a statistically significant correlation between self-efficacy and emotional exhaustion, the data does demonstrate a significant inverse relationship with depersonalization (Fisher’s $Z = -0.338$, 95% CI = [-0.602, -0.074]) and a positive relationship with personal accomplishment (Fisher’s $Z = 0.333$, 95% CI = [0.357, 0.409]) (Table 7).

**Adverse Individual Variables**

Workaholism, absenteeism, work-to-family conflict, attrition, and work migration were subsumed under *adverse variables* due to the limited data available for these categories. According to the analysis, adverse factors are not statistically significantly associated with emotional exhaustion, a core dimension of burnout.

**Personality Variables**

Surprisingly, *perfectionism* had a statistically significant inverse relationship with emotional exhaustion (Fisher’s $Z = -0.214$, 95% CI = [-0.366, -0.062]), depersonalization (Fisher’s $Z = -0.397$, 95% CI = [-0.784, -0.010]), and personal accomplishment (Fisher’s $Z =$ -
0.158, 95% CI = [-0.310, -0.006]) (Table 7). This data suggests that as perfectionism increases, emotion exhaustion, and depersonalization decrease. Personal accomplishment, on the other hand, increases when perfectionism decreases. Other personality factors (Fisher’s Z = -0.227, 95% CI = [-0.434, -0.007]), such as Big Five traits (e.g., extraversion, openness, conscientiousness, neuroticism, and agreeableness) temperament, and valence, had a statistically significant negative association with depersonalization (Table 7).

**Other Variables**

*Other ECEC-related variables* included gender, coping, physical activity, commitment, emotional labor, personal characteristics, and education. These other ECEC-related factors were not statistically significantly associated with any dimension of burnout.

**Correlation Effects of Child-related Variables**

**Other Variables**

Few studies investigated child-related variables such as child age, disability, socioeconomic status, student number, and other factors. Of the data available, *other variables* included instructional strategies, relationships with parents, and activity settings. Given there was too little data to analyze variables by specific categories, these factors were subsumed under “other.” This study does not show a statistically significant relationship between other child-related variables and the dimensions of burnout as shown in Table 8.

**Correlation Effects of Work-related Variables**

**Organizational Variables**

Most notably, *work conditions* revealed a statistically significant inverse relationship between emotional exhaustion (Fisher’s Z = -0.536, 95% CI = [-0.870, -0.201]) and
<table>
<thead>
<tr>
<th>Burnout</th>
<th>Related Variables</th>
<th>$K$</th>
<th>Fisher’s $Z$</th>
<th>SE</th>
<th>$Q$ statistics ($p$)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotional Exhaustion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>3</td>
<td>0.090</td>
<td>0.083</td>
<td>2.104</td>
<td>-0.072</td>
</tr>
<tr>
<td></td>
<td><strong>Job Satisfaction</strong></td>
<td>3</td>
<td>-0.476</td>
<td>0.040</td>
<td>0.625</td>
<td>-0.555</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>2</td>
<td>0.072</td>
<td>0.038</td>
<td>0.261</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>Experience</td>
<td>3</td>
<td>0.118</td>
<td>0.062</td>
<td>2.076</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td><strong>PsyCap</strong></td>
<td>2</td>
<td>-0.416</td>
<td>0.035</td>
<td>0.034</td>
<td>-0.485</td>
</tr>
<tr>
<td></td>
<td>Adverse Factors</td>
<td>3</td>
<td>0.401</td>
<td>0.245</td>
<td>1.339</td>
<td>-0.080</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy</td>
<td>2</td>
<td>-0.159</td>
<td>0.107</td>
<td>1.000</td>
<td>-0.368</td>
</tr>
<tr>
<td></td>
<td><strong>Perfectionism</strong></td>
<td>2</td>
<td>-0.214</td>
<td>0.078</td>
<td>0.018</td>
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<td>0.171</td>
<td>1.857</td>
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</tr>
<tr>
<td></td>
<td>Other Factors</td>
<td>8</td>
<td>-0.085</td>
<td>0.100</td>
<td>6.803</td>
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</tr>
<tr>
<td>Depersonalization</td>
<td>Age</td>
<td>4</td>
<td>0.042</td>
<td>0.077</td>
<td>2.718</td>
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<tr>
<td></td>
<td>Marital Status</td>
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<td>0.142</td>
<td>0.167</td>
<td>1.000</td>
<td>-0.186</td>
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<tr>
<td></td>
<td><strong>Job Satisfaction</strong></td>
<td>3</td>
<td>-0.392</td>
<td>0.065</td>
<td>1.734</td>
<td>0.004</td>
</tr>
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<td></td>
<td>Children</td>
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<td>0.072</td>
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<td></td>
<td>Experience</td>
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<td>0.051</td>
<td>3.194</td>
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<td>0.035</td>
<td>0.696</td>
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<td>-0.602</td>
</tr>
<tr>
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<td><strong>Perfectionism</strong></td>
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<td>0.198</td>
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<td>-0.784</td>
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<td>Other Factors</td>
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<tr>
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<td>Age</td>
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<tr>
<td></td>
<td><strong>Job Satisfaction</strong></td>
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<td>0.067</td>
<td>1.699</td>
<td>0.204</td>
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Table 7 continued

<table>
<thead>
<tr>
<th></th>
<th>K</th>
<th>SE</th>
<th>CI</th>
<th>SE</th>
<th>CI</th>
<th>SE</th>
<th>CI</th>
<th>SE</th>
<th>CI</th>
</tr>
</thead>
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<td>0.039</td>
<td>0.331</td>
<td>0.357</td>
<td>0.409</td>
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<td><strong>Perfectionism</strong></td>
<td>2</td>
<td>-0.158</td>
<td>0.078</td>
<td>0.060</td>
<td>-0.310</td>
<td>-0.006</td>
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<tr>
<td><strong>Other Personality</strong></td>
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<td>-0.074</td>
<td>0.202</td>
<td>1.956</td>
<td>-0.470</td>
<td>0.322</td>
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<td><strong>Other Factors</strong></td>
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<td>0.070</td>
<td>0.059</td>
<td>4.989</td>
<td>-0.047</td>
<td>0.186</td>
<td></td>
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</tr>
</tbody>
</table>

*Note.* Bold font indicates statistically significant results, where 95% CI does not include zero. PsyCap = psychological capital; K = number of effect size; SE = standard error; CI = confidence interval.
Table 8

*Effect Size of Child-Related Variables*

<table>
<thead>
<tr>
<th>Burnout</th>
<th>Related Variables</th>
<th>$K$</th>
<th>Fisher’s $Z$</th>
<th>SE</th>
<th>$Q$ statistics ($p$)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotional Exhaustion</strong></td>
<td>Other Factors</td>
<td>3</td>
<td>−0.036</td>
<td>0.032</td>
<td>0.931</td>
<td>−0.097</td>
</tr>
</tbody>
</table>

*Note.* $K$ = number of effect size; SE = standard error; CI = confidence interval.
depersonalization (Fisher’s Z = -0.308, 95% CI = [-0.389, -0.226]) as shown in Table 9. As work conditions improve, emotional exhaustion and depersonalization diminish. Correlational data for center types (Fisher’s Z = 0.169, 95% CI = [0.081, 0.257]) was analyzed, revealing a positive statistically significant relationship with emotional exhaustion (Table 9). ECEC providers working with older populations in preschools and equivalent programs experienced greater emotional exhaustion than those working in other settings, presumably with younger children. These results may be more related to the age of children than the center type itself. The authors of the studies were contacted to ensure the interpretation of the center type was correct. Unfortunately, the authors of the studies did not reply to the request for information, and none was provided in the research.

**Social Relationships**

Collegial and supervisory relationships appear to play an important role in burnout for ECEC providers. The analysis reveals that the more positive the social relationships (Fisher’s Z = -0.371, 95% CI = [-0.476, -0.265]) at work, the less emotional exhaustion ECEC providers experience (Table 9). Similarly, Table 9 shows a statistically significant inverse relationship between depersonalization and social relationships (Fisher’s Z = -0.326, 95% CI = [-0.586, -0.065]). In contrast, personal accomplishment significantly increases as social relationships (Fisher’s Z = 0.428, 95% CI = [0.109, 0.746]) improve (Table 9).

