

Early childhood educator's burnout: A systematic review of the determinants and effectiveness of interventions

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Early childhood educators have a high risk of burnout, leading to a high turnover rate and, potentially, poor educational outcomes for young children. In this systematic review, we investigate the causes of burnout, and the effectiveness of interventions that seek to reduce burnout among educators. We searched *Web of Science* and *ProQuest* for relevant studies. Articles were included if they were peer-reviewed, written in English, and examined either causes of burnout or the effectiveness of interventions aimed to reduce burnout among early childhood educators. Of the 39 studies included in the final sample, 37 examined causes of burnout and two examined interventions. Burnout risk was more significant among teachers with low social capital, poor health status and lower wages. At a service-related level, weak or incoherent organisational structure, weak professional relationships, low professional status, and a lack of career progression and professional training opportunities were all linked to a higher risk of early educator burnout. Coaching, reflection and counselling-based interventions were found to lower the risk of burnout. These findings build a research-based foundation for interventions to address individual and service related causes of burnout among early childhood educators.

Introduction

Early childhood educators experience a higher risk of burnout than other occupations (Johnson, S. et al., 2005; Turner & Theilking, 2019). On average, about one-third of qualified educators intend to leave the teaching profession within four years (Jackson, 2020). There is well-established evidence that teacher burnout is detrimental to children's education, and the turnover associated with it poses considerable training and replacement costs to educational systems (Jackson, 2020; Bridges et al., 2011). Overall, early childhood services in many advanced industrialised nations face a high turnover and constant shortage of early childhood educators.

By burnout, we specifically refer to educators' experiences of recurring physical and psychological fatigue relating to their work (De Stasio et al., 2017). There are numerous dimensions of burnout, including emotional exhaustion, depersonalisation, and low personal achievement (Maslach & Jackson, 1981).

Previous literature reviews have investigated broader trends in research focused on early childhood educators' well-being (Cumming, 2017; Hall-Kenyon et al., 2014). Most recently, Cumming (2017) found an intensification of research focused on early childhood

educators' well-being, however, it is still not well understood how best to prevent burnout among this group of educators (Cumming et al., 2021). This is in part because well-being is often conceptualised at the individual level (Cumming, 2017), whereas causes of burnout can also result from the work environment (Cumming et al., 2021).

Here, we aim to fill this gap by performing a systematic literature review. We specifically aim to narratively summarise literature that identifies causes of burnout, either at the individual or service-related level, or the effectiveness of interventions that might reduce burnout, among early childhood educators. These findings can provide valuable information that can be used to support early childhood educators and in turn, facilitate improved and more sustainable childhood educational systems.

Methods

Search strategy

We registered our review with PROSPERO (CRD42022308935) (PROSPERO, 2016) and structured it following recommendations from the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines (Page et al., 2021). We searched across 'all fields' in *Web of Science* and *Proquest* on 2 December 2021 and included search terms from previous systematic reviews on burnout and educators (García-Carmona et al., 2019; Puertas Molero et al., 2019). To permutations of "educators" and "teachers", we added the terms 'early', 'preschool' and 'early childhood' to capture variations in the use of these terms across countries. A detailed search strategy for both Web of Science and ProQuest is outlined in Appendix 1.

Inclusion and exclusion criteria

We defined our inclusion criteria a priori in terms of PICO, as detailed in Table 1.

Table 1: PICO (population, intervention/exposure, comparison, outcome)

| Inclusion | |
|--------------|---|
| Population | Early childhood, preschool and kindergarten educators, regardless of their qualifications, working in centre-based early childhood services catering to children between age 0-6 years old. |
| Intervention | Any type of individual or organisational-level intervention. |
| Comparison | Studies with or without comparators. |
| Outcome | Burnout, poor well-being or quality of life. |

We applied a series of inclusion and exclusion criteria at the screening and eligibility stage. Following earlier systematic reviews on educators' burnout (García-Carmona et al., 2019; Puertas Molero et al., 2019), we classified papers as examining burnout when educators report emotional exhaustion, depersonalisation, and low personal achievement. Articles were excluded where educators may experience burnout due to poor, pre-existing physical and mental well-being instead of the role requirements. Additionally, studies were

included if they (i) were published in peer-reviewed journals; (ii) written in English; (iii) included educators who were qualified in the early childhood field (note this was not limited to early childhood teachers, a Diploma Educator, a Certificate III Educator and Special Needs Educator); (iv) included current early childhood educators providing education and care to children aged 0-6, or in the year before school, in a centre-based service, preschool or kindergarten in the early years.

The PRISMA flow diagram in Figure 1 describes the search process steps (Page et al., 2021). We identified 1168 potentially eligible records from our search. After abstract and title screening, 948 were relevant for full-text review and 39 met the inclusion criteria for systematic review (Figure 1).

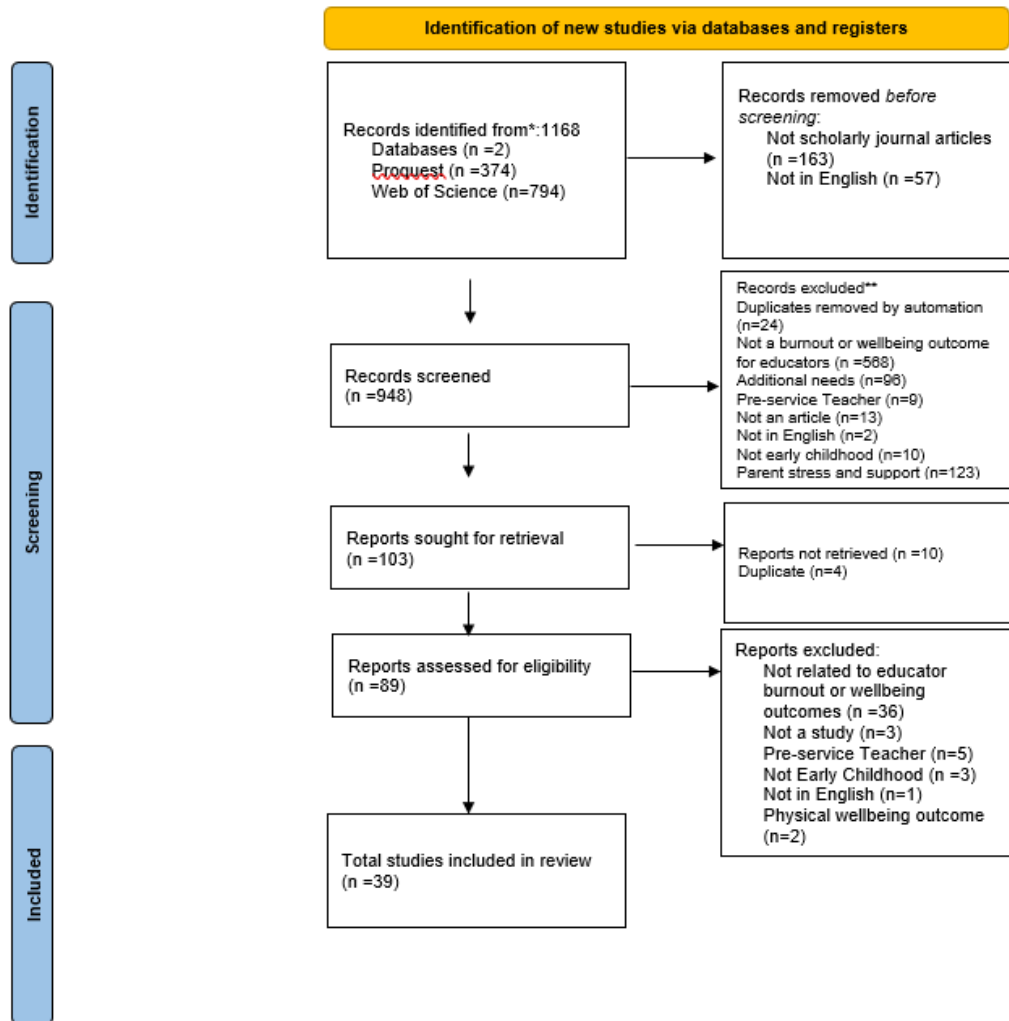


Figure 1: Diagram from PRISMA showing the results of the initial search

Extraction and data analysis

We extracted the main study parameters into a summary *Excel* spreadsheet, including author, year of study, country of study, level of education, sample size and participants, study design, methods, measurements of burnout, examined determinants of burnout and a summary of outcomes. Due to the heterogeneous nature of the studies, we analysed and synthesised the data narratively.

