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Mental health and burnout levels of early childhood education pedagogical teams in Chile

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Introduction: Mental health is a state of complete wellbeing that includes people's cognitive, affective, and behavioral aspects. This means that an individual with low levels of depression, anxiety, and stress can function optimally in their daily life, contributing to the community and enjoying and creating meaningful relationships with their peers and environment. The purpose of the study was to determine the levels of stress, anxiety, and depression along with the levels of burnout manifested by Chilean preschool education professionals.

Method: A quantitative, non-experimental, correlational design was applied. A purposive sample of 560 preschool teachers and assistants participated. Data were collected using the Depression Anxiety and Stress Scale (DASS-21) and the Maslach Burnout Inventory (MBI). Analyses included descriptive and inferential statistics.

Results: Participants exhibited low levels of stress, anxiety, and depression. However, emotional exhaustion and depersonalization showed positive correlations with all three mental health indicators. Conversely, personal accomplishment was negatively correlated with them. Structural equation modeling revealed that anxiety mediates the relationship between burnout and depressive symptoms, with emotional exhaustion having the greatest impact.

Discussion: These findings underscore the importance of reinforcing psychological and socio-emotional support for preschool education teams. Strengthening professional wellbeing is critical not only for educators' health but also for enhancing the quality of early childhood education.

KEYWORDS

early childhood education, mental health, burnout, stress, anxiety, depression

1 Introduction

Preschool education is the initial level of the educational system, serving children from 84 days to 6 years of age ([Ministerio de Educación, 2018](#)), depending on national frameworks. This stage is critical for laying the foundations of learning, fostering autonomy, socioemotional development, and the creation of affective bonds that underpin lifelong development ([Kuzik](#)

et al., 2020; Johnstone et al., 2022; Uljaevna and Shavkatovna, 2021). Its objectives include promoting integral wellbeing and creating environments that support meaningful learning (Guerra et al., 2017; Sandoval-Obando, 2019). Families also play a central role, complementing schools in strengthening collaboration and children's self-worth (Mendoza-Santana and Cárdenas-Sacoto, 2022; Blanco, 2024).

In early childhood education, teaching goes beyond delivering academic content. Teachers and assistants are responsible for nurturing values, developing social skills, and ensuring safe and stimulating environments that promote holistic growth (Chilean Ministry of Education [MINEDUC], 2023a; Fariás-Veloz et al., 2022; Bøe et al., 2022; Masnawati et al., 2022; Bezie et al., 2025). Their work demands not only pedagogical expertise but also socioemotional skills to manage the intense relational and emotional dynamics that characterize preschool contexts.

Within this framework, mental health and wellbeing are crucial for the quality of educational processes (Bardach et al., 2022; Kwon et al., 2022). Research shows that educators' psychological balance enhances classroom climate, fosters collaboration with families, and directly benefits children's socioemotional development (Delgado-Floody et al., 2022; Caamaño-Navarrete et al., 2024; Bertolín-Guillén, 2023). Conversely, persistent stress, anxiety, or depression diminish professional performance, strain teacher-child interactions, and negatively affect institutional environments (Jiménez-Macías et al., 2021; Calvó, 2020).

Pedagogical teams are central actors in this process. Comprising teachers, assistants, families, and other agents, they are responsible for implementing institutional projects, supporting training, and ensuring the continuity of educational practices (Camacho and Vargas, 2019; Chilean Ministry of Education [MINEDUC], 2023b). Their collaborative role in strengthening pedagogical practices and monitoring curricular activities makes them essential to sustaining children's learning and fostering resilience in educational communities. However, these functions also increase the exposure of professionals to stressors that demand adaptive and protective resources.

From an occupational health perspective, work stress encompasses emotional, cognitive, and behavioral responses to environmental demands that exceed workers' perceived resources (World Health Organization [WHO], 2020). In preschool education, high workload, emotional intensity, and limited resources create fertile conditions for stress-related problems (Fuentes-Vilugrón et al., 2024; Muñoz-Troncoso et al., 2024). Prolonged exposure often leads to burnout, a syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment (Martínez, 2010; Alsalhe et al., 2021; Edú-Valsania et al., 2022; Roloff et al., 2022; Skomorovska et al., 2023).

The Job Demands-Resources Model (JD-R) offers a valuable framework for understanding these processes. According to this model, stress and burnout emerge when job demands—such as emotional overload, administrative duties, or role ambiguity—exceed available resources, including social support, autonomy, and professional development. Insufficient resources intensify the risk of exhaustion, while adequate resources buffer negative effects and foster engagement (Hascher and Waber, 2021; Madigan and Kim, 2021). In early childhood settings, where emotional involvement is

intrinsic to daily practice, this model clarifies why professionals are especially vulnerable and how supportive resources can mitigate risks.

The COVID-19 pandemic exacerbated these challenges. Preschool educators faced increased uncertainty, technological adaptation, and heightened emotional demands from supporting children and families under stressful conditions (Bistrić and Šimić Šašić, 2023; Kush et al., 2022; Ribeiro et al., 2020; Sandoval-Obando, 2021). Even in post-pandemic contexts, residual stress and its impact on mental health persist (Lizana and Lera, 2022; Varela et al., 2023). These conditions highlight the importance of addressing educators' wellbeing not only as a matter of individual health but as a determinant of educational quality.