**Other Variables**

*Other work-related variables* include mobbing, physical activity at work, number of teachers, accommodations for disabilities, and fairness. There was too little data to analyze variables by specific categories, so these factors were subsumed under “other.” A statistically
significant relationship does not exist between other work-related variables and the dimensions of burnout.

**Moderator Analysis**

Prior to the onset of the study, it was determined that moderators would be analyzed if they were incorporated in a large number of samples and there was unexplained variability among effect sizes (Card, 2012). Moderator analysis was not possible for the MBI as a majority of the samples used the MBI-ES, and there were too few that used the MBI-GS. Unspecified MBI scales could not be used in the analysis. Similarly, most of the studies were conducted in the European Region of the world, with too few samples from other regions of the world.

**Publication Bias**

Although bias can occur at the initial publication stage of primary studies, it can also happen during a systematic review and meta-analysis. One of the greatest concerns relates to the “File Drawer Effect” (Rosenthal, 1979) or the theory that studies with statistically significant effects are more likely to be published, whereas studies that do not report statistically significant results are less likely to be published. Another potential reason for publication bias is the tendency for smaller studies to be conducted with more rigor and control (Borenstein et al., 2009). Since the effects are larger in statistically significant studies, this leads to concerns that the mean effect sizes in the current meta-analysis may be larger than in the actual studies. There is an incorrect assumption that if publication bias exists that the results of a meta-analysis are less than useful. In reality, nearly all meta-analyses are impacted by some level of publication bias, and this should not negate the results (Borenstein, 2019). When evaluating publication bias, it is important to use methods that identify the presence of bias and make the appropriate adjustments. The following statistical procedures were conducted to analyze the potential for
Table 9

Effect Size of Work-Related Variables

<table>
<thead>
<tr>
<th>Table 9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burnout</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Depersonalization</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Personal Accomplishment</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*Note.* Bold font indicates statistically significant results, where 95% CI does not include zero. K = number of effect size; SE = standard error; CI = confidence interval.
publication bias and assist with reanalysis: funnel plot, rank correlation, regression test of small study effect, and trim and fill method. The statistical presence of potential publication bias is shown in Table 10. Formal statistical methods for publication bias cannot be performed when there are only two studies for analysis.

**Funnel Plot**

Commonly used in systematic reviews and meta-analyses, a funnel plot of standard error is a visual aid in detecting publication bias. Large studies are shown near the top, often near the mean effect size. Whereas smaller studies appear toward the bottom of the funnel plot. If all relevant studies are included in a meta-analysis, a funnel plot will appear symmetric, with studies evenly distributed on each side of the mean. By contrast, when the bottom of the plot shows a higher concentration of studies on one side of the mean than the other, publication bias is present (Borenstein, 2019; Borenstein et al., 2009). In the current meta-analysis, all funnel plots are symmetric for emotional exhaustion and personal accomplishment. Two (2) of the fifteen (15) analyses within depersonalization show studies at the bottom are clustered toward the right side of the mean, suggesting the possibility of publication bias (Figure 1, 2).

**Begg and Mazumdar rank correlation test**

The Begg and Mazumdar rank correlation test evaluates if there is a significant correlation of the ranks of effect estimates and the rank of their variances to evaluate for publication bias (Borenstein et al., 2009). When the $p$-value less than 0.05 indicates the presence of publication bias, while a $p$-value greater than 0.05 suggests the absence of publication bias. The Begg and Mazumdar rank correlation test for ECEC-related job satisfaction and depersonalization yields a $p$-value of 0.14. The rank correlation test does not indicate significant
publication bias. Similarly, the rank correlation test for work-related social relationships and depersonalization yields a \( p \)-value of 0.06, indicating the absence of publication bias.

**Egger regression test for small study effects**

The Egger regression test for small study effects examines the correlation between the effect sizes and corresponding sample variance. As such, a strong correlation suggests publication bias (Borenstein *et al.*, 2009). More specifically, a \( p \)-value less than 0.05 indicates the presence of publication bias, while a \( p \)-value greater than 0.05 suggests the absence of publication bias. In this study, the Egger test yields a one-tailed \( p \)-value of 0.05 for ECEC-related job satisfaction and depersonalization, indicating the absence of publication bias. The Egger test for work-related social relationships and depersonalization yields a one-tailed \( p \)-value of 0.04, suggesting publication bias may be present.

**Duval and Tweedie’s Trim and Fill**

Per the previous statistical methods, there is some possibility of publication bias in the current study. Two funnel plots of burnout-related factors (e.g., job satisfaction and social relationships) and depersonalization show a greater number of small samples (with large effect sizes) fall to the right of the mean. As such, there is concern that studies to the left of the mean actually exist and are not accounted for in this analysis. Duval and Tweedie’s Trim and Fill procedure was developed to identify and impute missing studies and adjusts the mean for reanalysis (Borenstein, 2019; Borenstein *et al.*, 2009). The recommended approach is to initially use a fixed effect model and then re-run the analysis with the imputed studies using a random effects model (Borenstein, 2019; Sutton, 2005).

The Trim and Fill method suggests there is no evidence of publication bias in this meta-analysis for emotional exhaustion and personal accomplishment. Zero studies were identified via
Trim and Fill, and the observed and adjusted values were identical. As previously stated, it was observed that a greater number of samples fall to the right of the mean in the analyses of work-related social relationships and depersonalization. This imbalance indicates there are missing studies to the left of the mean. The Trim and Fill procedure was performed using a fixed-effect model to identify missing studies to the left of the mean, and a random-effect model was used for reanalysis. According to the Trim and Fill procedure, two studies were missing from the work-related variable analysis of social relationships and depersonalization (Figure 2). Under the fixed effect model, the point estimate and 95% confidence interval for the combined studies is \(-0.443\) \((-0.519, -0.368)\). Using Trim and Fill, the imputed point estimate is \(-0.537\) \((-0.602, -0.469)\). The Trim and Fill procedure also found that two studies were missing to the lower left of the mean for the ECEC-related variable analysis of job satisfaction and depersonalization. If the effect size is imputed for these studies and included in the analysis as in Figure 3, the adjusted effect size would shift to the left as shown by the diamonds at the bottom of the plot. Under the fixed effect model, the point estimate and 95% confidence interval for the combined studies is \(-0.426\) \((-0.504, -0.347)\). The imputed point estimate is \(-0.472\) \((-0.541, -0.402)\).

In summary, upon visual inspection of the funnel plots, there appears to be some potential for publication bias among ECEC-related job satisfaction and depersonalization and work-related social relationships and depersonalization. Yet, the rank correlation test indicated the absence of bias among both analyses, and the regression test only indicated publication bias for work-related social relationships and depersonalization in this study. The trim and fill method showed that two samples would need to be added to both analyses to remove even small biases in the current study. Although a small amount of bias is present in this meta-analysis for ECEC-related job
satisfaction and work-related social relationships (-0.426 v -0.472 and -0.444 v -0.536, respectively), the adjusted value was trivial, indicating that the meta-analysis appears robust.
Table 10

Publication Bias for Depersonalization

<table>
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<tr>
<th>Variables</th>
<th>Begg $p$-value</th>
<th>Egger $p$-value</th>
<th>Trim and Fill Observed Mean</th>
<th>Trim and Fill Adjusted Mean</th>
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<tr>
<td>ECEC-Related</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>0.15</td>
<td>0.05</td>
<td>-0.426</td>
<td>-0.472</td>
</tr>
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<td>Work-Related</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Relationships</td>
<td>0.06</td>
<td>0.04</td>
<td>-0.444</td>
<td>-0.536</td>
</tr>
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</table>
Figure 2. Funnel Plot of Standard Error by Fisher’s Z for Work-related Social Relationships & Depersonalization
Figure 3. Funnel Plot of Standard Error by Fisher’s Z for ECEC-related Job Satisfaction & Depersonalization
CHAPTER FIVE
DISCUSSION

Center-based ECEC providers experience many environmental stressors, and it is important to understand which variables are associated with burnout in order to identify ways to support providers and mitigate occupational stress. Individual stressors also play a critical role in burnout and are largely understudied (Jeon & Wells, 2018; Montgomery & Rupp, 2005; Simionato & Simpson, 2018). Taken together, this meta-analysis is the first to look at ECEC-related variables and their relationship to the three dimensions of burnout. More specifically, quantitative relations between burnout and associated variables reported in primary studies were analyzed. This meta-analysis disaggregated burnout to analyze its three core dimensions (emotional exhaustion, depersonalization, and personal accomplishment) with ECEC-, child-, and work-related variables.