Results

Of the 39 studies, 37 investigated the causes of burnout and two researched interventions to prevent burnout. Thirty-four studies were quantitative; three were qualitative (Edwards et al., 2021; Kelly & Berthelsen, 1995); and two used mixed methods (Jones et al., 2020; A. Roberts et al., 2016; Schaack et al., 2020). All three qualitative studies were phenomenological (Edwards et al., 2021; Jones et al., 2020; Kelly & Berthelsen, 1995). Whereas, 34 (87.2%) of the studies were cross-sectional, five (12.5%) were longitudinal (Gu, Wang, et al., 2020; Gu, You, et al., 2020; Gu & Wang, 2021; Hu et al., 2019; Kim et al., 2020). The geographical distribution of studies included four continents, as depicted in Figure 2.

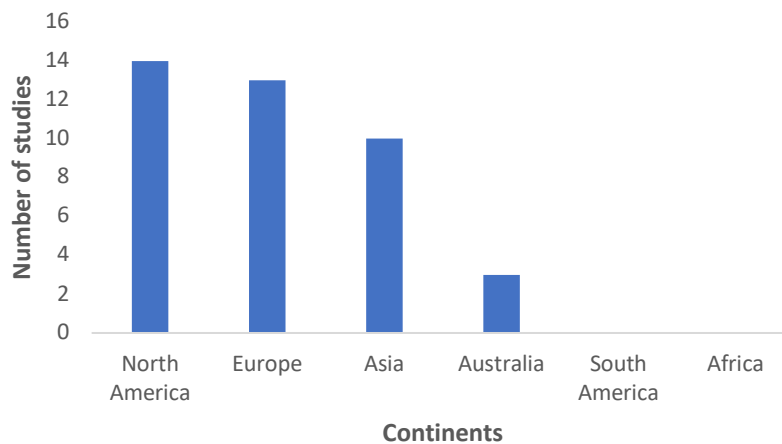


Figure 2: Geographic distribution of included studies by continent

The studies used a range of measurement tools to examine the causes of burnout, with the majority using the Maslach Burnout Inventory and different quality-of-life measurements. Overall, nine studies identified causes at the individual level, 23 identified causes at the service-related level, and five identified causes at both individual and service-related levels. Studies often examined more than one cause of burnout. Below we narratively synthesise the results, focusing first on causes at the individual and then at the service-related level. Following this, we discuss the intervention studies. Appendix 2: Table 2 summarises the methodological characteristics and critical results of the studies examining the determinants of burnout, while Appendix 3: Table 3 does so for studies looking at the

effectiveness of interventions. Additionally, we classify the studies which examine the determinants of burnout into 13 themes (i.e. gender, age group, family roles, low income, social capital, health, safety, poor organisational structure, poor working relationships, low professional status and work progression, lack of well-being focus, professional training) as summarised in Appendix 4: Table 4.

Potential individual determinants of burnout

Four main determinants at the individual level were identified: demographics, social capital, poor health and low wages.

(i) Demographics

Six studies found that gender, age, and family roles were associated with burnout among early educators. For example, male educators in a Turkish study reported greater difficulty staying motivated and were found to suffer higher stress levels than their female counterparts (Erdiller & Dogan, 2015). In terms of age, Zhou and colleagues (2020) found that young, new career teachers face multiple adaptive challenges and suffer a higher risk of burnout via higher depersonalisation and lower personal accomplishments. However, in another study, older Greek educators reported lower quality of life which the authors suggest resulted from having greater family responsibilities, such as caring for children (Koulierakis et al., 2019). Similar to Koulierakis et al. (2019), Wagner et al. (2013) also found that single educators who have been divorced, separated, or widowed, experienced higher stress.

(ii) Social capital

Four studies found educators' social capital, measured in terms of family support, social support and faith, important for burnout. Using phenomenology, Schaack (2020) reported that unstable home conditions caused US educators to struggle with keeping household distractions out of their professional lives. One Italian study found that being spiritual correlated negatively with emotional exhaustion. Specifically, Chirico (2017) found that Italian educators who are neither spiritual nor have faith-based beliefs are more likely to burnout, take more sick days, or be less motivated at work.

(iii) Poor health

Poor health was found to be a crucial determinant of burnout at an individual level. All four studies examining poor health as a cause of burnout among early educators found a significant relationship. Three found an association between mental health, specifically depression and mental distress (Farewell et al., 2021; A. D. Johnson et al., 2020), and burnout. A final study found that those suffering from health problems experience a higher degree of burnout in terms of lower feelings of personal accomplishment and lower quality of life (Koulierakis et al., 2019).

(iv) Low wages

Low wages were found to play a vital role in educators' burnout. For example, in Wagner et al. (2013), educators were more likely to seek alternative employment if educators

perceived wages as lower than an acceptable range. Low wages can also cause male educators to have lower work motivation and discipline issues (Dogan & Yatmaz, 2018).

Potential service-related determinants of burnout

26 studies investigated causes of burnout at the service-related level and identified the following determinants: poor work organisational structure, poor professional relationships, low professional status or progression, poor professional training opportunities, and lack of staff well-being focus.

(i) Poor work organisational structure

15 studies identified determinants related to poor work organisational structure in general and identified the following specific causes of burnout among early childhood educators: high job demands and a lack of resources (n=5), mismatched roles and expectations (n=5), excessive work expectations (n=4), lacking role clarity (n=3), and high staff turnover (n=2).

One of the leading causes of burnout identified at the service level was high job demands, workloads and lack of resources. These causes were found to result in higher stress and lower job satisfaction in early childhood educators (Farewell et al., 2021; Grant et al., 2019; Gu, Wang, et al., 2020; Gu, You, et al., 2020; Wells, 2015).

In terms of mismatched roles and expectations, one study highlighted the unrealistic organisational expectations in terms of time pressures, meeting children's and personal needs, and dealing with non-teaching tasks (Kelly & Berthelsen, 1995). Another reported demanding parent-oriented and teaching tasks that exhaust the educators (Lovgren, 2016). Additionally, in a US study, educators reported facing pressure from accrediting bodies to improve quality without structural support (Edwards et al., 2021).

With regards to higher work expectations, a Greek study (Koulierakis et al., 2019) reported more experienced and higher qualified educators choose less demanding work arrangements that resulted in lower income. Specifically, Koulierakis et al. (2019) found that educators who preferred permanent employment and open-ended work contracts faced higher financial pressure resulting in higher emotional exhaustion. Schaack et al. (2020) found increasing burnout risk, emotional exhaustion and depersonalisation to be associated with feelings of low work competency in an environment with a high staff turnover rate. Finally, the lack of role clarity is another factor in educators' burnout. For example, in their US-based study, Farewell et al. (2021) reported that low clarity on work expectations heightened burnout risk in terms of higher perceived stress.