Furthermore, emerging evidence links teacher burnout and mental health difficulties with cognitive impairments in executive functions such as emotional regulation, decision-making, and working memory, which are essential for effective teaching (Bayes et al., 2021; Koutsimani et al., 2021). Protective psychological resources, such as resilience, sense of purpose, and opportunities for personal growth, have been shown to buffer the adverse effects of stress and burnout, thereby supporting professional sustainability (Michel et al., 2022).

In Chile, research on the mental health of preschool teachers and assistants remains scarce despite the strategic importance of this level in educational policy and social development (Sandoval-Obando, 2019; Armstrong-Gallegos and Sandoval-Obando, 2023). While most studies focus on school or higher education contexts, the specific vulnerabilities of early childhood education teams remain underexplored (Fuentes-Vilugrón et al., 2024; Muñoz-Troncoso et al., 2024). Addressing these knowledge gaps is crucial to designing targeted interventions that strengthen professional wellbeing and contribute to the sustainability of early education systems (Berger et al., 2022; Dreer and Gouasé, 2022; Ng et al., 2023).

Against this backdrop, the present study aimed to determine the levels of stress, anxiety, depression, and burnout among Chilean preschool education professionals, and to examine the interrelationships among these variables. By applying a structural approach, this research seeks to contribute evidence for preventive strategies and institutional policies that prioritize psychological wellbeing, ensuring both healthier working conditions for educators and higher-quality educational environments for children.

2 Methods

The study utilized a quantitative research methodology to collect precise, quantifiable data on the variables of interest. This approach facilitated rigorous and systematic testing of hypotheses, behavioral patterns, and theories (Herrera Castrillo, 2024; Miranda Beltrán and Ortiz Bernal, 2020).

2.1 Design

A descriptive-correlational design was employed to identify the relationships between two or more variables, focusing on their levels of non-causal association. Additionally, this study was non-experimental and cross-sectional, as the independent variables

were not manipulated. Instead, the phenomena were observed in their natural context as they occurred.

2.2 Sample

Purposive non-probabilistic sampling was utilized (Hernández González, 2021) due to the necessity of analyzing levels of depression, anxiety, stress, and burnout among pedagogical teams in preschool education in Chile. The sample comprised 563 participants, 323 preschool teachers (57.4%) and 240 teacher assistants (42.6%) from public and private preschool education establishments in different regions of Chile, with the aim of ensuring diversity in the administrative unit and in the organizational context (Table 1). This decision responded to restrictions on access to official lists of centers and to ethical and logistical criteria, which implies that the sample is not representative of all educators and assistants in Chile and, therefore, may contain risks of bias typical of intentional sampling. The study participants ranged in age from 19 to 63 years ($M = 35.08$, $SD = 9.116$) and had between 1 and 45 years of work experience ($M = 9.67$, $SD = 7.990$). The study included preschool teachers and assistants who: (a) worked full-time or part-time in preschool education establishments in public and private administration establishments in Chile; (b) signed the informed consent prior to data collection; and (c) had at least 3 months of seniority in the position at the time of data collection. Regarding the exclusion criteria, they were: (a) those professionals who did not perform functions directly in preschool education classrooms; (b) questionnaires with incomplete data on the main scales of analysis.

2.3 Instruments for data collection

Depression Anxiety Stress Scales (DASS-21): The purpose of this instrument is to measure depression, stress, and anxiety in individuals, regardless of whether they have a confirmed diagnosis of a mental disorder (Valencia, 2019). The revised questionnaire consists of 21 items, organized into seven questions across various subscales for ages 18–80 (Valencia, 2019). Antúnez and Vinet (2017) report that this instrument was validated in 2008 at the Universidad Austral de Chile, involving 484 students from the first to the fourth year across various fields of study. The instrument demonstrates strong reliability, as indicated by Cronbach's Alpha coefficients of 0.73 for anxiety, 0.83 for stress, and 0.85 for depression, resulting in an overall reliability score of 0.91.

Maslach Burnout Inventory (MBI): This test was measured to assess how frequently and intensely burnout is experienced. The questionnaire consists of 22 items, which, according to the manual, are distributed in three scales: Emotional exhaustion (9 items),

Personal accomplishment at work (8 items), and Depersonalization (5 items). The frequency form was used in the study, and the scale had seven grades ranging from 0 (never) to 6 (every day). Specifically, we used the Spanish version of the MBI-HSS and justified its use in Chilean samples by citing studies that have confirmed the canonical three-factor structure (Emotional Exhaustion, Depersonalization, Personal Accomplishment) and adequate reliability in local service-professional samples (Oliveras-Faúndez et al., 2013), as well as a Chilean study with prison officers that reported both exploratory and confirmatory factor analyses with good global fit (e.g., GFI = 0.90, CFI = 0.93, RMSEA = 0.058) and satisfactory subscale internal consistencies after item-level refinements (Álvarez-Cabrera et al., 2022). This body of evidence supports that the instrument appropriately measures burnout in the Chilean context. In our sample, subscale internal reliability was acceptable (Emotional Exhaustion $\alpha = 0.86$; Depersonalization $\alpha = 0.72$; Personal Accomplishment $\alpha = 0.76$), and a confirmatory factor analysis reproduced the three-factor solution (CFI = 0.96; TLI = 0.95; RMSEA = 0.04), further supporting its validity for our target population.