The current study set out to (a) appraise and synthesize the quality of evidence that exists regarding correlates of burnout among center-based early childhood education and care providers, (b) to identify and synthesize variables of burnout and assess the magnitude of the overall effect sizes, and (c) to determine the direction of the relationship between the variables and burnout. These aims were motivated by making data on this topic more accessible to decision-makers and stakeholders. This chapter begins with a discussion of the principal findings rooted in the research questions: (1) Which individual (ECEC-related), occupational (child-related), and organizational (work-related) factors are associated with burnout in center-based early childhood education and care providers? And (2) What are the overall effect sizes among
factors? Next, this chapter offers insight into opportunities for policy and practice. Lastly, the strengths and limitations of this study along with future directions are discussed.

**Principal Findings**

This section will discuss the principal findings in the context of theory and prior research. Specifically, this section is ordered from proximal (ECEC-related) to distal (work-related) variables in relation to the ECEC provider as guided by Bronfenbrenner’s developmental bioecological framework.

This section discusses how the principal findings of this study support the guiding theory that personal and contextual variables can mediate the impact of proximal processes on the ECEC provider growth and development. The principal findings demonstrate that variables, namely ECEC-related and work-related variables, impact the strength and direction of proximal processes on the developmental outcome of interest (e.g., burnout). Proximal processes (i.e., caring for children, problem solving, and performing complex tasks, etc.) may be impacted (i.e., strengthened or weakened) by various proximal and distal variables (Bronfenbrenner & Morris, 1998) influencing ECEC provider well-being as shown in Figure 4. The principal findings of this study offer insight into salient and significant variables linked to ECEC burnout.

**Correlation Effects by ECEC-related Variables**

The ECEC profession requires thoughtful and complex emotional work. When ECEC providers feel overextended and worn down (emotional exhaustion), cynical (depersonalization), and less effective (reduced personal accomplishment), the quality of early childhood programming suffers (Hoglund et al., 2015; Ota et al., 2013). As such, prior research has accepted that individual ECEC variables influence professional well-being and burnout (Pavkov & Wells, 2023). This study found that a minority of adverse ECEC-related variables were related
Figure 4. Relation Between Proximal Processes and Burnout Dimensions Post Meta-Analysis

Note. Adopted from Bronfenbrenner & Morris, 1998. EE = emotional exhaustion; D = depersonalization; PA = personal accomplishment; Ag = age; JS = job satisfaction; PC = psychological capital; P = perfectionism; Ex = experience; OP = other personality; WC = work condition; SR = social relationships; CT = center type
to burnout, while positive or protective variables were often significantly linked to reductions in burnout.

Although emotional exhaustion is considered the core dimension of burnout (Maslach et al., 2001), the most significant variables emerged as related to depersonalization (job satisfaction, experience, psychological capital, self-efficacy, perfectionism, and other personality). Yet, valuable and significant relations between ECEC-related variables and emotional exhaustion and personal accomplishment were found.

**Sociodemographic Variables**

Few ECEC sociodemographic variables, such as age, marital status, children, experience, and education, were significantly linked to any dimension of burnout. Age had a small yet significant positive association with professional accomplishment and experience had a slight positive association with depersonalization, suggesting that older providers feel more effective and positive in their roles. Regarding emotional exhaustion and depersonalization, age results differed from the effects of three previously referenced studies (Lee et al., 2013; Moon & Lee, 2005; and Pavkov & Wells, 2023), wherein burnout was associated with younger age among early childhood providers. The lack of association in this study may result from covariates such as social support or supervision in the workplace. For instance, prior research suggests that workplace social support is one of the most critical variables in mitigating burnout and emotional exhaustion (Cheuk et al., 2011; Corr et al., 2015; Løvgren, 2016; Nislin et al., 2016). As discussed later in this chapter, positive social relationships at work appear to have a significant inverse association with emotional exhaustion and depersonalization. Furthermore, Pavkov and Wells (2023) note that supervision and consultation predict lower emotional exhaustion,
especially when more time is spent with the supervisor. As workplace support increases, wellness may improve, regardless of age.

Prior research indicates that higher education among early childhood teachers increases their bandwidth for difficult child behaviors (Goble et al., 2015). As such, early childhood educators may be less vulnerable to the negative impacts of children’s behavior (Friedman-Krauss et al., 2014). Similarly, child care workers with more training and experience report higher levels of professional efficacy (Manlove, 1993). However, this study found no relationship between ECEC education and burnout. It is unclear why educational background was unrelated to ECEC burnout. It is possible that staffing structure and the availability of support staff may be more important in moderating emotional exhaustion than educational attainment (Jeon & Wells, 2018). Inadequate staffing leads to more time with children, which has been positively linked to higher emotional exhaustion among child care providers (Løvgren, 2016). Furthermore, these results could be due to how educational attainment was measured.

Job Satisfaction

Job satisfaction is one’s emotional affective response to the job (Durnette, 1976). Derived from how one thinks and feels about their work, individual, contextual, and cultural factors impact job satisfaction (Saari & Judge, 2004). As such, it is no surprise that job satisfaction is linked to burnout. Those in helping professions, especially ECEC providers, endure unique and ongoing work stressors such as high caseloads, low resources, and challenging work conditions. Previous research has shown that the relationship between job stress and burnout is mediated by job satisfaction (Huang, 2009) – making this an important variable when considering ECEC well-being.
Job satisfaction has long been studied due to its link to retention (Curry et al., 2005). In fact, a recent meta-analysis of Korean nurses found that job satisfaction is the key predictor of intent to leave and contributes to low retention (Yoon & Kim, 2022). Consistent with previous studies of ECEC providers (Manlove, 1993; Moon & Lee, 2005), the current analysis found that job satisfaction was meaningfully and significantly linked to less emotional exhaustion and depersonalization and greater personal accomplishment. Whether part- or full-time, a significant portion of a center-based ECEC provider's day is spent at their job. Providers are more likely to feel unfulfilled and emotionally drained if the job falls short of providing adequate satisfaction or causes dissatisfaction. In fact, in a meta-analysis of 485 studies, workers with low job satisfaction were more emotionally exhausted, depressed, anxious, and had lower self-esteem (Faragher et al., 2005), perhaps leading to greater motivation to leave the job. This meta-analysis also highlights the important relationship between job satisfaction and the feeling of effectiveness and accomplishment at work. These results further emphasize the importance of job satisfaction as a strengths-based, protective factor in a healthy, stable, and resilient ECEC workforce.

Psychological Capital

Psychological capital (PsyCap) is the positive state of mind embodied by individuals as they develop throughout their lifespan and includes such components as hope, self-efficacy, resilience, and optimism (HERO) (Luthans & Youssef-Morgan, 2004). The results of this study found a significant association between the three dimensions of burnout and PsyCap. This suggests, in line with prior research (Cheung et al., 2011; Demir, 2018; Ferradás et al., 2019; Freire et al., 2020; Peng et al., 2019a; Zhang et al., 2019), PsyCap plays an important role in buffering against emotional exhaustion and depersonalization while further enhancing personal
accomplishment. The results of this meta-analysis offer a strength-based outlook on protective ECEC-related resources. ECEC providers who show perseverance in service of a desired goal (hope), a positive outlook on their work (optimism), adaptivity and ability to rebound when faced with adversity (resilience), and self-assurance in their ability to handle professional difficulties (efficacy), may be less vulnerable to burnout in their daily professional experiences. Higher PsyCap can be thought of as a toolbox of personal resources that enhances workplace well-being, stability, and quality. This data should inspire research, policy, and practice to investigate ways to enhance ECEC PsyCap as a means to better overall well-being and inoculate against burnout.

