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Socioemotional competencies and resilience of primary education teachers: a predictive model

Competencias socioemocionales y resiliencia del profesorado de educación primaria: un modelo predictivo

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Abstract

Teachers' socioemotional competencies (SEC) are essential for reducing work-related stress, improving teaching, and promoting school well-being. The aim was to analyse the predictive power of socioemotional competencies for the resilience of 223 primary school teachers from the Biobío and Ñuble regions of Chile. Using a quantitative, non-experimental, correlational, and predictive approach, the instruments (SEMS-IT) and teacher daily resilience scale were applied using statistical analysis in RStudio. The results showed moderate levels of socioemotional competencies and resilience; low perception of adverse classroom climate; positive correlation between cognitive management of teacher emotion, teacher empathic concern, teacher-student relationship, and resilience, and a negative correlation with adverse classroom climate; significant differences in teacher–student relationship in favour of women and public schools, and negative perception of adverse classroom climate in private schools; no differences were found according to the School Vulnerability Index; cognitive management of teachers' emotions and empathic concern are positive factors that promote teachers' daily resilience. Furthermore, an adverse classroom climate acts as a significant mediator, especially in the relationships of teachers' empathic concern and teacher–student relationships with teachers' everyday resilience. The teacher–student relationship does not have a significant direct effect on resilience, but it does have an indirect influence through an adverse classroom climate. There is a need to develop SECs, which are shown to be significant in the model. It is concluded that it is important to strengthen

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these competencies through teacher training and to consider school contexts that promote resilient and emotionally healthy environments.

Keywords: socioemotional competencies; resilience; primary school teachers; predictive model.

Resumen

Las competencias socioemocionales docentes (CSE) son esenciales para reducir el estrés laboral, mejorar la enseñanza y favorecer el bienestar escolar. El objetivo fue analizar la capacidad predictiva de las competencias socioemocionales sobre la resiliencia de 223 profesores de educación primaria en las regiones del Biobío y Ñuble, Chile. Con un enfoque cuantitativo, diseño no experimental, correlacional y predictivo, se aplicaron los instrumentos (SEMS-IT) y la escala de resiliencia cotidiana docente usando análisis estadístico en RStudio. Los resultados indicaron niveles moderados de competencias socioemocionales y resiliencia; baja percepción del clima de aula adverso; correlación positiva entre la gestión cognitiva de la emoción del profesorado, preocupación empática del profesorado, relación docente-estudiante y resiliencia y correlación negativa con el clima de aula adverso; diferencias significativas en la relación docente-estudiante a favor de las mujeres y en escuelas públicas y percepción negativa del clima de aula adverso en escuelas privadas; no se evidenciaron diferencias según el Índice de Vulnerabilidad Escolar; la gestión cognitiva de la emoción del docente y la preocupación empática docente son factores positivos que promueven la resiliencia cotidiana docente. Además, el clima de aula adverso actúa como un mediador significativo, especialmente en las relaciones entre la preocupación empática docente y las relaciones docente-estudiante con la resiliencia cotidiana docente. La relación docente-estudiante no tiene un efecto directo significativo sobre la resiliencia, pero sí influye indirectamente a través del clima de aula adverso. Se necesita desarrollar las CSE que se muestran significativas en el modelo. Se concluye la importancia de fortalecer estas competencias desde la formación docente y considerar contextos escolares que promuevan entornos resilientes y emocionalmente saludables.

Palabras clave: competencias socioemocionales; resiliencia; profesores de escuela primaria; modelo predictivo.

1. Introduction

Socioemotional competencies, which originated in psychology in the 1980s, are a key element of teacher training as they prevent stress, anxiety, and burnout. Emotional intelligence and resilience are essential for professional well-being, although their development in initial training is still limited in Latin America (Lozano-Peña *et al.*, 2022). Resilience, as a protective competency, depends on personal and contextual factors that facilitate adapting to challenges such as the move to online education (Villalobos *et al.*, 2022). High stress levels, exacerbated since the pandemic (Bellei *et al.*, 2021), underline the need to strengthen these competencies to improve teacher well-being, the school environment, and learning in vulnerable contexts (Sáez-Delgado *et al.*, 2023).