Finally, the MBI yields three summed subscale scores and does not produce a total score. Directionality follows the manual: higher EE and DP reflect more burnout, whereas lower PA reflects more burnout. For descriptive purposes only, we report the widely used bands for each subscale: EE (low ≤ 16 ; moderate = 17–26; high ≥ 27), DP (low ≤ 6 ; moderate = 7–12; high ≥ 13), and PA (high ≥ 39 ; moderate = 32–38; low ≤ 31 ; note that lower PA implies more burnout). In line with the 4th edition of the manual, we do not use cut-offs for diagnosis; instead, burnout is interpreted as a continuum, and subscale scores are analyzed as continuous variables (Maslach et al., 2016).

2.4 Analysis procedure

For the statistical analysis of the data, SPSS software version 29 was used. In this regard, the descriptive analysis was performed using cross tables, which allowed the researchers to observe the relationship between the variables studied using absolute frequencies and measures of central tendency (mean, median, mode, standard deviation, and variance). Correlation describes the relationship and degree of change between two variables. In this study, Pearson's correlation test was used to analyze the relationships among variables from the DASS-21 (Depression, Anxiety, and Stress Scale) and the MBI (Maslach Burnout Inventory), which measures Emotional Exhaustion, Depersonalization, and Personal Accomplishment. To test the study hypotheses, we estimated structural equation models (SEM). Models were fitted using the weighted least squares mean and variance adjusted estimator (WLSMV), appropriate for ordinal indicators and

TABLE 1 Sample distribution.

Role	Frequency	Percentage
Preschool teachers	323	57.3%
Preschool teacher assistants	240	42.6%
Total	563	100%

Own elaboration.

robust to violations of multivariate normality (DiStefano and Morgan, 2014; Kline, 2023). SEM enables the specification of direct and indirect relations among observed and latent variables while accounting for measurement error (Ortiz and Fernández-Pera, 2018) and facilitates confirmation of the structural pattern of associations within a multivariate framework (Hair et al., 2022). SEM analyses were conducted in RStudio 2025.05.1 + 513 (Posit Team, 2025) using the lavaan package (Rosseel, 2012). Model fit was evaluated with CFI, TLI, RMSEA (with 90% CI), and SRMR, and we report standardized path coefficients (β) with corresponding test statistics.

2.5 Ethical considerations

All procedures were carried out in accordance with the ethical principles of the Declaration of Helsinki and national regulations. Participation was voluntary with informed consent granted by each participant. The data collected was treated confidentially and anonymously, guaranteeing the privacy and protection of personal information.

3 Results

The research results indicate that among the evaluated symptoms of depression, anxiety, and stress, stress is the most prevalent. It has a mean score of 8.81 with a standard deviation (SD) of 5.18. Anxiety follows with a mean score of 6.65 and an SD of 5.54, while depression has a mean score of 6.09 and an SD of 5.37 (see Table 2).

3.1 Depressive symptomatology factor

In a sample of 323 preschool education teachers and 240 teacher assistants, the results from the depression subscale indicate that the largest percentage of responses falls under the subcategory of no symptoms, accounting for 47.37% of those surveyed. As for the sample of teacher assistants, the no symptoms subcategory is equivalent to 48.75% of the participants. The results are illustrated in the graph below. An analysis of the samples from preschool education teachers and teacher assistants revealed that there were 38 reported cases of mild depression among preschool education teachers, accounting for 11.76%. In comparison, 31 cases were reported among teacher assistants, corresponding to 12.92%. It was found that 21.67% of preschool education teachers and 16.25% of teacher assistants exhibited moderate depression. Additionally, 7.73% of preschool education teachers ($n = 25$) and 9.58% of teacher assistants ($n = 23$) reported experiencing severe levels of depression. Furthermore, the rates for extremely severe

depression were 11.45% among preschool education teachers and 12.5% among teacher assistants, respectively.

A detailed analysis of 323 preschool education teachers and 240 teacher assistants reveals concerning trends regarding depression symptoms. Among the preschool education teachers surveyed, 170, or 52.64%, exhibit varying degrees of depressive symptomatology, while 123 teacher assistants, which is 51.25%, show similar symptoms. These findings indicate that 47.37% of preschool education teachers do not exhibit any symptoms of depression, whereas 52.64% do present symptoms at various severity levels. Similarly, 48.75% of teacher assistants do not display symptoms, with 51.25% presenting symptoms to different extents. This situation raises alarm regarding the mental health of professionals in early education.

3.2 Anxiety symptomatology factor

The results from the anxiety subscale, which involved 323 preschool education teachers and 240 teacher assistants, indicate that many responses fell into the *no symptoms* subcategory. Specifically, 119 preschool education teachers, representing 36.85% of that group, reported *no symptoms*. Among teacher assistants, 96 individuals, equivalent to 40% of their group, also indicated *no symptoms*. This information is depicted in the following graph.

In comparing the samples collected from preschool teachers and teacher assistants regarding mild anxiety, it was found that 25 cases of *mild anxiety* were reported among preschool teachers, accounting for 7.74% of that group. In contrast, 15 cases were reported among teacher assistants, representing 6.25% of their group. For *moderate anxiety*, the values are 61 preschool teachers, 18.89%, and 43 assistants, 17.92%, respectively.

In the case of severe anxiety, there were 22 recorded instances among preschool teachers, representing 6.82% of the group. There were 20 cases for teacher assistants, which corresponds to 8.34%.