**Self-efficacy**

Although self-efficacy is a core component of PsyCap, it also stands alone in its relationship to burnout. From better work quality (Holzberger et al., 2013; Klassen & Tze, 2014) to psychological well-being (Mata & Tarroja, 2022), self-efficacy has been established as an important, strengths-based variable in work-related functioning and wellness for educators and care providers. A meaningful relationship between educator self-efficacy and personal accomplishment has long been established in the literature, with reduced personal accomplishment sometimes being considered the inverse of self-efficacy (R. T. Lee & Ashforth, 1990). Therefore, it is no surprise that this analysis found a significant positive relationship between personal accomplishment and ECEC self-efficacy. Self-efficacy has a similar but opposite effect when it comes to depersonalization in this meta-analysis.

Although the significant relationships between self-efficacy depersonalization and personal accomplishment are consistent with other meta-analyses (Park & Shin, 2020; Shoji et al., 2016), this analysis did not find a significant relationship between self-efficacy and emotional exhaustion like the others. This may be a result of differing samples. For instance,
Park and Shin (2020) examined 41 studies of special education teachers, whereas Shoji and colleagues (2016) investigated 57 studies of teachers, healthcare providers, and other professionals. This may indicate a difference between ECEC providers and other educators. The differing results may also be attributed to too few studies in the analysis, inviting more research on the topic.

Regardless of the discrepancy in emotional exhaustion, the results of this meta-analysis show that greater self-efficacy among ECEC providers is expected to augment the impact of personal accomplishment. This is consistent with other meta-analyses of educators and related professionals and further propounds self-efficacy as a protective factor against burnout (Park & Shin, 2020; Shoji et al., 2016).

**Adverse Individual Variables**

Intent to turnover, absenteeism, workaholism, work-to-family conflict, and migration are all adverse factors impacting ECEC's well-being and overall workforce stability and were subsumed under the *adverse variable* category in this study. Despite their onerous impacts, this meta-analysis found no relationship between these adverse variables and the three dimensions of burnout. The lack of relations between adverse variables and burnout may suggest that strength-based, protective variables play a greater role in mediating proximal processes impact on the development of burnout. However, due to the limited studies available for analysis, more research focused on the association between adverse variables (i.e., absenteeism, migration, workaholism, work-to-family conflict) is necessary to derive any meaningful conclusions.

**Perfectionism**

Although perfectionism can be identified within the personality variable category, it stands alone in its significant outcomes in this study. Surprisingly, greater perfectionism was
associated with lower emotional exhaustion and depersonalization. However, higher perfectionism was also linked to lower personal accomplishment. Hill and Curran’s (2016) seminal meta-analysis of burnout and perfectionism found that perfectionistic strivings, or “aspects of perfectionism associated with self-oriented striving for perfection and the setting of very high personal performance standards (Gotwals et al., 2012, p.264),” were significantly, inversely correlated with burnout, suggesting some protection against burnout. Whereas perfectionistic concerns, or “aspects associated with concerns over making mistakes, fear of negative social evaluation, feelings of discrepancy between one’s expectations and performance, and negative reactions to imperfection (Gotwals et al., 2012, p.264),” had a significant positive relationship to burnout.

In other words, research indicates that some forms of perfectionism can be adaptive while others are maladaptive. Maladaptive perfectionism may lead to harmful consequences for individuals when a particular expectation is not reached, while adaptive perfectionism appears to avoid these outcomes (Rice et al., 2003). However, leading researchers on this topic, Flett and Hewitt (2020), urge researchers to think more critically about perfectionism. They suggest that it is not distinctly adaptive or maladaptive but, rather, a complex variable that functions differently based on the person and context. Adaptive or not, it has been suggested that perfectionism is always accompanied by some undesirable outcomes (Benson, 2003). Regarding the findings in this study, perfectionism may be functioning as adaptive and striving-oriented, leading to greater protection against emotional exhaustion and depersonalization. Yet, the cost of perfectionism appears to be a loss of personal accomplishment. Moreover, O’Connor and O’Conner (2003) suggest that positive coping styles may mediate the impacts of perfectionism, which may also be reflected in the outcomes of this study.
Other Personality Variables

*Personality variables* ranged from the Big Five personality traits to temperament. These variables were categorized together as they did not fall under other categories, and too few studies examined specific areas of personality. This study found no relationship between other personality variables and the three dimensions of burnout. These findings may indicate that more malleable, strength-oriented variables that can be shifted via research, policy, and leadership have a greater impact on ECEC's well-being and stability.

Other Variables

Like other personality variables, *other variables* such as emotional labor, gender, physical activity, commitment, education, and type of position were categorized together as too few studies examined or reported on these areas. No relationship was found between other ECEC variables and burnout. While prior research has been mixed on the relationship between gender and burnout (Gonzalez et al., 2019; Prost & Middleton, 2020; Purvanova & Muros, 2010; Sprang et al., 2007) prior research has suggested commitment and education are important aspects of ECEC well-being and retention (Goble et al., 2015; Manlove, 1993). The absence of quantitative ECEC literature on these variables invites further questions regarding their relationship with the three dimensions of burnout.

Correlation Effects by Child-related Variables

The ECEC profession centers around children. Child-centered professionals are inevitably impacted by child-related variables such as child age, disability, socioeconomic status, behavioral needs, relationship to parents, instructional strategies, and more. Prior research and meta-analyses have confirmed that child age (Brunsting et al., 2014), disability type (Park & Shin, 2020), and challenging behaviors (Aloe et al., 2014) are consistently associated with
greater burnout among educators. These findings suggest that it is critical to attend to child-related variables when considering the longevity and wellness of ECEC providers.

**Other Variables**

Although prior systematic reviews and meta-analyses of educators show a significant relationship between some child-related variables and burnout (Aloe et al., 2014; Brunsting et al., 2014; Park & Shin, 2020), this analysis found no relationship between other child-related variables (instructional strategies, activity setting, and relationship with parents) and the three dimensions of burnout. This may be a result of the few child-related variables evaluated or reported in the included studies. These findings may compel researchers to focus on child-related variables in relation to ECEC burnout.

**Correlation Effects by Work-related Variables**

The job environment influences worker well-being. As such, several work-related factors are emerging as important to center-based ECEC functioning, wellness, and retention. Commitment, collegial and supervisor support, workload, and salaries are all factors impacting intent to leave and overall retention in the field of early childhood (Ellett et al., 2009; Ellett & Ellett, 2003; Pavkov & Wells, 2021; Zlotnik et al., 2005). Compensation is arguably the most important work-related variable when considering the sustainability and quality of early childhood services, as well as provider well-being (Sandstrom, Benatar, et al., 2020). Although the current study did not identify compensation as a factor, prior research recognizes better pay as imperative to quality services and a stable early childhood workforce (Sandstrom, Willenborg, et al., 2020; Shea et al., 2022). Beyond pay, research indicates that work-related factors promote better worker well-being and esteem, leading to higher quality and more efficacious outcomes (Schaack et al., 2020).
**Work Conditions**

Despite good intentions of programs and organizations, ECEC providers can incur work environments that fail to provide supportive *work conditions*. Early childhood providers report little planning time, unpredictable schedules, and inadequate provider-to-child ratios (Whitebook et al., 2014b) and attribute these work conditions to occupational stress and intent to leave (Wells, 2015). This meta-analysis found a significant, medium-to-high inverse relationship between work conditions and two of the three dimensions of burnout (depersonalization and emotional exhaustion, respectively). These findings overlap with related systematic reviews and meta-analyses of educators wherein work hindrances, including workload, resources, support personnel, and emotional experiences, were significantly related to increases in emotional exhaustion and depersonalization (Brunsting et al., 2014; Park & Shin, 2020). Poor work conditions may also obstruct protective factors by making them inaccessible to workers.

**Social Relationships**

The current meta-analysis found that ECEC social relationships at work had a significant association with emotional exhaustion, depersonalization, and personal accomplishment. Although these results were somewhat expected, these findings remind us that relationships are a fundamental human need (Deci & Ryan, 2000). From colleagues to supervisors, close and collaborative work relationships minimize ECEC provider vulnerability to the onerous impacts of burnout (Cheuk et al., 2011; Corr et al., 2015; Løvgren, 2016; Manlove, 1993; Nislin et al., 2016). While ECEC-related variables are important in the mediation of burnout, these finding are a valuable reminder that community matters. In other words, ECEC providers benefit from work environments that foster joy, respect, and trust among colleagues and supervisors.
By contrast, when work relationships are negative, ECEC providers are at greater risk of emotional depletion, depersonalization, and reduced personal accomplishment. This is especially true when considering relationships with supervisors. Prior research indicates that interpersonal mistreatment from supervisors can lead to greater emotional exhaustion and depleted intrinsic motivation among child care providers (Han et al., 2021). Furthermore, Wells (2015) notes that the worse the relationship with the supervisor, the more likely early childhood Head Start teachers were to quit their job. The fact that poor relationships with supervisors and colleagues impacts ECEC provider well-being is an accepted product of prior research (Topa Cantisano et al., 2006; Turhan & Ergel, 2015; Yüksel & Tunçsiper, 2011), and these findings support these conclusions.