(ii) Poor professional relationships

Ten studies identified poor professional relationships as a determinant of burnout among early childhood educators. Poor professional relationships were conceptualised in terms of educators' relationships with directors and colleagues, children with challenging behaviour, and parents.

For example, a study based in China found that poor collegiality and work control can lead to lower teacher efficacy, poor school climate, and hence higher stress levels leading to burnout (Hu et al., 2019). Another study, based in the US, found that prolonged work with children with challenging behaviour increases burnout risk in terms of higher teaching stress (Gagnon et al., 2019). A US-based study highlighted working with children with problematic behaviour, leading to educator burnout in terms of increased teacher stress (Friedman-Krauss et al., 2014). Finally, male educators in a study based in Turkey reported low parental acceptance of their professional work with children added to educators' feelings of being undermined professionally, leading to burnout in terms of poorer professional identity (Dogan & Yatmaz, 2018).

(iii) Low professional status or progression

Of three studies looking at how low professional status and progression contributed to educators' burnout, one study in Hungary found educators working with the youngest children reported feelings of burnout as they were perceived as caregivers and hence less esteemed by society (Financz et al., 2020). Another study from Turkey found that lack of career progression is associated with burnout risk in terms of more personal distress and lower motivation. Educators who had more years of experience and taught children at younger ages were found to have higher stress levels (Erdiller & Dogan, 2015).

(iv) Poor professional training opportunities

Two studies looked at the potential of professional training in combating burnout by replenishing diminishing qualities as a well-being intervention and introducing new strategies. Of these two studies, one Chinese study proposed raising emotional well-being training to counter the effects of 'surface acting' that depletes educators' emotional well-being (Peng et al., 2019). Surface acting refers to needing to fake the required emotions during interactions.

(v) Lack of staff well-being focus

Six studies identified a lack of staff well-being focus as an important determinant of burnout among early childhood educators. Staff well-being was conceptualised in terms of emotional strategies, stress mindset, teacher executive function, commitment, respecting work-home boundaries and recovery experiences. A study in China, for example, revealed that teachers with a higher subjective well-being reported higher career commitment and higher psychological capital (Gan & Cheng, 2021). Two Chinese studies further reinforced the importance of staff well-being focus at a service related level. These studies found that distinguishing between an educator's home life, respecting the work-home time boundaries, avoiding email communications after hours (Gu, You, et al., 2020), and provision of a well-functioning on-going recovery experience that includes psychological detachment and relaxation (Gu, Wang, et al., 2020) is beneficial to staff well-being.

Interventions of burnout

Two studies investigated interventions to reduce burnout, covering both the individual level (n=1) and service related level (n=2). Roberts et al. (2020) and Sottimano et al.,

(2018) identified both individual level and service related interventions. The interventions covered two main domains: professional training and a well-being centred workplace.

(i) Professional training

In a US-based study Roberts et al. (2020) investigated the effects of online professional training in buffering risks of burnout. Specifically, they used a randomised control trial design whereby 89 preschool teachers were randomly assigned into one of four groups. Focusing on teacher-child interactions to lower risks of burnout these groups were: Effective Classroom Interactions Course (Online), Coaching Condition, Reflective Writing Condition, and a control group. The study has highlighted that some professional training is more effective. Specifically, the US participants in the control groups that included elements of coaching and reflective writing reported benefiting from the availability of emotional outlets and/or opportunities for feedback (Roberts et al., 2020).

(ii) Staff well-being centred workplace

A study in Italy found that workplaces with a well-being focus were able to significantly mediate the effects of burnout (Sottimano et al., 2018). Specifically, the authors randomised 324 Italian preschool teachers into three treatments groups. In a 'psychological' treatment group, teachers were provided with counselling and support group meetings. In a 'psychosocial' treatment group, teachers were provided with physiotherapy, speech therapy, gymnastic and vocal hygiene. Finally, in a 'physical' treatment group, teachers experienced a redefinition of their work environment, where workspace and furniture were adapted in consideration of the aging employees' physical needs. Results of the intervention found that the psychological group provided with counselling support enabled educators to understand their work better and reflect, recover, and revitalise their motivation to work. Interventions in the other two groups did not yield significant changes.

Burnout risk during Covid-19

Three studies looked at the exacerbation of burnout by financial stress, poor psychological health and low professional status in the context of the Covid-19 pandemic.

One US study (Swigonski et al., 2021) reported that financial hardships faced by US educators in meeting basic needs such as rent or mortgage were exacerbated by Covid-19 as children stopped attending early childhood centres regularly, impacting educators' shifts and income. Furthermore, Covid-19 heightened the burnout stress as US educators struggled with money for food and expenses on top of poor physical and mental health due to the effects of lockdown and physical isolation.

Another study from Spain examined the impact of environmental, social relationships, physical health and psychological health dimensions on educators' burnout (Mondragon et al., 2021). This study found older educators showed the most significant levels of psychological distress during Covid-19. Spanish educators who live with a chronically ill person reported a reduced sense of safety attending their workplace in the pandemic.

The last study from Australia (Eadie et al., 2021) highlighted feelings of invisibility and undervaluing as risks for burnout during Covid-19. These burnout sentiments were confirmed by Australian educators' experience of the lack of acknowledgement for the work in support of frontline workers. They perceived tardiness and lack of clarity in government financial assistance for early childhood services and the Australian educators, when early childhood services were still required to remain open for children of essential workers.

Discussion

Our systematic review aimed to examine the range of burnout determinants and interventions at the individual and service related levels. Studies included in our review suggest that burnout among early educators is influenced by several determinants, both at the individual and service related levels.

At the individual level, studies suggest important determinants for both men and women and older and younger educators. Low social capital and poor physical and mental health were also found to be key individual level determinants of burnout. Concerning age, different individual level determinants were found for younger and older educators. With regard to younger educators, studies suggest that maladaptive challenges to the profession being new (Zhou et al., 2020), and having little experience in teaching (Li et al., 2020), are associated determinants of burnout. Less experienced educators might also benefit from peer support programs that have been shown to be beneficial in Canada (Doan, 2019; Rogers et al., 2022). With regard to older educators, studies suggest these educators have more work experience but are at risk of burnout due to high work responsibilities that need to be balanced against care-taking responsibilities at home, along with personal health issues.

At the service related level, studies indicate that organisational structures are an important determinant of burnout, particularly high job demands, a lack of resources, and mismatched roles and expectations. In terms of organisational structures, unrealistic organisation expectations, time pressures, meeting children's and personal needs, and dealing with non-teaching tasks increase feelings of burnout. Poor professional relationships were another important burnout determinant that was found at the service level. Specifically, poor professional relationships underpinned by unresolved conflictual relationships with directors, and/or colleagues, in addition to attending to children with challenging behaviour, and parents was found to be associated with burnout.

Limitations and strengths

As with all systematic reviews, ours has several important limitations. Firstly, due to the variety of study designs and outcomes evaluated, the included studies were too heterogeneous for meta-analysis and were therefore summarised narratively. Secondly, we interpretively assigned themes for analysis according to the findings. This may have implications for replicability, however we have been transparent about our choices, such as characterising professional status as an organisational factor rather than an individual

one. Thirdly, this review included early childhood educators with different qualifications and roles in various international contexts and who were employed during different time periods. For example, three studies in the review were taken during the Covid-19 pandemic when financial, psychological and low professional status stresses were reported to be higher among educators (Logan et al., 2021; Rogers, 2021, 2022). This should be taken into consideration when interpreting our results. Fourthly, studies that focused on educators' poor pre-existing physical and mental well-being as a burnout determinant were excluded, as we were interested primarily in burnout as a psychological issue and wanted to capture the determinants related to working conditions, our results therefore may underestimate the importance of health as a determinant of burnout. Fifthly, only papers written in English were included due to the language ability of the authors. It is acknowledged that relevant studies other languages other than English might be omitted. Lastly, it is noteworthy that most of the included studies were cross-sectional, with only five utilising longitudinal study designs. Further, most of the studies identified by our review were carried out in the United States, China and Europe. Therefore, the evidence is extremely limited in terms of geographical spread, indicating a gap for future research.