Regarding extremely severe anxiety, the numbers are higher: 96 preschool teachers were affected, accounting for 29.76%, while 66 teacher assistants, or 27.51%, experienced the same level of anxiety. Additionally, when examining the various degrees of anxiety symptoms, ranging from mild to extremely severe, it becomes clear that the situation is alarming. A total of 204 preschool teachers, which is 63.16%, exhibit symptoms of anxiety, while 144 assistants, amounting to 60%, also display such symptoms.

This data indicates that out of the 323 preschool teachers surveyed, 36.85% do not show any symptoms of anxiety, while 63.16% do exhibit symptoms of varying degrees. Similarly, among the 240 assistants surveyed, 40% do not present any symptoms, leaving 60% who do show anxiety symptoms. These findings highlight a significant concern regarding mental health in early childhood education professionals.

TABLE 2 Descriptive statistics on mental health.

Variable	<i>n</i>	Min	Max	Mean	SD
Depression	563	0	21	6.09	5.373
Anxiety	563	0	21	6.65	5.549
Stress	563	0	21	8.81	5.181
<i>N</i>	563				

Own elaboration.

3.3 Stress symptomatology factor

The results from the stress subscale, conducted with 323 preschool teachers and 240 teacher assistants, indicate that most responses fall within the no symptoms category. Specifically, 136 preschool teachers, representing 42.11% of that group, reported no symptoms, while 107 teacher assistants, making up 44.59% of their group, reported the same. This data is illustrated in the following graph.

When comparing the samples collected from preschool teachers and teacher assistants regarding mild stress levels, it was found that 44 cases were reported among preschool teachers, representing 13.62%. In contrast, teacher assistants reported 30 cases, corresponding to 12.5%.

For moderate stress, there are 62 preschool teachers, accounting for 19.20%, and 44 teacher assistants, representing 18.34%. In the case of severe stress, 57 preschool teachers were recorded, amounting to 17.64%, while there were 35 teacher assistants, corresponding to 14.59%. For cases of extremely severe Stress, there are 24 preschool teachers, which is 7.43%, and 24 teacher assistants, representing 10%.

Furthermore, it is evident that when analyzing the results of the Stress subscale, which measures symptomatology ranging from mild stress to extremely severe stress, there are several concerning figures. Among the 323 preschool teachers surveyed, 187 reported experiencing some symptomatology, representing 57.90%. Conversely, 42.11% of these teachers do not exhibit any symptoms. Similarly, among the 240 teacher assistants surveyed, 133 reported symptoms, accounting for 55.42%, while 44.59% did not show any symptomatology. These statistics raise alarming concerns about the state of mental health in early childhood education professionals.

3.4 Burnout analysis

In this section, data were collected through the MBI instrument, in which the mean and SD of the factors assessed in preschool teachers and teacher assistants were calculated. The factors considered include the following symptomatology's: emotional exhaustion, depersonalization, and personal accomplishment. The means and SD of each of these factors are presented below Table 3.

When analyzing the statistics descriptively obtained from the MBI, it is possible to observe that the mean of the *emotional exhaustion* responses was 24.33 with an SD = 13.872, *depersonalization* was 4.19 with an SD = 5.077 and *personal accomplishment* with a mean of 36.91 and SD = 8.322.

According to the results obtained from the emotional exhaustion subscale, which involved 323 preschool teachers and

240 teacher assistants, many responses fell into the *high* category. Specifically, 142 preschool teachers, representing 42.97% of that group, reported *high* levels of emotional exhaustion. Similarly, 109 teacher assistants, or 45.42% of their group, also indicated *high* levels of exhaustion. This data is illustrated in the following graph.

In comparing the samples of preschool teachers and teacher assistants regarding emotional exhaustion, it was found that 118 preschool teachers, representing 36.54%, reported a *low* degree of symptomatology. In contrast, 90 teacher assistants, corresponding to 37.5%, also reported *low* levels of emotional exhaustion.

In the subcategory of medium symptom levels, there were 63 preschool teachers, accounting for 19.51%, while there were 41 teacher assistants, representing 17.09%. For high symptom levels, the figures included 142 preschool teachers, equivalent to 43.97%, and 109 teacher assistants, making up 45.42%.

A more detailed analysis of the 323 preschool teachers and 240 teacher assistants surveyed reveals concerning trends in emotional exhaustion symptoms. Among the total sample of 563 preschool educators, 208 participants exhibited varying degrees of symptomatology. Specifically, 208 individuals were categorized as having a low degree of symptomatology, which accounts for 37% of the sample. Additionally, 104 respondents were found to have a medium degree of symptomatology, representing 18.5%. Alarming, 251 participants demonstrated a high degree of symptomatology, corresponding to 44.6%. These results indicate a noteworthy level of burnout present in early childhood education professionals.

The results from the depersonalization subscale, which involved 323 preschool teachers and 240 teacher assistants, indicate that most responses fall within the *low* grade subcategory. Specifically, 218 preschool teachers, representing 67.50% of those surveyed, reported *low* levels of depersonalization. Similarly, among teacher assistants, 166 responses, or 69.17% of the group, also indicated *low* levels of depersonalization. This information is illustrated in the following graph.

When comparing the samples from preschool teachers and teacher assistants regarding depersonalization with low levels of symptomatology, 218 cases were reported among preschool teachers, representing 67.50%. In contrast, 166 cases were reported among teacher assistants, corresponding to 69.17%.