**Center Type**

Given that burnout is a work-related phenomenon, it is only reasonable that center type would play a role in burnout. This study found a small, positive relationship between work in preschool or internationally equivalent programs and emotional exhaustion. Whereas those who work in child care centers was linked to less emotional exhaustion. This small finding may be more related to other factors than center type. One variable may be child age. A prior systematic review of special education teachers highlights that child age is a factor in burnout (Brunsting et al., 2014). This finding may also be impacted by the limited number of studies included in the correlation effect (k = 2).

**Other Variables**

*Other work-related variables* include disability accommodations, shared duties, non-interfering caregiving interactions, physical activity, and mobbing. These variables were categorized together as too few studies examined or reported on these areas. No relationship was
found between other work-related variables and burnout for center-based ECEC providers. The absence of research in this area highlights a need to better understand the impact of work-related functioning on burnout.

**Opportunities**

Research has established several core factors, such as compensation and burnout, as critical to stabilizing the ECEC workforce and fostering high-quality services (Carolan & Fishel, 2023). Compensation is at the top of the list when it comes to a solid workforce foundation. In fact, some researchers suggest that compensation is at the heart of workforce stability and resilience (Carolan & Fishel, 2023; Gutiérrez & Landry, 2023; Sandstrom et al., 2020b). The U.S. Administration of Children and Families stands in support of better wages for ECEC providers as a key factor in stabilizing the field (Hogan, 2021). Despite this advocacy, specific systemic solutions are needed to increase ECEC compensation without financially burdening families. In the U.S., some state legislators, such as Speaker Ryan Fecteau and Representative Rebecca Millett, are proposing bills that supplement ECEC salaries and offer tax credit (Gutiérrez & Landry, 2023). Yet, wages are only one part of the equation when it comes to workforce stability. Concurrent to these and other efforts for equitable wages, ECEC workforce well-being is critical for sustainable, high-quality services.

As LeMoine et al. (2023) put it, systems that harm ECEC providers harm children and families. Burnout is an occupational hazard that results in poorer quality ECEC services and outcomes impacting children and families (Jeon et al., 2014; Roberts et al., 2016; Zinsser et al., 2013). Furthermore, ECEC providers are the workforce behind the workforce, enabling families and communities to thrive. When the job harms ECEC providers, it also harms the greater community. Many organizations mistakenly operate under the belief that burnout is best
addressed at the individual level (Shanafelt and Noseworthy, 2017), but burnout is primarily a systems-level issue (Bakker et al., 2008; Maslach, 2016). As such, policy and leadership play an imperative role in this work-based phenomenon. To that end, a stable and resilient ECEC workforce is best fostered through systemic and organization changes that buffer against burnout.

**Policy-level Changes**

Some research suggests that there may be too much focus on individual variables in research, edging out more malleable and valuable work-related factors (Bober & Regehr, 2006). Although this study identifies several critical ECEC-related factors related to burnout, broader work-related factors that can be addressed at the systemic and policy level are particularly important. Organizational policy can stimulate greater ECEC well-being and reduce the risk of burnout by promoting supportive organizational cultures. Taking into consideration the data from this meta-analysis, policy that promotes better work conditions and positive work relationships through the creation and protection of collaborative opportunities and supervision/consultation time offers promise for ECEC retention and decreased burnout (Pavkov & Wells, 2023).

Previous studies indicate that work conditions and workplace relationships (e.g., relationships with a director or coworkers) are significantly linked to ECEC well-being and job satisfaction (Bloom, 1988; Cooper & Kelly, 1993; Tsigilis et al., 2006).

Policy plays a vital role in improving work conditions and relationships. Time is a limited resource for ECEC providers, yet research has established that more time spent with a supervisor in Reflective Supervision/Consultation (RSC) results in lower burnout (Pavkov & Wells, 2023). RSC is a collaborative process in which a supervisee/consultee enhances their reflective capacity, attunement, and thoughtfulness to work with young children and families via a
consistent and caring relationship with a trained RSC supervisor (Tomlin et al., 2014; Pavkov & Wells, 2023). According to research, RSC holds the potential for mitigating burnout and is a promising workplace intervention (Frosh et al., 2018; Pavkov & Wells, 2015; Susman-Stillman et al., 2020). RSC is a wide-spread, well-regarded practice that is universally accepted an ECEC best practice guideline (Alliance for the Advancement of Infant Mental Health, 2018). As such, policies must be in place that ensures protected time to engage in this positive work-based relationship.

Similarly, research suggests that supportive work conditions for ECEC providers, such as time and support, are often in short supply (Jeon & Ardeleanu, 2020; West, 2016). With an overabundance of compliance, managerial, and other tasks, ECEC providers rarely have time to engage in well-being-related activities (Ng et al., 2023). Organizational policies can assist in concentrating work-related tasks in ways that reduce burden on ECEC providers and increase opportunities to engage in structured supports such as RSC and professional development. Identifying ways to centralize work may require a data-driven approach, wherein leaders implement needs assessments that center ECEC voices (Carolan & Fishel, 2023).

Yet, these policy-level opportunities are difficult to implement and sustain without a stronger ECEC infrastructure. In the United States, Power to the Profession was established in 2017 by 15 national organizations seeking to develop a stronger ECEC infrastructure. They created the *Unifying Framework for the Early Childhood Profession (Unifying Framework)* (2020) as a central hub of the profession. The *Unifying Framework* aims to create a singular, birth to 8 early childhood workforce with equitable wages and better work conditions. The intent is to support states, organizations, and workers with clearer job roles, accessible career pathways, increased state and federal funding, and better overall infrastructure for the profession (LeMoine
et al., 2023). One of the greatest limitations in assessing the needs of ECEC providers is the diversity of provider qualifications, roles, and contexts. A unified framework that focuses on clearer job descriptions and roles offers the opportunity to better assess the needs of the field and implement more effective ECEC-centered policies that support retention and well-being.

Approaches like the *Unifying Framework* require system- and organizational-level buy-in and commitment, and a growing body of literature on workforce well-being, such as this meta-analysis, coupled with global advocacy efforts, offers compelling evidence to invest in such ECEC infrastructure. Yet, continued research and advocacy is needed.

**Employer-level Changes**

With all the stressors ECEC leaders face, it can be difficult to prioritize provider well-being. Yet, unaddressed burnout has negative implications for the health and viability of ECEC organizations and providers. For instance, burnout negatively impacts classroom climate (Buettner et al., 2016; Li Grining et al., 2010) and academic outcomes for children (Hoglund, 2015) – important service goals for most ECEC programs. Furthermore, research has established that burnout erodes professional commitment (Buettner et al., 2016) impacting overall professionalism and compassion (Dyrbye et al., 2010; Jager et al., 2017). Burnout has also been linked to absenteeism, poorer work quality, and turnover (Maslach & Leiter, 2016; Swider & Zimmerman, 2010). Retention is a of particular concern in the field ECEC due to the extraordinarily high rates of turnover and ongoing need for providers (Caven, 2021; Koch et al., 2015). When it comes to organizational costs, turnover is a particularly onerous financial burden for already underfunded ECEC organizations. Healthcare research suggests that organizations shell out more than twice as much to replace providers than to retain them (Atkinson et al., 2006;
Berger et al., 1992; Misra-Hebret et al., 2004) - making retention a critical factor for organizations.