A number of theoretical models for developing socioemotional competencies have been implemented. The Social and Emotional Learning (SEL) model stands out among these, and the model that currently inspires the most interest is Social Emotional Ability Development (SEAD), which suggests involving families and other educational professionals in its implementation (Jara-Coatt *et al.*, 2025), bearing in mind that the majority of teachers are women exposed to multiple challenges both at home and at school (Baptista *et al.*, 2020).

Emotions are neither positive nor negative but instead are experiences that are understood and managed by means of self-regulation. However, there has been little research on teachers' emotional state and its influence on their professional performance and the educational environment. Empathy, understood as the capacity to perceive the emotions of others, has a positive impact on the learning environment and on academic performance by facilitating understanding of students' needs (Rodríguez-Saltos *et al.*, 2020). A teacher-student relationship based on empathy, trust, and respect favours the motivation, well-being, and mental health of both stakeholders (Silva *et al.*, 2020), improving students' self-esteem and preventing teacher burnout (Pedditzi *et al.*, 2021).

The school environment, shaped by structural and relational factors, has a direct influence on coexistence, motivation, and academic performance. A positive environment, underpinned by emotional support and teachers' interpersonal skills, reduces conflicts and improves relations in the classroom (MINEDUC, 2021). In contrast, a negative climate reduces students' motivation and well-being; therefore the emotional attitude of the teachers is of vital importance. Factors such as stress, workload, and violence at school affect teacher well-being (Cleary *et al.*, 2022; Allen *et al.*, 2021), while resilience is a protective factor that improves performance and reduces emotional exhaustion (Fan *et al.*, 2021). Developing resilience makes it possible to deal with adversities and promote self-care, avoiding depressive symptoms and the syndrome of burnout (López-Angulo *et al.*, 2022; Segovia-Quesada *et al.*, 2020; Sáez-Delgado *et al.*, 2023). Chilean educational policy emphasises creating positive school environments that favour the well-being of teachers and students (MINEDUC, 2024).

Since 2015, teacher attrition in the first five years has doubled, driven by low pay and a lack of institutional support (UNESCO, 2024). This pressure causes exhaustion and reduces the quality of education. Therefore, strengthening socioemotional competencies is key for psychological well-being, resilience, and coexistence (Organización Mundial de la Salud, 2021). The emotional education promoted by UNESCO (2024) improves emotional management and social harmony, but faces structural obstacles that must be addressed (Rubio & Olivo-Franco, 2020).

In Chile there has been little quantitative research on socioemotional competencies and resilience, and so the present study centres on determining the predictive capacity of teachers' socioemotional competencies on the resilience of primary education teachers in the Biobío and Ñuble regions of Chile. The proposed objectives are: (a) to describe the level of socioemotional competencies and resilience in primary education teachers in the Biobío and Ñuble regions of Chile; (b) to analyse the relationship between the dimensions of socioemotional competencies and resilience in primary education teachers in the in the Biobío and Ñuble regions of Chile; (c) to analyse the differences in levels of socioemotional competencies and resilience of primary education teachers in the Biobío and Ñuble regions of Chile by gender, type of school, and level of vulnerability; (d) to evaluate a predictive model of socioemotional competencies on resilience in primary education teachers in the Biobío and Ñuble regions of Chile.

2. Method

2.1. Design

The study uses a quantitative approach, with a non-experimental, cross-sectional, correlational, and predictive design (Dominion & Mahamed, 2023).

2.2. Participants

The population was the teachers in the Biobío and Ñuble regions of Chile. Non-probability convenience and availability sampling was used (Bae *et al.*, 2022; Rahman, 2023), and the sample included 223 teachers from 73 public and private primary schools. Teachers in initial

training and those with more than 10 hours of socioemotional training were excluded to avoid bias. The sample size was calculated by means of a calculator for structural equation models (Soper, 2024), considering observed and latent variables, effect size, alpha level, and statistical power (Jobst *et al.*, 2023); the parameters were: effect = .3, power = .95, five latent variables, 23 observed variables, and alpha level = .05.