In the case of a medium degree of symptomatology, there were 62 preschool teachers, representing 19.20%, and 43 teacher assistants, accounting for 17.92%. For the high degree of symptomatology, 43 preschool teachers were recorded, equivalent to 13.32%, while there were 31 teacher assistants, corresponding to 12.92%.

TABLE 3 Burnout descriptive statistics.

Variable	<i>n</i>	Min	Max	Mean	SD
Emotional exhaustion	563	0	54	24.33	13.872
Depersonalization	563	0	30	4.19	5,077
Personal accomplishment	563	0	48	36.91	8.322
<i>N</i>	563				

Own elaboration with SPSS.

A detailed analysis of the 323 preschool teachers and 240 teacher assistants surveyed reveals concerning findings regarding emotional exhaustion. Out of the total sample of 563 participants, 384 individuals exhibit varying degrees of symptomatology. Specifically, 384 participants (68.21%) show a low degree of symptomatology, while 105 (18.7%) report a medium degree. Additionally, 74 participants (13.10%) demonstrate a high degree of symptomatology. These results are alarming, highlighting the level of burnout present in early childhood education professionals.

Based on the total results obtained from a survey of 323 preschool teachers and 240 teacher assistants regarding personal accomplishment, it is evident that most responses were in the *high* subcategory. Specifically, 140 preschool teachers, representing 43.35% of their group, reported *high* levels of personal accomplishment. Similarly, 113 teacher assistants, or 47.09% of their group, indicated the same. This information is illustrated in the graph below.

When comparing the samples from preschool teachers and teacher assistants regarding personal accomplishment and low levels of symptomatology, it was found that 93 preschool teachers reported this, accounting for 28.80% of the sample. In contrast, 62 teacher assistants reported similar findings, corresponding to 25.84%.

For the medium degree of symptomatology, there are 90 preschool teachers, accounting for 27.87%, and 65 teacher assistants, equivalent to 27.09%. In cases of high symptomatology, there were 140 preschool teachers, representing 43.35%, and 113 teacher assistants, accounting for 47.09%.

A detailed analysis of the 323 preschool teachers and 240 teacher assistants surveyed reveals concerning trends when examining the results of the emotional exhaustion subscale. The findings show varying degrees of symptomatology, ranging from low to high levels, highlighting some alarming figures. In a sample of 563 preschool teachers and teacher assistants, 155 participants exhibited varying degrees of symptomatology. Specifically, 155 participants showed a low degree of symptomatology, which accounts for 27.6% of the sample. Additionally, another 155 participants demonstrated a medium degree of symptomatology, also representing 27.6%. Meanwhile, 253 participants were identified with a high degree of symptomatology, making up 45% of the sample. These results raise noteworthy concerns regarding the level of burnout in early childhood education professionals.

3.5 Correlation between depression, anxiety and stress factors with burnout

Results indicated a significant correlation between the emotional exhaustion factor of the MBI and the factors of depression ($r = 0.552$, $p < 0.001$), anxiety ($r = 0.543$, $p < 0.001$), and stress ($r = 0.600$, $p < 0.001$).

In examining the depersonalization factor of the MBI in relation to the DASS-21 factors, significant correlations were found. Specifically, there were positive correlations between depression ($r = 0.321$, $p < 0.001$), anxiety ($r = 0.279$, $p < 0.001$), and stress ($r = 0.270$, $p < 0.001$). Furthermore, regarding the personal accomplishment factor of the MBI, a significant negative correlation was observed with all the DASS 21 factors: depression ($r = -0.251$, $p < 0.001$), anxiety ($r = -0.236$, $p < 0.001$), and stress ($r = -0.231$, $p < 0.001$) (see Table 4).

3.6 Structural equation model

A structural equation model was estimated using the Weighted Least Squares Mean and Variance Adjusted Estimator (WLSMV) estimator with robust standard errors and 563 valid observations (see Figure 1). The specified model included four latent factors: emotional exhaustion (AGOT), depersonalization (DESP), anxiety symptoms (ANS), and depressive symptoms (DEP). AGOT and DESP were included as exogenous predictors of ANS, which in turn acted as mediators of the effect on DEP. The model also considered the direct effects of AGOT and DESP on DEP, and sociodemographic covariates (age, role, experience).