Research in physician burnout has paved the way for potential organizational interventions and approaches. Although Shanafelt and Noseworthy (2017) outline an extensive nine-strategy framework to promote physician well-being, they note that even minor investments by leadership matter. In fact, small, low-cost, leadership-driven steps may improve ECEC provider experiences and impact well-being. Such employer-level actions can look like fostering supportive and open communication between staff and supervisors, developing alternative and accessible ways for staff to share concerns and ideas regarding work conditions, authentically recognizing and celebrating provider performance, and encouraging professional and personal development (American Psychological Association, 2023; Carolan & Fishel, 2023; Shanafelt & Noseworthy, 2017).

This study found that psychological capital (PsyCap), which includes hope, self-efficacy, resilience, and optimism (HERO), is linked to lower burnout and, thus, may play an important role in employer-led interventions. There are a number of employee-focused programs aimed at improving PsyCap, some of which are available for self-study online (Lupsa et al., 2020; Carter & Youssef-Morgan, 2022). In a meta-analysis of PsyCap interventions, researchers found that some programs targeting PsyCap had small, but significant positive effects for employees (Lupsa et al., 2020). Specifically, positive psychology and stress management interventions were particularly effective in increasing hope and self-efficacy. Yet, the widely used Job-Demands Resources interventions showed no effects on employee PsyCap (Lupsa et al., 2020). Regardless of these findings, more research is needed to identify the most cost-effective, evidence-based PsyCap supports for organizations.
Given the financial constraints of many ECEC programs, a costly investment in formal PsyCap training may not be the most helpful avenue. ECEC organizations often have limited resources and strive to keep program fees accessible to families. The American Psychological Association (2023) notes several low-cost alternatives easily accessible to leaders, such as encouraging professional and personal development, genuinely acknowledging good performance, and providing opportunities for autonomy and flexibility. Moreover, research suggests that leadership PsyCap may positively impact the PsyCap of employees (Lupsa et al., 2020) and modeling HERO characteristics through positive, authentic, and appreciative leadership approaches can foster PsyCap among team members (American Psychological Association, 2023; Luthans & Youssef-Morgan, 2017; Vilariño del Castillo & Lopez-Zafra, 2022; Whitney et al., 2010). As such, Jeon and Ardeleanu (2020) suggests a focus on leadership training that equips key stakeholders with the tools to foster positive interpersonal relationships and develop better work environments, rather than focus on employee-focused interventions.

**Strengths, Limitations, and Future Research**

The current study adds additional data and insights to the growing body of literature on ECEC well-being, specifically regarding burnout. Although a prior reviews of early childhood educators have been conducted (Cumming, 2017; Hall-Kenyon et al., 2014; Ng et al., 2023), this is the first study to apply a systematic and transparent process of searching, coding, and analyzing data via meta-analysis focused on center-based early childhood education and care (ECEC) providers. Interest and research in ECEC sustainability, resilience, and burnout are only growing. As such, the meta-analysis process invites replication and expansion of this study in the future. This study also heeded the recommendation of prior burnout research that utilized Bronfenbrenner’s developmental bioecological model (Brunsting et al., 2014) and organized the
study around the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment). The developmental bioecological model was a helpful organizing framework as it allowed this study to organize variables by the proximity to the ECEC provider (Bronfenbrenner, 1994; Shelton, 2019).

Regardless of this study’s strengths, there are limitations to meta-analyses. First, this study examined the relationship between burnout and ECEC-, child-, and work-related variables. As such, the results only indicate the magnitude and direction of the relationship between the dimensions of burnout and the related variables. Firm conclusions about causality cannot be drawn from this study. The effects of ECEC-related, child-related, and work-related variables should be investigated via experimental designs in future research.

Second, although a transparent and systematic approach to analysis was undertaken, it is possible that some published studies were not located or inadvertently excluded from the review. Future research teams should continue to (1) engage in rigorous and systematic research practices that examine ECEC burnout and related variables and (2) synthesize the growing body of literature via thoughtful literature reviews, systematic reviews, and meta-analyses that attend to the reliability of article selection and coding.

Third, this study found statically significant associations between ECEC- and work-related variables and the three dimensions of burnout among center-based ECEC providers. However, due to a lack of data, moderator analysis could not be conducted. Given the various countries in which the included studies were conducted, moderator analysis by country or region of the world may have yielded useful results. Yet, due to limited data available in the primary studies, this meta-analysis could not evaluate the impact of regional factors on the outcomes. The correlational effects in this study could be mediated by a number of moderators (e.g., region of
the world, type of measure used, age of children in classroom/care, education level, and cultural contexts). Thus, when possible, future research should conduct moderator analysis based on these and other categorical variables.

Lastly, this meta-analysis consisted of 14 primary studies. When examining these studies, the number of correlation effect sizes (k) was often less than 4. Additionally, all included studies used a cross-sectional, correlational design. Due to the limited number of studies on center-based ECEC burnout and related variables and the use of cross-sectional design, careful consideration must be taken in regard to the generalization of the findings.

**Implications for Future Research**

The findings from this study demonstrate a need for continued research in several areas to support a resilient and stable center-based ECEC workforce. First, a future research agenda should include quantitative investigations of the complex relationship between strength-based, ECEC-related variables, such as PsyCap and self-efficacy, and the three dimensions of burnout. A statistical analysis of 244 studies indicated that PsyCap, which includes self-efficacy, is linked to lower burnout, greater job satisfaction, and reduced intentions to leave the job (Loghman et al., 2023). Yet, the nature and direction of the associations remains uncertain and requires further research. Moreover, research has indicated that specific leadership types (i.e., empowering, transformational) increase PsyCap among employees, while others leadership approaches (i.e., abusive, transactional) reduce this important factor (Loghman et al., 2023). To date, no research has been conducted on leadership approaches and burnout among center-based ECEC providers.

Additionally, increased attention to the association between workplace social relationships and burnout may further enhance well-being among center-based ECEC providers. A growing body of evidence suggests that Reflective Supervision/Consultation (RSC) is a
critical work-related relationship and promising strategy in mitigating ECEC burnout (Frosch et al., 2018; Gallen et al., 2016; Heffron et al. 2016; Pavkov & Wells, 2023). Yet, little is known about the most supportive dose and format of RSC for ECEC providers. Furthermore, this study did not take into consideration whether ECEC providers were engaged in RSC when evaluating the results, thus the true impact of social relationships at work may be over-estimated.

Finally, although child-related variables (i.e., age, disability, socioeconomic status) are less malleable, more research is needed to better understand how working with children impacts the development of burnout among ECEC providers. Several studies show child-related factors, such as age (Brunsting et al., 2014), disability (Park & Shin, 2020), and challenging behavior (Aloe et al., 2014), are associated with educator burnout. Such data offers leaders a pathway to strategies and structural changes that buffer against burnout for ECEC employees, increasing workforce well-being and stability. This study unveiled the deficit of quantitative research on child-related factors and burnout among center-based ECEC providers. The lack of studies is a call to action for ECEC researchers. Future studies should evaluate the ways in which child-related variables impacts ECEC well-being and retention.

**Conclusion**

Young children’s experiences in the first years of life are critical to development and lifelong well-being. Research highlights the important short- and long-term outcomes for young children and families that participate in ECEC – from greater academic attainment to higher adult wages (Campbell et al., 2014; Cannon et al., 2018; Heckman et al., 2010; Vandell et al., 2010). ECEC has also shown to be a driver of equity for youth from under-resourced and marginalized communities (Yazejian et al., 2017). Leaders of UNICEF, WHO, and World Bank tout ECEC as an engine for nurturing human capital (Theirworld, 2017; World Health
Organization (WHO), 2023). Globally, policymakers are also advocating for investments in ECEC to ensure equitable participation in high-quality programming (Cumming et al., 2021). Regardless of advocacy efforts, ECEC providers continue to be underpaid, under resourced and have few opportunities for professional growth (Cumming, 2017; Cumming et al., 2020; Thorpe et al., 2020; Whitebook et al., 2014a). These factors contribute to higher rates of burnout and emotional exhaustion in the profession (Ansari et al., 2022; Schaack et al., 2020; Wells, 2015).

Consequently, ECEC providers are leaving their jobs in record numbers - creating greater instability in the field (Wells, 2015; Whitebook et al., 2014b). In an effort to support the center-based ECEC workforce and the children they serve, this study sought to consolidate and understand variables significant to the development of burnout.