Importantly, a broader search could have been obtained from Google Scholar, particularly in relation to more recently founded journals that have not attained WoS or Scopus coverage, though the Google Scholar output is usually more difficult to use owing to high volume. Also, the article's search strategy and keywords may not have detected some important circumstances that are conducive to burnout, but are not linked to an "intervention" (something that has occurred) because the prime link is to "remedial measures" (something that respondents hope will occur in the future). Our results should be considered with these limitations in mind.

Notwithstanding these limitations, our study has several key strengths. Our search is current, broad and wide-ranging. We included studies from most continents. Studies covered many conceptualisations of educators' burnout from well-being, education, psychology, religion, environment, additional needs, teacher education, and child and youth services. Results from these studies highlighted the urgent need for staff well-being-focused workplaces with adequate resources, training and relational support to help educators engage with meaningful professional work with status that is both recognised by society and financially rewarded.

Need for further research

Reviews in education are often focused on a particular curriculum area (e.g., Fielding & Murcia, 2022; Goh et al., 2020), however this review focusses on educators themselves. International research on educator burnout and its diverse causal factors in the ECE sector should be a priority.

There are many findings in this systematic review that warrant further investigation. At an individual level, this includes the relationship between teaching years and numerical age, educator age and the age group they teach. Furthermore, educator stress and gender, and multiple family roles and their impact on educators' expectations of employment terms

and conditions may provide greater insights of how individual conditions interact with organisational conditions. At a service-related level, this includes workplace resources and support that impact on educators' role and their well-being, higher work expectations on burnout risk for more experienced and educated educators, education level of educators and their relationship with leadership, support for educators' working with children exhibiting challenging behaviour, building parental support and educators' well-being, the impact of pursuing quality on educator's well-being, the impact of different early childhood program operation models on educator's well-being, and association of educators' pay and ethnicity with the employment of suppression regulation strategies.

Conclusion

There is a crisis in educational settings across many parts of the world. In Australia, educator burnout is rife in schools (Turner et al., 2021) and early childhood settings (Rogers, 2021b). Challenges for educators have been accumulating over many years, but have been exacerbated during the pandemic (Rothe et al., 2022; Sims et al., 2022). Overall, our findings are consistent with previous literature that calls for workplaces to focus more on staff well-being and to ensure that educators receive adequate resources, training and relational support in order to avoid burnout. We should adequately resource, train and relationally support the educators at work. As highlighted in the poor work organisational structure of this systematic review, time constraints and the prevalence of non-teaching tasks were a concern for burnout. Educators need to reclaim time and space to interact with children and concentrate on their personal well-being. However, managerial systems are rife in educational settings, especially in Western countries that operate under neoliberal-inspired policies (Sims, 2020). For example, in Australian early childhood services, these systems demand educators use much of their time proving they are providing quality education and care rather than doing just that (Hunkin, 2018; Sims, 2017). Inordinate amounts of time are spent on compliance tasks, checklists, reporting, gathering evidence, recording data and other managerial tasks (Moss & Roberts-Holmes, 2022; Roberts-Holmes, 2015; Rogers, Dovigo & Doan, 2020).

Early childhood educators specifically need to be professionally trained and equipped to use emotional strategies with those they work with, as is done in other caregiving occupations, such as nursing and aged care. They also need to be well themselves to respond positively and support those in their care (Burgess et al., 2022). Emotional exposure to negative stressors such as conflict caused by mismatched roles and expectations, need attention. In short, workplace pressures imposed by managerial systems seem to reduce educators' ability to interact with children, and respond to the needs of children (Rogers, 2021a).

Educators are looking for meaningful work with recognition of professional status and reasonable financial reward. Three studies in this review illustrated an exacerbation of these issues during the Covid-19 pandemic. Educators have the workload of a professional, yet they are underpaid, unacknowledged and often invisible (Quinones et al., 2021; Rogers, 2021b, 2021c). Clarifying and matching the role expectations between the educators and organisations can build a more stable staff team.

As only one study, from Italy, found that being spiritual prevents burnout, this may be the start of longitudinal investigations in organisations with a spiritual focus and its overall impact on workplace climate, staff and children's well-being. There are a number of other implications this systemic review has for practice and policy. For instance, considerations of future work contracts and positions should include family roles, gender and age, as educators with multiple family roles are more likely to carry the mental and physical load involved in managing a household while also engaged in paid work (Ruppanner, Churchill & Dean, 2022). Educators' well-being requires consistent and intentional support. Free, affordable and accessible healthcare and social provisions should be educators' professional entitlement. On-going medical and psychological healthcare, for example, psychological counselling, support groups and coaching, are essential to their personal and professional well-being. Educators' social clubs that promote family and social time and support reinforce the societal value of educators' recovery and social status. Workplaces can provide time and space for spiritual relaxation and mindfulness during the day to promote educators' well-being.

Sometimes a crisis can be enough to trigger reform (Rogers, 2022; Rogers et al. 2023), and this is sorely needed in the early childhood sector. The importance of educators' well-being needs to be prioritised, given it impacts their private lives, professional ability to provide quality education and care, and willingness to stay in the sector (Cumming & Gibson, 2020). Educators' work supporting and educating our future generations cannot be underestimated or under-supported (Melhuish et al., 2015).

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Appendices

- Appendix 1: Search strategy
 Appendix 2: Table 2: Determinants of burnout
 Appendix 3: Table 3: Interventions of burnout
 Appendix 4: Table 4: Study determinants

Appendix 1: Search strategy

We operationalised the keyword search strategy using two databases, *Web of Science* and *Scopus*.

- Keywords Burnout= stress* OR "burnout" OR "quality of life" OR "anxiety"
 Educators= "early educator" OR preschool teach* OR "early childhood educator"
 Early childhood= early childhood OR preschool OR kindergarten
- Database 1: All Fields (stress* OR "burnout" OR "quality of life" OR "anxiety"
 Web of AND All Fields ("early educator" OR preschool teach* OR "early childhood
 Science educator")
 AND All Fields (early childhood OR preschool OR kindergarten)
 AND All Fields (outcomes of burnout OR poor wellbeing OR quality of life of
 teach* OR educators)
- Database 2: (stress* OR "burnout" OR "quality of life" OR "anxiety") in Anywhere
 Proquest AND ("early educator" OR preschool teach* OR "early childhood educator") in
 Anywhere
 AND (early childhood OR preschool OR kindergarten) in Anywhere
 AND (outcomes of burnout OR poor wellbeing OR quality of life of teach* OR
 educators) in Anywhere