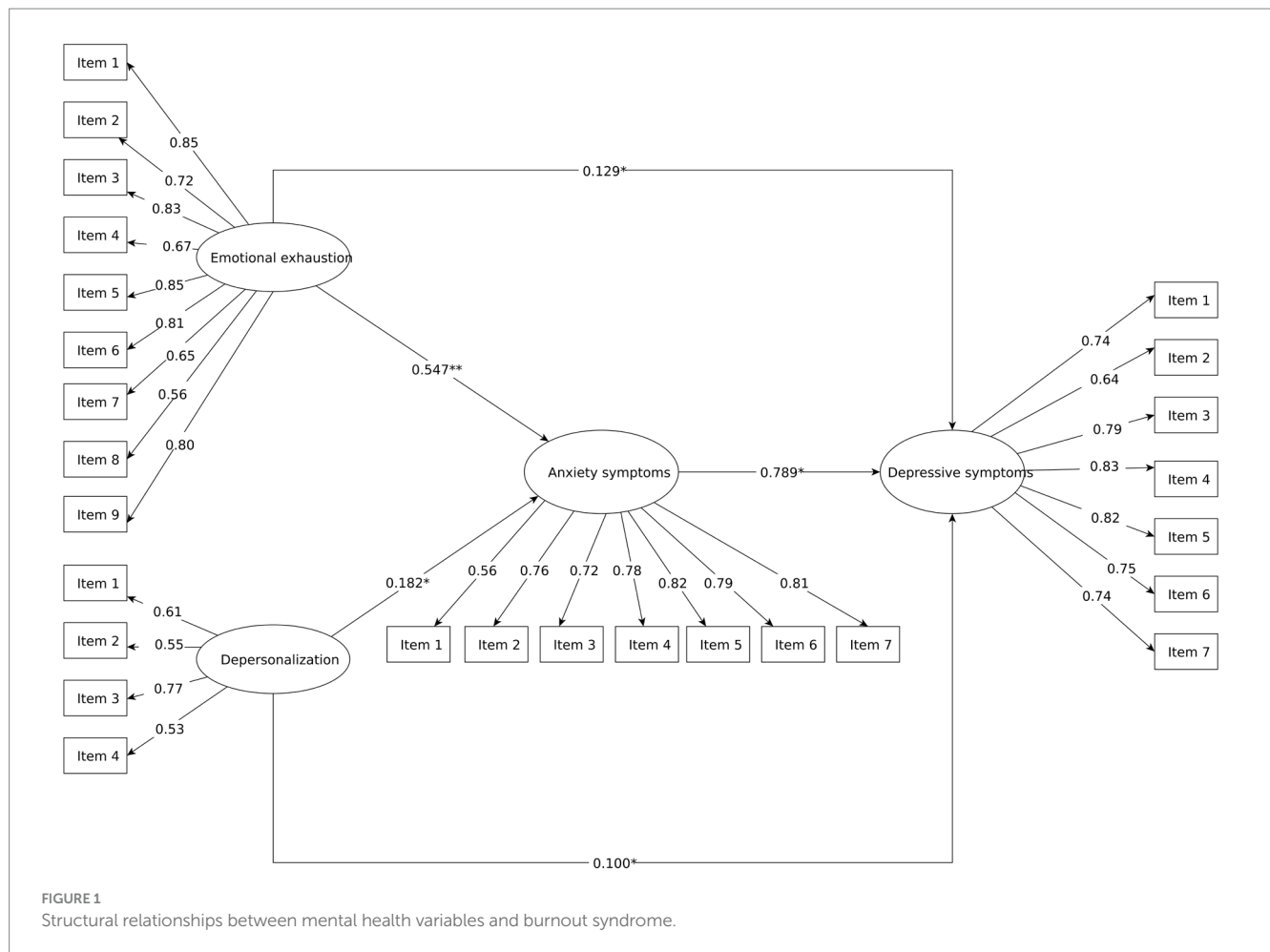
3.7 Model fit

The fit indices showed an adequate fit to the data. The robust chi-square test was significant ($\chi^2(422) = 756.88$, $p < 0.001$), which is expected given the sample size. However, the alternative indices indicated a good fit: robust CFI = 0.998, robust TLI = 0.997, robust RMSEA = 0.037 (90% CI [0.033, 0.041]), and SRMR = 0.045. All indicators are within the recommended values (Hu and Bentler, 1999), suggesting that the model adequately reproduces the observed covariance matrix.

TABLE 4 Correlation between DASS-21 and MBI factors.

Variable		Emotional exhaustion	Depersonalization	Personal accomplishment
Depression	Pearson correlation	0.552**	0.321**	-0.251**
	Sig.	<0.001	<0.001	<0.001
	N	563	563	563
Anxiety	Pearson correlation	0.543**	0.279**	-0.236**
	Sig.	<0.001	<0.001	<0.001
	N	563	563	563
Stress	Pearson correlation	0.600**	0.270**	-0.231**
	Sig.	<0.001	<0.001	<0.001
	N	563	563	563

Own elaboration with SPSS. Significance value: * $p < 0.05$ and ** $p > 0.01$.



3.8 Factor loadings and reliability of latent variables

All factor loadings were statistically significant ($p < 0.001$), with standardized values ranging from 0.568 to 0.851 for AGOT, from 0.162 to 0.778 for DESP, from 0.560 to 0.823 for ANS, and from 0.636 to 0.834 for DEP. These results indicate adequate representation of the latent constructs by their respective items. The R^2 coefficients for the items ranged from 0.026 (B15) to 0.724 (B8), with most being greater than 0.40, suggesting acceptable variance explained by the factors.

3.9 Structural effects

The direct effects showed that both emotional exhaustion ($\beta = 0.547$, $p < 0.001$) and depersonalization ($\beta = 0.182$, $p = 0.004$) were positively associated with anxiety symptoms. In turn, ANS showed a strong direct effect on depressive symptoms ($\beta = 0.789$, $p < 0.001$). Furthermore, AGOT and DESP maintained significant direct effects on DEP, although of lesser magnitude (AGOT: $\beta = 0.129$, $p = 0.002$; DESP: $\beta = 0.100$, $p = 0.013$), indicating partial mediation.

The covariates age, role, and experience did not show significant effects on DEP, although work experience had a marginally significant effect on ANS ($\beta = 0.145$, $p = 0.049$).