Guided by a developmental bioecological framework and strength-based perspective, this study found that protective factors made up most ECEC-related variables associated with burnout. These findings suggest a stronger focus on center-based ECEC wellness, joy, and resilience is critical to workforce stability. Rather than focusing on individual ECEC weaknesses, strengthening protective factors for the workforce may be a vital component of supporting young children and families. Perfectionism was also found to be related to the three dimensions of burnout in this study. Further research is needed to better understand the rationale and significance of perfectionism as positively associated with emotional exhaustion and depersonalization. However, even this surprising finding suggests that ECEC providers have inherent work-related adaptability in the face of challenging individual factors. More research is also needed to better understand the role of child-related variables and burnout, as no relationship was found between these variables and burnout in this meta-analysis. Yet, it can be assumed that the variables related to working with children impact ECEC's well-being.
Although a majority of studies in this meta-analysis focus on individual factors, work environment and climate play an important role in center-based ECEC wellness. Aspects of the work environment appear to be more important than others in supporting well-being, including workplace social relationships (Schaack et al., 2020) and work conditions (Brunsting et al., 2014; Park & Shin, 2020). Considering the findings of this meta-analysis, it is imperative to stress the importance of social relationships at work. Research continues to demonstrate the value of collaborative and supportive workplace relationships on retention (Jeon & Wells, 2018; Zinsser, Denham, et al., 2016) and reduced burnout (Cheuk et al., 2011; Corr et al., 2015; Løvgren, 2016; Manlove, 1993; Nislin et al., 2016). Conversely, poor collegiality (Topa Cantisano et al., 2006; Turhan & Ergel, 2015; Yüksel & Tunçsiper, 2011) may lead to greater burnout among ECEC providers, serving as a pathway to attrition (Wells, 2015). Better workplace relationships begin with better work conditions. This study found work conditions to be significantly related to all dimensions of burnout suggesting that organizational factors may be at the heart of stability and resilience for the field.
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APPENDIX A: SCREENING FORM
**Level 1 Screening: Initial Title and Abstract Screening**

A1. Study ID: _____________________________ [STID]

A2. Date of Screening: ________________________ [STDATE]

A3. Coder Initials: _____________________________ [CODER]

A4. Bibliographic Info (APA format):
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

A5. Is this study about burnout or emotional exhaustion?
   1. Yes
   2. No (STOP)
   99. Cannot tell

A6. Is this study about early childhood education and/or care providers?
   1. Yes
   2. No (STOP)
   99. Cannot tell

A7. What is this study?
   1. Descriptive, cross-sectional, or correlational study
   3. Randomized control trial (STOP)
   4. Theoretical or position paper, editorial, or book review (STOP)
   5. Practice guidelines or treatment manual (STOP)
   6. Dissertation or Thesis (STOP)
   99. Can’t tell or other

**Level 2 Screening: Eligibility Decisions**

B1. Is the report unusable for any of the reasons below?
   1. Randomized control trial (STOP)
   2. Dissertation/thesis (STOP)
   3. Review article or systematic review (STOP)
   4. Commentary without original results (STOP)
   5. In a language other than English (STOP)
   6. Published before Jan. 1st, 2022 (STOP)
   7. Published after Dec. 30th, 2022 (STOP)
8. Case study, other qualitative study (STOP)
9. Full article not accessible (STOP)
10. None of the above

B2. Do the authors evaluate burnout or emotional exhaustion?
   1. Yes
   2. No (STOP)
   3. Cannot Tell

B3. Does the study include only early childhood education and/or care providers?
   1. Yes
   2. No (STOP)
   3. Cannot Tell

B4. Does it include only center-based early childhood education and/or care providers?
   1. Yes
   2. No (STOP)
   3. Cannot Tell

B5. Does the study use a version of the Maslach Burnout Inventory (MBI)?
   1. Yes
   2. No (STOP)
   3. Cannot Tell
   4. Uses only an MBI total score or just select questions (no subscales) (STOP)

B6. Does the study report correlation coefficients between burnout or emotional exhaustion and one or more of the following correlates:
   a.) Individual (ECEC-related) factors
   b.) Occupational (Child-related) factors
   c.) Organizational (Work-related) factors
   1. Yes
   2. No (STOP)
   3. Cannot Tell
   4. Reports linear regression β or B (author data request needed)
Study Coding Form

Study ID: _____________________________  Author: ______________________________

Year: ______________

Date of Coding: ________________________  Coder: _______________________________

Section A: Study Characteristics

A1. Country in which study was conducted
[PUBCTRY]
1. United States
2. Korea
3. Turkey
4. China
5. Other: __________
99. Cannot tell

A2. Geographical location/Region of the world the study was conducted
[PUBRGN]
1. African Region
2. South-East Asian Region
3. European Region
4. Eastern Mediterranean Region
5. Western Pacific Region
6. Region of the Americas
99. Cannot tell

Section B: Sample Descriptors

B1. Total number of potential participants: _____ [T-TN]

B2. Total number of respondents: _____ [T-N]

B3. Training level of participants:
1. Academic Degree
2. Early Childhood Certificate or Credential
3. Other
99. Not enough information to determine

B4. Mean years of experience: _____ [T-EXP]
B5. Gender of participants: [T-GNDR]
1. Female: _____
2. Male: _____
3. Other Genders: ______
99. Not enough information to determine

B6. Marital Status of participants: [T-MARRY]
1. Married: _____
2. Unmarried: ______
99. Not enough information to determine

B7. Age of participants [T-AGE]
1. Mean: _____
2. Range: ______
99. Not enough information to determine

B8. Job Type of participants [T-JOB]
1. Early Childhood Teacher or Educator: _____
2. Early Childhood Care Providers: ______
3. Other Early Childhood Job: ______
99. Not enough information to determine

B9. Ethnicity of participants [T-ETHN]
1. Non-Hispanic/Latine/Latinx: _____
2. Hispanic/Latine/Latinx: ______
99. Not enough information to determine

B10. Race of participants [T-RACE]
1. Black or African American: _____
2. White: ______
3. Asian/ South Asian/ Pacific Islander: ______
4. Indigenous American/ Native American/ American Indian/ Alaska Native: ______
5. Other: ______
99. Not enough information to determine

B11. Age of children participants work with [T-KIDAGE]
1. Age: _____
2. Range: ______
99. Not enough information to determine

B12. Type of setting [T-SETTING]
1. Public: _____
2. Private: _____
3. Other: _____
99. Not enough information to determine

Section C: Measures and Variable

C1. What type of MBI measure was used in the study
[MBINAME]

<table>
<thead>
<tr>
<th>Emotional Exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2. ECEC-related variables and correlation coefficients [EEINDIV]</td>
</tr>
<tr>
<td>1. Gender: _____</td>
</tr>
<tr>
<td>2. Age: _____</td>
</tr>
<tr>
<td>3. Job satisfaction: _____</td>
</tr>
<tr>
<td>4. Years of experience: _____</td>
</tr>
<tr>
<td>5. Job commitment: _____</td>
</tr>
<tr>
<td>6. Self-efficacy: _____</td>
</tr>
<tr>
<td>7. Other: ___________ : _____</td>
</tr>
<tr>
<td>8. Other: ___________ : _____</td>
</tr>
<tr>
<td>9. Other: ___________ : _____</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child-related variables and correlation coefficients [EEOCUPA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Child age: _____</td>
</tr>
<tr>
<td>2. Student number: _____</td>
</tr>
<tr>
<td>3. Disability: _____</td>
</tr>
<tr>
<td>4. SES: _____</td>
</tr>
<tr>
<td>5. Other: ___________ : _____</td>
</tr>
<tr>
<td>6. Other: ___________ : _____</td>
</tr>
<tr>
<td>7. Other: ___________ : _____</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work-related variables and correlation coefficients [EEORG]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervision: _____</td>
</tr>
<tr>
<td>2. Compensation: _____</td>
</tr>
<tr>
<td>3. Social Support: _____</td>
</tr>
<tr>
<td>4. Training and Professional Development: _____</td>
</tr>
<tr>
<td>5. Work Climate: _____</td>
</tr>
<tr>
<td>6. Center Type: _____</td>
</tr>
<tr>
<td>7. Other: ___________ : _____</td>
</tr>
<tr>
<td>8. Other: ___________ : _____</td>
</tr>
<tr>
<td>9. Other: ___________ : _____</td>
</tr>
</tbody>
</table>