Appendix 2: Table 2: Determinants of burnout, by determinants level and country

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|--|---|
| Li et al., 2020, China Preschool, 1795 preschool teachers | Quantitative, cross-sectional Maslach Burnout Inventory (MBI), Center for Epidemiologic Studies Depression Scale (CES-D); Perceived Stress Scale-14 | <i>Demographic</i> <i>Individual</i> Younger educators, with fewer years of teaching and higher qualified staff working at public schools, with normal weight as compared to educators who possessed the 'obesity paradox', have a higher tendency to feel depressed and report higher perceived stress in relation to burnout. 1. Female preschool educators - tended to have lower educational levels. 2. Male preschool educators - tended to have higher dissatisfaction with their income and had higher perceived stress. |
| Zhou et al., 2020, China Preschool, 1121 preschool teachers | Quantitative, cross-sectional Multidimensional scale of perceived social support, Work-family conflict scale, organisational commitment questionnaire, teacher's turnover intention | <i>Demographic, social capital</i> <i>Individual</i> 1. The level of family/friends' support is significantly related to young, new career teachers' turnover intention. The less support they have, the more likely they are to have burnout risk factors. 2. The organisational commitment mediated the relationship between family/friends support and turnover intention, while the independent mediating role of work-family conflict was not supported; and 3. The serial mediating role of work-family conflict and organisational commitment was observed in the relationship between family/friends' support and turnover intention. |
| Huang et al., 2020, China Preschool, 4301 preschool teachers, in four groups according to teaching experience: (1) < 2 years, (2) 2-5 years, (3) 5-10 years, (4) > 10 years. | Quantitative, cross sectional Symptom Checklist 90, Interpersonal Reactivity Index (IRI) | <i>Poor health</i> <i>Individual</i> Educators at various levels of experience displayed stable levels of fantasy, decreasing levels of empathic concerns, decreasing trends of perspective-taking, and increasing levels of personal distress. Fantasy and personal distress positively predicted mental health symptoms in preschool teachers, and perspective taking and empathic concern negatively correlated with most of the symptoms. These factors are affected by years of teaching experience. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|--|--|--|
| Gan & Cheng, 2021, China Preschool, 759 preschool teachers | Quantitative, cross sectional Psychological Capital Questionnaire (PCQ), Subjective Well-Being Scale (SWB); Social Demography and Personal Information Scale, Career Commitment Scale | <i>Poor health</i> <i>Individual</i> Teachers with higher subjective well-being demonstrated higher career commitment and psychological capital. Subjective well-being partially mediated the relationship between psychological capital and career commitment. |
| Chirico, 2017, Italy Preschool, kindergarten, primary, 27 primary teachers, 20 preschool teachers, 23 kindergarten teachers | Quantitative, cross-sectional Maslach Burnout Inventory (MBI-ES) and General of Health Questionnaire (GHQ-12) | <i>Social capital</i> <i>Individual</i> Educators with faith and religious beliefs reported higher personal accomplishment and lower exhaustion resulting in lower burnout. |
| Tasic et al., 2020, Serbia Preschool , 302 preschool teachers | Maslach Burnout Inventory (BMI-GS), Big Five Plus Two Questionnaire | <i>Demographic</i> <i>Individual</i> Being older, more experienced and having additional jobs increased the nursery teachers' aggression, cynicism and openness levels, leading to higher exhaustion. |
| Mondragon et al., 2021, Spain Preschool to universities 309 preschool teachers; 530 primary teachers; 491 secondary teachers; 89 bachelor studies teachers; 91 vocational training teachers, 123 university studies teachers | WHO Quality of Life (WHOQOL-BREF) | <i>Safety</i> <i>Individual</i> Educators' burnout risk factors were related to: 1. Environmental dimension - the quality of life was negatively impacted by decreased freedom, physical security, health, and social care, the domestic environment, opportunities to acquire new information and skills or participation, and opportunities for leisure. 2. Social relationships dimension - challenges related to social distancing restrictions. 3. Physical health dimension - pandemic fatigue and adaptation to online teaching. 4. Psychological health - worrying, stress, anxiety, and depression. Increased age and stressful caring roles at home exacerbate this. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|--|---|---|
| Johnson et al., 2020, USA Preschool, 113 preschool teachers | Quantitative, cross-sectional Center for Epidemiologic Studies Short Depression Scale (CES-D), Confusion, Hubbub, and Order Scale (CHAOS), MIT living wage calculator, USDA Core Food Security Module (CFSM) | <i>Poor health</i> <i>Individual</i> Depression, household chaos, and food insecurity increased burnout risk factors. |
| Swigonski et al., 2021, USA Early childhood, 145 early childhood teachers | Quantitative, cross-sectional Kessler mental health index, Consumer Financial Protection Bureau Financial Wellbeing Scale, Kaiser Family Foundation's Health Tracking Poll | <i>Safety</i> <i>Individual</i> Educators' burnout risk factors were impacted by: 1. Financial stress- falling behind on their rent or mortgage, financial concerns in paying for food, paying utilities and paying credit card bills causing financial stress. 2. Health stress- trouble with sleep, poor or overeating, headaches or stomach aches, worsening chronic conditions, and increases in alcohol or drug use causing poor mental health outcomes. |
| Schaack et al., 2020, USA Early childhood, 26 early childhood educators | Qualitative, phenomenology NA | <i>Social capital, poor work organisational structure</i> <i>Individual and service related</i> Educators' burnout risk factors were related to: 1. Individual factors - family factors influence the value teachers place on different job rewards. 2. Service-related factors - lack of job resources, lack of behavioural health support for children, lack of planning time, and lack of stable co-teachers undermined teachers' sense of competence in being effective teachers. Hence, they viewed the psychosocial workplace climate as less favourable. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|--|---|--|
| Wagner et al., 2012, Canada child-care & preschool, 69 early childhood teachers | Quantitative, cross-sectional Perceived Stress Scale (PSS), You Bet I Care! (YBIC!); Ways of Coping Questionnaire | <i>Demographic, low wages, social capital, professional training</i> <i>Individual and service related</i> Educators' burnout risk factors were related to: 1. Individual factors - having a low wage, single, no stable community, bearing the family responsibility of having children as a divorced, separated or widowed person. Lower wages were an essential predictor in those seeking other types of employment. 2. Service-related factors - include poor problem-solving coping skills, low job security, avoidant coping, and full-time work. Higher perceived stress was reported for those who intended to leave the field within the next year and those that felt a lack of job security. |
| Koulierakis et al., 2019, Greece preschool & kindergarten , 415 preschool and kindergarten teachers | Quantitative, cross-sectional Maslach Burnout Inventory-ES (MBI-ES), WHO Quality of Life Questionnaire (WHOQOL-BREF) | <i>Demographic, poor work organisational structure</i> <i>Individual and service related</i> Educators' burnout risk factors were related to: 1. Individual factors - widows, the eldest and those suffering from health problems reported higher emotional exhaustion and had poorer outcomes. 2. Service-related factors - educators in permanent and open-ended work contracts, the more experienced and educated they are, reported higher emotional exhaustion and poorer outcomes. |
| Erdiller & Dogan, 2015, Turkey early childhood , 1119 early childhood education teachers | Quantitative, cross-sectional Teacher Stress Inventory (TSI) | <i>Demographic, low wages, work progression</i> <i>Individual and service related</i> Educators' burnout risk factors were related to: 1. Individual factors - having low income and being male meant male educators face more personal distress and lower motivation and discipline at work. 2. Service-related factors - increased years of experience in the occupation, negatively related to their health and the younger age group of children they teach. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|--|--|
| Farewell et al., 2020, USA early childhood, 137 early childhood educators | Quantitative, cross-sectional Cohen Perceived Stress Scale (Cohen PSS), Patient Health Questionnaire PHQ-8, Brief Resilience Scale (BRS), Quality of Worklife (QWL), Mindfulness Attention Awareness Scale (MAAS-5) | <i>Poor health, poor work organisational structure Individual and service related</i> Educators' burnout risk factors were related to: 1. Individual factors - depression and perceived stress. 2. Service-related factors - demanding workload and staffing concerns, safety climate, resource adequacy, role clarity, respect, and management relationships. |
| Jones et al., 2020, Australia early childhood, 290 early childhood educators | Mixed-method, cross-sectional Work-related Well-being Questionnaire (WW), Basic Psychological Needs at Work Scale, Work Climate Scale (WCS), Discrete Emotions Emotional Labour Scale (DEELS) | <i>(Good) working relationships, (good) work organisational structure Service related</i> Educators' burnout risk factors were related to: Educator's well-being was significantly related to the National Quality Standard rating at the service. Positive well-being was associated with pay above award wages, flexibility in home/work life, higher educator/child ratio, quality time with colleagues and children, and implementation of work-related well-being initiatives. Job roles and responsibilities seen as equitable were associated with higher levels of well-being. |
| Kelly & Berthelsen, 1995, Australia preschool, 8 preschool educators | Qualitative, phenomenology NA | <i>Poor work organisation structure Service related</i> Educators' burnout risk factors were related to: time pressures, meeting children's needs, dealing with non-teaching tasks, meeting personal needs, issues with parents of the children, interpersonal relationships, maintaining early childhood philosophy and practice, and attitudes and perceptions about early childhood programs. |
| Eadie et al., 2021, Australia early childhood, 232 early childhood educators | Quantitative, cross-sectional Early Childhood Professional Well-being Scale (ECPW), Student-Teacher Relationship Scale (STRS) | <i>(Good) working relationships, (good) work organisational structure Service related</i> Educators' burnout risk factors were related to: Professional well-being. Stronger well-being was associated with less conflict in educator-child relationships. Organisational structures supporting professional well-being were strongly associated with a lower turnover risk. Burnout was more likely to be experienced by staff assuming senior positions, more experienced staff and staff working with children two years and over. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|--|--|