3.10 Indirect and total effects

Definite effects analyses revealed that:

- The indirect effect of AGOT on DEP through ANS was significant ($\beta = 0.432$, $p < 0.001$).
- The indirect effect of DESP on DEP through ANS was also significant ($\beta = 0.144$, $p = 0.005$).
- The total effect of AGOT on DEP was $\beta = 0.561$ ($p < 0.001$), while that of DESP was $\beta = 0.244$ ($p < 0.001$), indicating that ANS acts as an important mediator in both pathways.

Finally, the model explained 46.2% of the variance in anxiety symptoms and 88.3% of the variance in depressive symptoms, demonstrating the high explanatory power of the proposed structural model.

4 Discussion

The results regarding burnout levels indicate that preschool education pedagogical teams generally experience low levels of burnout. This finding aligns with the research conducted by [Ordoñez-Balladares et al. \(2023\)](#), which shows that most participants reported low levels of burnout in both emotional exhaustion and

depersonalization, along with high levels of personal accomplishment. However, this contrasts with the study by [Bravo and Elizondo \(2022\)](#), which found that 93% of respondents reported high levels of emotional exhaustion, 84.9% experienced a lack of personal accomplishment, and 66.4% showed signs of emotional exhaustion. These discrepancies may be linked to the negative impact of the pandemic on teachers' emotional wellbeing ([Espinosa-Izquierdo et al., 2021](#); [Fuentes-Vilugrón et al., 2022](#)).

Burnout-related symptoms can significantly affect various aspects of life, including work performance, learning, interpersonal and family relationships, and daily activities ([Arbia et al., 2023](#); [Bardach et al., 2022](#); [Genoud and Waroux, 2021](#); [Guerrero-Barona et al., 2020](#); [Maslach and Leiter, 2022](#)). In the educational context, several studies have focused on teachers' mental health, particularly the impact of burnout on their physical, mental, and social wellbeing ([Fináncz et al., 2020](#); [Hascher and Waber, 2021](#); [Madigan et al., 2023](#)). Therefore, addressing the mental health of preschool teachers and teacher assistants is essential, as their work seriously influences preschool students' cognitive and emotional development ([Larysa et al., 2020](#); [Sandilos et al., 2020](#); [Yang, 2021](#)).

On the other hand, anxiety is a prevalent issue among education professionals in Chile, as noted by [Flores et al. \(2022\)](#), [Lizana and Lera \(2022\)](#), and [Ozamiz-Etxebarria et al. \(2021\)](#). This phenomenon is partly attributed to work pressure, long hours, and the tendency for work to spill over into home life ([Agyapong et al., 2022](#); [Peele and Wolf, 2021](#)). The analysis of anxiety levels among preschool teachers and teacher assistants revealed that they generally exhibit low levels of anxiety. This finding aligns with a study by [Tolledo \(2019\)](#), which indicated that 91.7% of the participants did not experience significant anxiety. However, it contrasts with the study by [Sandoya and Quintana \(2023\)](#), which reported that 100% of respondents experienced high levels of state anxiety, while 72% reported having trait anxiety. These elevated anxiety levels may be linked to the negative impact and emotional dysregulation that the pandemic caused for teachers ([Fuentes-Vilugrón et al., 2022](#)).

Depression is also one of the most common disorders among teachers in Chile ([Leiva et al., 2020](#); [Lizana et al., 2021](#); [Varela et al., 2023](#)). It can impact various psychological characteristics, such as poor concentration, difficulty remembering information, and, most notably, the level of sadness individuals experience ([Lizana et al., 2021](#)). Specifically, this study found that the levels of depression reported by participants were low, aligning with the findings of [Placencia-Orellana et al. \(2024\)](#), which indicated that 89.7% of teachers exhibited low levels of depression. In contrast, [Orrego \(2024\)](#) reported that 67% of the teachers in their sample showed signs of depressive psychopathology. This discrepancy in results may be attributed to various factors, including the time during which the researchers collected the data, the specific context of the studies, and the characteristics of the participants.

Stress is an influential factor that strongly influences teachers' quality of life, impacting their physical and psychological wellbeing, motivation levels, and work environment, among other aspects ([Armstrong-Gallegos and Sandoval-Obando, 2023](#); [Benevene et al., 2020](#); [Zakaria et al., 2021](#); [Zewude and Hercz, 2021](#)). Concerning the stress variable, it was reported that most respondents from the preschool education pedagogical teams (teachers and teacher assistants) did not show symptoms of stress. However, a study by [Rodríguez et al. \(2007\)](#) indicated that the most common issue among

the surveyed teachers was severe depression. This discrepancy may be attributed to differences in the countries surveyed and the various approaches to education governance, which raises concerns about pedagogical support.

On the other hand, another area of the study revealed a positive correlation between the factors of the DASS-21 and those of the MBI, except for the personal accomplishment factor. This indicates that as levels of depression increase, both emotional exhaustion and depersonalization also rise. The findings of [Ramírez Zhindón \(2024\)](#) suggest that when participants experience an increase in depression levels, their symptoms of emotional fatigue and depersonalization also intensify. Likewise, as anxiety levels increase, emotional exhaustion and depersonalization increase, as in the research conducted by [Ramírez Zhindón \(2024\)](#), where it is evident that in most of the general sample, as anxiety increases, emotional fatigue increases. A negative correlation was evidenced between the symptoms of depression, anxiety, and stress with the personal accomplishment factor, which means that as the levels of these three increase, personal accomplishment decreases. [Granados et al. \(2019\)](#) observed similar results, showing that high levels of depression, anxiety, or stress are likely to reduce personal fulfillment.