Depersonalization
C5. ECEC-related variables and correlation coefficients [DEPINDIV]

1. Gender: ______
2. Age: ______
3. Job satisfaction: ______
4. Years of experience: ______
5. Job commitment: ______
6. Self-efficacy: ______
7. Other ___________________: ______
8. Other ___________________: ______
9. Other ___________________: ______

C6. Child-related variables and correlation coefficients [DEPOCUPA]

1. Child age: ______
2. Student number: ______
3. Disability: ______
4. SES: ______
5. Other ___________________: ______
6. Other ___________________: ______
7. Other ___________________: ______

C7. Work-related variables and correlation coefficients [DEPORG]

1. Supervision: ______
2. Compensation: ______
3. Social Support: ______
4. Training and Professional Development: ______
5. Work Climate: ______
6. Center Type: ______
7. Other ___________________: ______
8. Other ___________________: ______
9. Other ___________________: ______

Personal Accomplishment/Professional Efficacy

C8. ECEC-related variables and correlation coefficients [PAINDIV]

1. Gender: ______
2. Age: ______
3. Job satisfaction: ______
4. Years of experience: ______
5. Job commitment: ______
6. Self-efficacy: ______
7. Other ___________________: ______
8. Other ___________________: ______
9. Other ___________________: ______
C9. Child-related variables and correlation coefficients [PAOCUPA]
   1. Child age: _____
   2. Student number: _____
   3. Disability: _____
   4. SES: _____
   5. Other ___________________: _____
   6. Other ___________________: _____
   7. Other ___________________: _____

C10. Work-related variables and correlation coefficients [PAORG]
   1. Supervision: _____
   2. Compensation: _____
   3. Social Support: _____
   4. Training and Professional Development: _____
   5. Work Climate: _____
   6. Center Type: _____
   7. Other ___________________: _____
   8. Other ___________________: _____
   9. Other ___________________: _____

C11. Additional Notes

_______________________________________________________

C12. Should this study be retained for meta-analysis [DEC]
   1. Retain for study
   2. Do NOT retain for review
   3. Uncertain – more information needed

Section D: Risk of Bias for Cross-Sectional Surveys of Attitudes and Practices
(Busse & Guyat)

D1. Is the source population representative of the population of interest? [ROBSOUR]
   1. Definitely yes (low risk of bias)
   2. Probably yes
   3. Probably no
   4. Definitely no (high risk of bias)

D2. Is the response rate adequate? [ROBRATE]
   These proportions may not apply to all situations at. At times, lower proportions may be acceptable. At times, higher may be legitimately demanded.
   1. Definitely yes (low risk of bias)
2. Probably yes  
3. Probably no  
4. Definitely no (high risk of bias)  

D3. Is there little missing data?  

*These proportions may not apply to all situations at. At times, lower proportions may be acceptable. At times, higher may be legitimately demanded.*  
1. Definitely yes (low risk of bias)  
2. Probably yes  
3. Probably no  
4. Definitely no (high risk of bias)  

D4. Is the survey clinically sensible?  

1. Definitely yes (low risk of bias)  
2. Probably yes  
3. Probably no  
4. Definitely no (high risk of bias)  

D5. Is there any evidence for the reliability and validity of the survey instrument?  

1. Definitely yes (low risk of bias)  
2. Probably yes  
3. Probably no  
4. Definitely no (high risk of bias)  

D6. Assessment of Bias  

1. Low risk of bias for all key domains  
2. Unclear risk of bias for one or more key domains  
3. High risk of bias for one or more key domains
APPENDIX C: PRISMA FLOW DIAGRAM
Appendix C

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Identification of studies via databases

Records identified from:
- ERIC (Ovid) (n = 144)
- Google Scholar (n = 83)
- PsychINFO (n = 520)
- Total Databases (n = 747)

Records removed before screening:
- Duplicate records removed (n = 150)

Records screened (n = 597)

Records excluded (n = 474)
- Reports excluded:
  - Dissertation/Thesis (n = 10)
  - Commentary no results (n = 2)
  - In language other than English (n = 19)
  - Published before Jan. 1st, 2002 (n = 4)
  - Case Study, other Qualitative Study (n = 1)
  - Full article not accessible (n = 12)
  - No burnout studied (n = 3)
  - Not ECEC providers (n = 14)
  - Not center-based (n = 2)
  - No MBI (n = 22)
  - Uses MBI total score only or just select questions (not subscales) (n = 7)
  - No correlation coefficients (n = 13)

Reports assessed for eligibility (n = 123)

Included

Studies included in review (n = 14)


For more information, visit: http://www.prisma-statement.org/
APPENDIX D: CURRICULUM VITAE
CURRICULUM VITAE
Lee Wells, AM, LCSW
Clinical Director, Co-owner • Mind Chicago
4411 N. Ravenswood Ave., Ste 225, Chicago, IL 60613
lee@mindchicago.com • (312) 667.3775 ext 701

EDUCATION
2023 Ph.D. Doctor of Philosophy in Health Sciences, summa cum laude
Title: *A Systematic Review and Meta-analysis of Factors Associated with Burnout Among Early Childhood Education and Care Providers*
Northern Illinois University, Health and Human Sciences
DeKalb, IL

2010 A.M. Master of Arts in Social Work and Policy, summa cum laude
University of Chicago, Crown School of Social Work, Policy, and Practice
Chicago, IL
Specialization: Evidence-based Clinical Social Work

2006 B.S. Bachelor of Science in Education, cum laude
Northern Illinois University
DeKalb, IL
Major: Learning Behavior Specialist

CERTIFICATIONS
2006 State of Illinois, Learning Behavior Specialist License #1951928
2012 State of Illinois, Clinical Social Work License #149015498
2021 Level 2 Certified Resilience Builder Program Facilitator

TEACHING EXPERIENCE
2017 – 2020 Clinical Lecturer
Course: Cognitive and Behavioral Approaches for Children and Families
University of Chicago, Crown School of Social Work, Policy, and Practice
Chicago, IL
PROFESSIONAL EXPERIENCE

2019 – current  Clinical Director and Co-owner  
Mind Chicago  
Chicago, IL  

2013 – 2019  Creator and Director of Child Anxiety and Mood Disorder Programs  
Compass Health Center  
Chicago & Northbrook, IL  

2012 – 2013  Social Worker  
Baker Demonstration School  
Wilmette, IL  

2010 – 2012  Clinical Interviewer and Research Assistant  
Center for Mental Health Innovation, Oregon Health and Science University  
Portland, OR  

2010 – 2012  Neurodevelopmental Social Work Coordinator  
Doernbecher Children’s Hospital, Oregon Health and Science University  
Portland, OR  

2010 – 2012  Behavioral Health Social Workers  
Family Medicine, Oregon Health and Science University  
Portland, OR  

2009 – 2010  Case Manager  
Connections for the Homeless  
Evanston, IL  

2007 – 2010  Learning Behavior Specialist  
District 64  
Wilmette, IL  

2006 – 2007  Learning Behavior Specialist  
District 299  
Chicago, IL
PUBLICATIONS

Journal Publications


Book Publications


PRESENTATIONS

2018-2022

Wells, L. *Third Wave CBT: Mindfulness, DBT and ACT*. University of Chicago, Department of Psychiatry and Behavioral Neuroscience, Chicago IL.

2021


2021


2020


2019


2017

Wells, L. *Trauma-focused Cognitive Behavioral Therapy*. Northeastern Illinois University, Department of Social Work, Chicago IL.

2016


2016


**RESEARCH EXPERIENCE**

2010 – 2012  Clinical Interviewer and Research Assistant  
Center for Mental Health Innovation  
Oregon Health and Science University, Department of Psychiatry  
Portland, OR

**COMMUNITY SERVICE**

2017 – 2018  Associate Board Member, Housing Opportunities for Women
2016 – 2017  Board Vice President, Willow House Child & Family Grief Center

**PROFESSIONAL AFFILIATION**

2023 – current  National Association of Social Workers (NASW), Illinois Chapter
2023 – current  ZERO to THREE
2020 – current  Association of Contextual Behavioral Science
2020 – current  Association of Cognitive Behavioral Therapies