| Gu, Wang et al., 2020, China Preschool, 298 preschool teachers | Quantitative, longitudinal Work overload, emotional dissonance, detachment and relaxation, work-home conflict, Utrecht Work Engagement Scale (UWES), job satisfaction, insomnia | <i>Poor work organisational structure, lack of staff well-being focus</i> <i>Service related</i> Educators' burnout risk factors were related to: Work overload, dissonance and work-family conflict and its relationship to Chinese early childhood settings. Workload and surface acting can operate as salient job demands and can be viewed as chronically stressful experiences contributing to a rise in work-family conflict over time. |
| Gu, You et al., 2020, China Preschool, 320 preschool teachers | Work overload, Copenhagen Psychosocial Question-naire (COPSOQ II), Interpersonal conflict, Supervisor work-family support; Surface acting and deep acting; Work-to-family conflict | <i>Poor work organisational structure, lack of staff well-being focus</i> <i>Service related</i> Educators' burnout risk factors were related to: Continuous exposure to workload, and surface acting influences preschool teachers' well-being negatively over time. |
| Peng et al., 2019, China Preschool, 355 kindergarten teachers | Quantitative, cross-sectional Maslach Burnout Inventory (MBI-ES), Emotional Labor Strategy Scale, Psychological Capital Questionnaire (PCQ) | <i>Professional training</i> <i>Service related</i> Educators' burnout risk factors were related to deep acting, which negatively correlated to psychological capital, and surface acting, which positively correlated with psychological capital. Psychological capital acted as a mediator to burnout. |
| Hu et al., 2019, China Preschool, 180 preschool teachers | Quantitative, longitudinal Teacher Stress Inventory (TSI), School Climate Inventory, Teacher Self-efficacy Inventory | <i>Poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to poor collegiality, with the top results in higher teacher stress, lower teacher efficacy and hence poorer school climate. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|--|---|
| Gu & Wang, 2021, China Preschool, 337 preschool teachers | Quantitative, longitudinal Workload, Surface acting, Copenhagen Psychosocial Questionnaire (COPSOQII), psychological detachment and relaxation, work-family conflict | Lack of staff well-being focus <i>Service related</i> Educators' burnout risk factors were related to job resources and recovery experiences during after-work hours protected against increased work-family conflict over time despite high job demands. |
| Financz et al., 2020, Hungary early childhood and kindergarten, 414 early childhood educators, 374 kindergarten teachers, 162 nurses, 60 teaching assistants | Quantitative, cross-sectional Maslach Burnout Questionnaire, Beck Depression Questionnaire, European Health Interview Survey, Psychological Immune System Inventory (PISI) | <i>Low professional status, poor work organisational structure</i> <i>Service related</i> Educators' burnout risk factors were related to low social appreciation for educators working with the youngest children who have been seen as caregivers, and unfavourable assessment of the working environment harms subjective well-being impacting personal accomplishment. |
| De Stasio et al., 2017, Italy kindergarten & primary Special Education, 81 kindergarten teachers, 113 primary teachers | Quantitative, cross-sectional Copenhagen Burn-out Inventory (CBI); Teacher efficacy, Rosenberg Self-Esteem Scale (RSES), School Children's Happiness, Job Satisfaction Survey (JSS) | <i>Poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to low teacher self-efficacy and self-esteem, unhappiness at school, and poor working relationships meant teachers were unhappy and positively correlated with a higher risk of burnout. 1. Kindergarten teachers experienced the same level of burnout as above. 2. Primary school teachers experienced the same level of burnout as above. |
| Viotti et al., 2017, Italy Kindergarten, 426 kindergarten teachers | Quantitative, cross-sectional Job Content Questionnaire (JCQ); Work Ability Index (WAI) | <i>Poor work organisational structure</i> <i>Service related</i> Educators' burnout risk factors were related to: 1. Holistic perspectives in understanding psychosocial and ergonomic factors on workability. 2. Psychosocial (job resources): Only decision authority, skill discretion, work meaning and reward were found to be moderating the demands of physical work. 3. Ergonomic (job demands): Physical work demands significantly predict negative workability. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|--|---|--|
| Lovgren, 2016. Norway daycare centres, 1192 daycare teachers, 1357 daycare assistants | Quantitative, cross-sectional Maslach Burnout Inventory (MBI-HSS) | <i>Poor work organisation structure</i> <i>Service related</i> Educators' burnout risk factors were related to incompetency, unclear work role, poor work support, demanding parent-oriented tasks and teaching tasks that correlated with greater emotional exhaustion and higher burnout risk. |
| Kim et al., 2020, South Korea daycare centres, 310 preschool educators | Quantitative, longitudinal Stress Mindset Measure (SMM) | Lack of staff well-being focus <i>Service related</i> Educators' burnout risk factors were related to having a <i>stress-is-enhancing</i> mindset predicted better psychological well-being and professional development. Educators who had a stress-is-debilitating mindset predicted staff turnover. This mindset forecasted poorer psychological well-being, professional development and staff turnover at the end of the school year. |
| Wells, 2015, Sweden Preschool, 65 early childhood teachers | Quantitative, cross-sectional Job satisfaction questionnaire | <i>Poor work organisational structure, poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to: 1. Lower-educated teachers were unhappy at work, had poorer relationships with their supervisor and disliked the work environment. 2. Higher-educated teachers were more likely to be married, perceived their workload to be too high, and perceived that they had inadequate facilities. |
| Dogan & Yatmaz, 2018, Turkey Preschool, 1020 early education teachers | Quantitative, cross-sectional Professional Identity Scale (PRIS) | <i>Low professional status, poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to the disparity between high educational levels but low salaries, permanent employment, and males in the field facing low parental acceptance. |
| Hur et al., 2016, USA Early childhood, 522 early childhood teachers | Quantitative, cross-sectional Teacher sense of school as a community questionnaire, Attitude towards teaching as a career questionnaire, Modernity Scale | <i>Poor work organisation structure, poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to poorly perceived collegiality, influence over work, and high responsibility negatively impacting job satisfaction, which increased the risk of burnout. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|--|---|
| Schaack et al., 2020, USA Early childhood & pre-kindergarten, 273 early childhood teachers | Quantitative, cross-sectional Maslach Burnout Inventory (MBI) | <i>Poor working relationships</i> <i>Service related</i> Educators' burnout risk factors were related to lack of job control, collegial relationships, and children's challenging behaviours leading to higher emotional exhaustion and depersonalisation. |
| Grant et al., 2019, USA Early childhood, 1129 early childhood educators | Quantitative, cross-sectional Teachers' professional commitment, Work Attitudes Questionnaire, Perceived Stress Scale (PSS), Emotion Regulation Questionnaire | <i>Poor work organisational structure</i> <i>Service related</i> Educators' burnout risk factors were related to teachers' perception of better working conditions predicted educators staying; more significant stress and emotional exhaustion predicted educators leaving; more reappraisal emotional regulation predicted educators moving or leaving; more suppressive emotional regulation though predicting educators staying, but this was not statistically significantly higher than leaving. Intrinsically motivated educators are less likely to leave the field. Extrinsically motivated educators are three times more likely to leave the field. |
| Edwards et al., 2021, USA Preschool, 44 preschool teachers | Qualitative, cross-sectional NA | <i>Poor work organisational structure</i> <i>Service related</i> The state's uncoordinated quality system and improving classroom quality without paying full attention to the structural supports framing teacher and environmental practices was also important. |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|---|---|---|
| <p>Jeon & Ardeleanu, 2020, USA</p> <p>Preschool, 1129 early childhood teachers; 75% in child-care centres 25% in public pre-K programs.</p> | <p>Quantitative, cross-sectional</p> <p>Perceived Stress Scale (PSS); Work Attitudes Questionnaire, Scales Measuring Aspects of Child-Care Quality; Teachers' Judgments of Problems on Children Scale, - Emotion Regulation Questionnaire</p> | <p><i>Lack of staff well-being focus</i> <i>Service related</i></p> <p>Educators' burnout risk factors were related to:</p> <ol style="list-style-type: none"> 1. Reappraisal emotion regulation strategies mediated the associations between teacher-perceived work situation, family support, and stress. Teachers' general health was also associated with teachers' reappraisal of emotion regulation. 2. Suppression emotion regulation strategies mediated teacher-perceived children's behaviours and stress associations. Black, non-Hispanic teachers, had better reappraisal emotion regulation strategies but more suppression emotion regulation strategies. Teachers with bachelor degrees utilised less suppression emotion regulation strategies than other teachers. Teachers who reported more household income used less suppression emotion regulation strategies. Teacher-perceived work climate variables (i.e., work situations, support from families, children's challenging behaviours). 3. For-profit programs had more problems with children's behaviours. Non-profit programs: had fewer problems with children's behaviours. 4. Public pre-K program: had more problems with children's behaviours reported and slightly less positive relationships with families. |
| <p>Gagnon et al., 2019, USA</p> <p>Preschool, 44 preschool teachers</p> | <p>Quantitative, cross-sectional</p> <p>Index of Teaching Stress (ITS), Student-Teacher Relationship Scale (STRS)</p> | <p><i>Poor working relationships</i> <i>Service related</i></p> <p>Educators' burnout risk factors were related to conflict with children and predicted higher teaching stress.</p> |