2.3. Instruments

Two data collection instruments were used. The daily resilience scale (Martin & Marsh, 2006), which focusses on the capacity for buoyancy in the educational context. This is a self-report questionnaire that includes 4 items with a 7-point Likert-type scale, where 1 corresponds to "strongly disagree" and 7 to "strongly agree", the statements (4) are of the type "I don't let study stress get on top of me". The instrument's reliability coefficient is α = .80, applying confirmatory factor analysis and a structural equation model. And the socioemotional skills instrument for teachers (SEMS-IT) (Sáez-Delgado *et al.*, 2024), which has 7 points that range from "always agree" to "never agree", with five (5) dimensions: cognitive management of teacher emotion with four (4) statements of the type "when I want to feel more positive emotions in class (such as happiness or enthusiasm), I change what I am thinking"; teacher empathic concern, with four (4) statements of the type "I often worry about my students who are in a vulnerable situation (emotional, social, financial)"; teacher–student relationship with four (4) statements of the type "my students seek my help when they feel upset in class"; and adverse classroom climate with seven (4) statements of the type "it seems like my students and are always in conflict when we interact".

The instrument was validated by calculating consequential validity, content validity, response format validity, and factorial structure validity. The confirmatory factor analysis (CFA) showed adequate fit of the model to the data, with indicators that fulfil criteria established in the literature: χ^2 (171) = 354.546, $p < 0.001$; Comparative Fit Index (CFI) = .971; Tucker–Lewis index (TLI) = .966; Root Mean Square Error of Approximation (RMSEA) = .061; and Standardised Root Mean Squared Residual (SRMR) = .062.

2.4. Ethical aspects

The study was approved by the Ethics Committee of the Universidad Católica de la Santísima Concepción (Acta N.º 1241902), in the framework of Proyecto Fondecyt Regular N.º 1241902. Teachers' participated voluntarily after giving informed consent electronically through SurveyMonkey. Confidentiality and freedom to withdraw were guaranteed. The data were anonymised and stored on protected servers for one year, in accordance with the applicable regulations. Measures to prevent potential complaints were adopted and the academic purpose of the study was stated. There are no conflicts of interest, and the materials are available on request from the principal investigator.

2.5. Data analysis

A descriptive analysis of the data was performed using measures of central tendency, dispersion, and shape, along with frequencies and percentages for the categorical variables. Normality was tested using the Lilliefors corrected Kolmogorov–Smirnov test and Q–Q plots. Subsequently, Pearson correlations were used to evaluate the relationship between variables. Homogeneity of variance was tested using Levene's test. As the assumptions of normality were not fulfilled, robust tests were used: Yuen's *t* test for two groups and robust ANOVA based on trimmed means for more than two. The analyses were done using the WRS2 package (Mair & Wilcox, 2020).

A cross-sectional predictive model was estimated through structural equation modelling (SEM) to analyse the relationships of dependency between variables and the model's predictive capacity. Two models were evaluated: one with direct effects (M1) and another with mediation (M2), with the latter being selected for its better fit. The quality of the fit was evaluated through multiple indicators: χ^2/df (Cheung *et al.*, 2024), CFI, RMSEA, SRMR, and

AGFI (Moshagen & Bader, 2024; Savalei *et al*., 2023). Following criteria established in the recent literature the control of assumptions was done through the equivalent OLS model with identical predictors, evaluating: (a) collinearity through VIF and tolerance (criteria: VIF < 5 and tolerance > 0.20); (b) linearity and homoscedasticity by inspecting the residuals plot compared with fitted and smoothed LOESS values; and (c) approximate normality of residuals with Q–Q plot. The analysis was done using the *lavaan* package in the R statistical environment (version 4.2.2). RStudio (version 2023.03.0) was also used to facilitate the visualisation of results (RStudio Team, 2020). These tools made it possible to guarantee the precision, transparency, and reproducibility of the study.

3. Results

The sample comprised 59 men and 214 women, principally from the Biobío region (n = 255) and the Ñuble region (n = 18). The school vulnerability index (SVI) had a mean of 84.29, with negative skew (-1.48) and positive kurtosis (1.05), indicating a tendency towards high values and a more pointed distribution.