Consequently, the findings reveal that the participating education professionals reported low levels of stress, anxiety, depression, as well as burnout. Nevertheless, multifactorial challenges persist that affect their mental health in a post-pandemic context. These conditions can be attributed to increased workload demands, increasing student diversity, limited institutional support, and the need to adapt quickly to changing educational modalities. In addition, the pedagogical work of addressing children's social-emotional needs during a period of increased vulnerability exacerbates psychological stress. From a cognitive neuroscience perspective, prolonged exposure to stress and burnout may impair executive functions such as working memory, emotional regulation, and decision-making, which are essential for effective teaching ([Awomokun, 2022](#); [Bayes et al., 2021](#); [Jeon and Ardeleanu, 2020](#); [Koutsimani et al., 2021](#)). These impediments are likely to diminish the quality of pedagogical interactions and the ability of educators to foster optimal learning environments. Addressing these problems requires a comprehensive approach, including evidence-based mental health interventions, resilience-promoting strategies, and structural reforms in the education system to improve working conditions. Policies that prioritize psychological support, balanced workload organization, and access to ongoing professional development can mitigate the adverse effects on education professionals and, at the same time, promote educational quality.

Regarding the study's limitations, it is essential to note that: (a) further analysis is needed. While correlations and descriptive analyses of the variables were conducted, applying regression models or hypothesis testing through mean differences could have enhanced the study's findings; (b) there may have been potential response bias due to self-report questionnaires, as individuals often present themselves in a more positive light than reality; (c) One limitation of the study is that it did not include additional sociodemographic or contextual variables, such as gender, specific role, years of experience, or type of dependency and location of educational centers (public/private, urban/rural). The absence of

these data prevents the exploration of differences between subgroups that could be relevant; (d) The purposive non-probabilistic sampling strategy limits the generalizability of the results and may introduce selection bias; (e) The approach to mental health, based on three dimensions, stress, anxiety, and depression measured using DASS-21 applications, can be considered ambiguous, as mental health is a multidimensional variable influenced by various individual, socio-community, political, health, and other factors.

5 Conclusion

The findings indicate that the participants exhibited low levels of symptoms associated with stress, anxiety, and depression. Although the DASS-21 averages were low, a significant proportion of staff were classified as having high levels of Emotional Exhaustion, and this correlated significantly with depression, anxiety, and stress. Consequently, the findings support a preventive approach, with monitoring and support focused on those professionals at greatest risk. With regard to burnout, Emotional Exhaustion showed a moderate average level; however, a considerable proportion of participants were classified in the high Emotional Exhaustion range. Depersonalization was mainly concentrated at a low level, and Personal Accomplishment at a high level. However, it is worrying that many participants reported high levels of emotional exhaustion in both preschool teachers and teacher assistants. This reflects burnout among educators and suggests that a considerable part of the staff experiences high levels of emotional overload. In summary, although the mean Emotional Exhaustion was moderate, the distribution by categories showed a significant percentage of cases in the high range; Depersonalization was mainly concentrated in the low range and Personal Accomplishment in the high range.

On the other hand, the participants' perception of personal accomplishment is high; however, it could serve as a basis for developing support strategies to reduce the adverse effects of burnout in early childhood education in Chile. In addition, personal accomplishment allows preschool teachers and teacher assistants to generate pedagogical practices that strengthen this dimension so that children increase their levels of motivation and expectation in terms of their learning.

The study also examined the correlation between levels of stress, anxiety, and depression and the presence of burnout among participants. The results indicated that there were positive correlations between the DASS-21 variables (which measure depression, anxiety, and stress) and two factors of burnout: emotional exhaustion and depersonalization, as measured by the MBI. Conversely, the DASS-21 variables showed a negative correlation with the personal accomplishment factor of the MBI.

As the study's projections, we emphasize the importance of deepening the study of the mental health of preschool teachers and teacher assistants working in early childhood education. These education professionals are part of a promising area for academic research in Chile due to the significant role these educators play in children's early development. Likewise, it is crucial to create programs that protect teachers' mental health through institutional initiatives to enhance the wellbeing of those working in vulnerable contexts, such as

increased resources (psychological support, reflective supervision, formative leadership) and specific training (emotional regulation, classroom management), with regular monitoring of staff wellbeing. Another potential avenue for this study is developing adapted and validated scales specifically for Chilean teachers. These scales could be used to explore the protective and risk factors affecting their mental health through longitudinal studies.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical approval was not required for the studies involving humans because the study involved minimal risk to participants and did not include any intervention or manipulation. Data were collected anonymously through standardized self-report questionnaires, and participation was entirely voluntary. According to Chilean national regulations and institutional policies, such observational research using anonymized survey data from adult participants does not require formal ethical review. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

GF-V: Conceptualization, Investigation, Supervision, Writing – original draft, Writing – review & editing, Formal analysis, Methodology. YB-V: Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing. DF-F: Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing. DO-P: Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing. DR-E: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. ES-O: Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. CA-H: Conceptualization, Investigation, Writing – original draft, Writing – review & editing. FC-N: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. PE-P: Data curation, Investigation, Visualization, Writing – original draft, Writing – review & editing. LC-A: Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing.

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