| Author, year, country. Level of educ., sample size and participants | Study design, methods. Measurement of burnout and quality of life | Themes of analysis. Determinants level. Summary of outcomes and identified determinants related to risks of burnout |
|--|--|---|
| Friedman-Krauss et al., 2014, USA Preschool, 69 preschool teachers | Quantitative, cross-sectional Child-care worker Job Stress Inventory (JSI), WebExec | <i>Poor working relationships, lack of staff well-being focus</i> <i>Service related</i> Educators' burnout risk factors were related to teachers' executive function skills, which impact job stress, and teachers' perceptions of child behaviour problems and teacher job stress. Outcomes: Higher teacher executive function skills are associated with lower levels of teacher stress: <ol style="list-style-type: none"> 1. Teachers feel less irritable and have greater job control. 2. Teachers utilise efficient and effective classroom management and instructional strategies. 3. Ability to use cognitively controlled, top-down strategies to manage their emotional and behavioural responses. |
| Coman et al., 2013, USA Preschool, 53 preschool teachers. Disaggregated: <ol style="list-style-type: none"> 1. 17 treatment and education of autistic and related communication handicapped children (TEACCH) 2. 15 learning experiences and alternative program for preschoolers and their parents (LEAP) 3. 21 high-quality special education programs (HQSEP) | Quantitative, cross-sectional Maslach Burnout Inventory (MBI-ES) | <i>Lack of staff well-being focus</i> <i>Service related</i> Educators' burnout risk factors were related to: the belief that teachers' commitment to classroom philosophy reduced burnout. LEAP, TEACCH and HQSEP are three preschool programs with differing philosophies catering to preschool children with autism. <ol style="list-style-type: none"> 1. High fidelity LEAP teachers reported significantly higher levels of commitment to LEAP philosophy, while high fidelity TEACCH teachers did not report significantly higher commitment levels to TEACCH philosophy. 2. HQSEP teachers reported similar commitment levels to TEACCH and LEAP philosophy. No significant burnout risk can be drawn from the commitment of teachers to any specific classroom philosophy. |

Appendix 3: Table 3: Burnout interventions of by intervention level and country

| Author, year, country | Educational level, sample size and participants | Study design, methods. Measurement of burnout and quality of life | Intervention level and type | Themes of analysis Summary of intervention findings |
|-------------------------------|---|--|---|--|
| Roberts et al., 2020, US | Preschool, 89 preschool teachers randomly assigned into four groups: (1) course-only; (2) conference; (3) reflective writing; (4) a control group. | Mixed methods, randomised controlled trial Maslach Burnout Inventory (MBI), Depression, Anxiety and Stress Scale (DASS-21), Teacher's Sense of Self Efficacy Scale | Service related Effective Classroom Interactions Course (Online), Coaching Condition, Reflective Writing Condition | Professional training Participants of the course-only treatment condition had decreased self-efficacy and increased emotional exhaustion relative to the control group. Teachers who had access to the coaching conferences and reflective writing supports benefited from the availability of emotional outlets and/or opportunities for feedback. |
| Sottimano et al., 2018, Italy | Preschool, 324 preschool teachers <i>Group One:</i> 69 preschool teachers, psychological counselling, psychosocial intervention & environmental redefinition; <i>Group Two:</i> 65 preschool teachers, psychological counselling, psychosocial intervention & gymnastic and vocal hygiene; <i>Group Three:</i> 190 preschool teachers, a control group | Quantitative, cross-sectional Spanish Burnout Inventory (SBI), Copenhagen Psychosocial Questionnaire (COPSOQ II), Work Ability Index, Job Content Questionnaire (JCQ) | Individual and service related <i>Psychological:</i> counselling, support group meeting <i>Psychosocial:</i> physiotherapy, speech therapy, gymnastic and vocal hygiene <i>Physical:</i> redefinition of work environment, space and furniture | Staff well-being-centred workplace <i>Service-related:</i> psychological counselling and psychosocial intervention, environmental redefinition (for Group one), gymnastic and vocal hygiene (for Group two). <i>Individual:</i> psychological counselling meetings supported the teachers who participated in the experimentation to mentalise their work better, cope with the emotional aspects and revitalise their motivation to work. Physiotherapy and speech therapy did not enhance workability and ameliorated physical health. <i>Group intervention:</i> group meetings supported work and personal relationships with colleagues, improving their perception of social support and organisational trust. Redefinition of work environment, space, and furniture strengthened the sense of belonging to the school (as a building and workgroup) and enhanced involvement. Increasing trust in the organisation did not enhance workability and ameliorated physical health. |

Appendix 4: Table 4: Study determinants, by determinants level and citation

| | Description | Studies |
|--------------------------------------|---|--------------------------|
| <i>Individual-level determinants</i> | | |
| Gender | Male educators face more personal distress and lower motivation and discipline at work. | Erdiller & Dogan, 2015 |
| Age group | Oldest educators suffering from health issues reported higher emotional exhaustion. | Koulierakis et al., 2019 |
| | Younger educators in the normal weight range with fewer years of teaching in public schools reported higher feelings of depression and higher perceived stress. | Li et al., 2020 |
| Family roles | Older educators with more work experience reported having higher emotional exhaustion from having additional jobs and teaching children of nursery age. | Tasic et al., 2020 |
| | Young, new career educators who face multiple adaptive challenges are at higher risk of burnout. | Zhou et al., 2020 |
| Low income | Widowed educators reported higher emotional exhaustion. | Koulierakis et al., 2019 |
| | Single, widowed, divorced, and separated educators reported the inexperience or demand of multi-family roles is exhaustive. | Wagner et al., 2013 |
| Social capital | Male educators with lower wages face more personal distress and lower motivation and discipline at work. | Erdiller & Dogan, 2015 |
| | Educators with lower-wage seek alternative employment. | Wagner et al., 2013 |
| Health | Educators with faith and religious beliefs reported higher personal accomplishment and lower emotional exhaustion, leading to a lower risk of burnout. | Chirico, 2017 |
| | Family factors influence educators' perception of job rewards. | Schaack et al., 2020 |
| Safety | Singles or first-time parent educators without a stable community suffer a higher risk of burnout. | Wagner et al., 2013 |
| | Educators with higher support from families and friends reported lower turnover intentions. | Zhou et al., 2020 |
| Health | Educators with depression and perceived stress reported a higher risk of burnout. | Farewell et al., 2021 |
| | Educators with higher subjective well-being reported lower feelings of burnout. | Gan & Cheng, 2021 |
| Safety | Educators experiencing higher levels of fantasy and personal distress, lower levels of perspective-taking and empathetic concern are more likely to experience feelings of burnout. | Huang et al., 2020 |
| | Educators with depression, facing household chaos and experiencing food insecurity are more likely to suffer burnout. | Johnson et al., 2020 |
| Safety | Educators reported higher feelings of burnout due to restrictions to access public spaces and social interactions. A higher level of stress is associated with challenges in adapting to online teaching and concerns over personal and family health and safety as a result of one's contact with children and families in their care. | Mondragon et al., 2021 |

| | Description | Studies |
|---|---|--------------------------|
| | Educators experienced burnout over job security during covid where work is unstable, resulting in financial stress. There were also concerns around personal safety resulting in health stress while discharging their daily duties. | Swigonski et al., 2021 |
| <i>Service-related level determinants</i> | | |
| Poor organisational structure | Without professional well-being support, educators with senior positions and those working with children above two years old are more likely to leave their jobs. | Eadie et al., 2021 |
| | The pursuit of quality classrooms without structural support on top of the state's uncoordinated quality system is associated with higher burnout risks. | Edwards et al., 2021 |
| | Demanding workload, staffing concerns, safety workplace climate, resource adequacy, role clarity, respect and management relationships | Farewell et al., 2021 |
| | Perception of a poor work environment negatively impacts subjective well-being. | Financz et al., 2020 |
| | Perception of poor work conditions, educators who are extrinsically motivated and adopt reappraisal emotional regulation strategy are more like to like the job. | Grant et al., 2019 |
| | Work overload and surface acting as work demands. | Gu, Wang, et al., 2020 |
| | Continuous exposure to the workload over time increases burnout risks. | Gu, You, et al., 2020 |
| | High work responsibility and low work control have negatively impacted job satisfaction. | Hur et al., 2016 |
| | Good National Quality Standard rating, above award pay, flexible home/work arrangement, higher educator-child ratio, agency to implement well-being initiatives and equitable job roles and responsibilities associated with positive well-being. | Jones et al., 2020 |
| | Time pressures, meeting children's and personal needs, issues with parents of children, non-teaching tasks, maintaining early childhood philosophy and practice, and attitudes and perceptions about early childhood programs. | Kelly & Berthelsen, 1995 |
| | The more experienced and educated educators in permanent and open-ended work contracts reported higher emotional exhaustion. | Koulierakis et al., 2019 |
| | Unclear work roles, feelings of incompetency, poor work support, and demanding parent-oriented and teaching tasks increase feelings of burnout. | Lovgren, 2016 |
| | Lack of job resources, behavioural health support for children, planning time, and stable co-teachers undermine educators' sense of competence, resulting in a less favourable perception of the workplace climate. | Schaack et al., 2020 |
| | Poor job autonomy, skill discretion, work meaning, reward and high physical work demands were associated with higher burnout feelings. | Viotti et al., 2017 |
| Higher qualified educators who were married perceive a higher workload and that work facilities are inadequate. | Wells, 2015 | |

| | Description | Studies |
|--|--|------------------------------|
| Poor working relationship | Low teacher self-efficacy and self-esteem, unhappiness at school, and poor working relationships increased burnout risks. | De Stasio et al., 2017 |
| | Male educators face low parental support in their roles and experience higher feelings of burnout. | Dogan & Yatmaz, 2018 |
| | Stronger educator well-being is positively associated with lesser conflictual educator-child relationships. | Eadie et al., 2021 |
| | Lower teacher executive function skills are positively associated with higher teacher stress in managing children with challenging behaviour. | Friedman-Krauss et al., 2014 |
| | Conflict with children. | Gagnon et al., 2019 |
| | Poor collegiality with the principal negatively impacts the school climate. | Hu et al., 2019 |
| | Poor perceived collegiality. | Hur et al., 2016 |
| | Spending quality time with colleagues and children is associated with better well-being. | Jones et al., 2020 |
| | Lack of collegial relationships and children's challenging behaviours. | Schaack et al., 2020 |
| | Lower educated educators had poorer relationships with the supervisor and disliked the work environment. | Wells, 2015 |
| Low professional status and work progression | Highly qualified educators were earning low wages and on permanent employment contracts experiencing low societal and parental perceptions. | Dogan & Yatmaz, 2018 |
| | Health and teaching younger age children negatively relate to more experience educators. | Erdiller & Dogan, 2015 |
| | Educators working with the youngest children experience low social appreciation. | Financz et al., 2020 |
| Lack of staff well-being focus | It is inconclusive that commitment to a particular classroom philosophy reduces burnout. | Coman et al., 2013 |
| | Teachers with poor executive function feel more stress in their inability to manage the class and carry out instructions. | Friedman-Krauss et al., 2014 |
| | Job resources and recovery experiences during after-work hours prevented burnout. | Gu, Wang, et al., 2020 |
| | Dissonance and lacking of work-family boundaries increased burnout feelings. | Gu, Wang, et al., 2020 |
| | Surface acting increases work-to-family conflict over time. | Gu, You, et al., 2020 |
| | A poor work climate that induces teacher stress is associated with emotional regulation. Reappraisal emotion regulation is positively associated with lower stress and suppression emotion regulation is negatively associated with higher stress. | Jeon & Ardeleanu, 2020 |
| | Black, non-Hispanic teachers had better reappraisal of emotion regulation but more suppression of emotion regulation. | |
| | Degree-qualified educators and educators with higher household incomes adopted lesser suppression emotion regulation. Stress-is-debilitating mindset predicted staff turnover at the end of the year. | Kim et al., 2020 |

| | Description | Studies |
|-----------------------|---|-------------------|
| Professional training | Educators with poor problem-solving and coping skills Professional training is required to prevent deep acting and encourage surface acting to increase psychological capital. | Peng et al., 2019 |

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