3.1. Results of hypothesis 1

For H1: The level of socioemotional competencies and resilience in primary education teachers from the Biobío and Ñuble regions of Chile is low. A descriptive analysis of this was performed.

Table 1. Descriptive analysis of central tendency, dispersion, and shape of the dimensions analysed

Variables	mean	*SD*	median	min.	max.	range	skew	kurtosis
SVI	84.29	14.13	90.00	41.00	99.00	58.00	-1.48	1.05
DTR	5.06	1.40	5.25	1.00	7.00	6.00	-0.86	0.25
CMTE	5.14	1.36	5.25	1.00	7.00	6.00	-0.76	0.19
TEC	6.17	1.00	6.50	2.50	7.00	4.50	-1.36	1.24
TSR	5.49	1.03	5.75	2.25	7.00	4.75	-0.75	0.07
ACC	2.78	1.00	2.57	1.00	5.86	4.86	0.76	0.32

Note: SVI: school vulnerability index; DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

Daily teacher resilience (DTR) had a mean of 5.06, with negative skew and a slight concentration towards high values. The CMTE, TEC, and TSR variables also had elevated means (between 5.14 and 6.17) and distributions with negative skew, indicating similar trends. TEC stood out for its greater concentration in high values and a more pointed distribution. In contrast, ACC had the lowest mean (2.78), with positive skew, reflecting a greater presence of negative perceptions of the classroom environment.

The reliability of the scales was evaluated, showing adequate to high internal consistency in the majority of the measurements. DTR displayed acceptable reliability (α = 0.659; Ω = 0.794). CMTE, TEC, and TSR displayed solid values (α between 0.765 and 0.845; Ω between 0.819 and 0.865). ACC displayed good consistency (α = 0.751; Ω = 0.837). All in all, the results support the reliability of the instruments used.

3.2. Results of hypothesis 2

For H2: there is a significant positive relationship between the dimensions of socioemotional competencies and resilience in primary education teachers in the Biobío and Ñuble regions of Chile. A Pearson's correlation coefficient analysis was performed to explore the relations between the variables studied.

TABLE 2. Correlations between the different variables examined

Variables	1	2	3	4	5	6	7
1. SVI	1						
2. DTR	0.06	0.17**	1				
3. CMTE	0.05	0.03	0.43***	1			
4. TEC	-0.02	-0.09	0.39***	0.46***	1		
5. TSR	0.06	-0.07	0.34***	0.49***	0.55***	1	
6. ACC	-0.02	0	-0.43***	-0.35***	-0.42***	-0.54***	1

Note: SVI: school vulnerability index; DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate. * $p < .01$; ** $p < .001$

The SVI did not display significant correlations with the variables studied. DTR displayed positive correlations with CMTE ($r = 0.43$, $p < 0.001$), TEC ($r = 0.39$, $p < 0.001$), and TSR ($r = 0.34$, $p < 0.001$), and negative with ACC ($r = -0.43$, $p < 0.001$). CMTE was positively associated with TEC ($r = 0.46$, $p < 0.001$) and TSR ($r = 0.49$, $p < 0.001$) and negatively with ACC ($r = -0.35$, $p < 0.001$). TSR correlated positively with TEC ($r = 0.55$, $p < 0.001$) and negatively with ACC ($r = -0.54$, $p < 0.001$).

3.3. Results of hypothesis 3

For H3: there are differences in the levels of socioemotional competencies and in resilience in primary education teachers from the Biobío and Ñuble regions of Chile: by gender in favour of women; by type of school (private and public) in favour of private ones; and by level of vulnerability in favour of those with a lower SVI. Levene's test was applied and homoscedasticity was assumed.

TABLE 3. Differences in socioemotional competencies and resilience by gender

	Male		Female				
Variables	**Mean (*SD*)**	**Lilliefors K–S**	**Mean (*SD*)**	**Lilliefors K–S**	**Levene**	**Yuen**	*ES*
DTR	5.35 (1.43)	D = 0.131*	4.98 (1.38)	D = 0.122***	F = 0.004	T (59.42) = 1.993	
CMTE	5.00 (1.45)	D = 0.161**	5.18 (1.34)	D = 0.101***	F = 0.007	T (63.24) =0.566	
TEC	5.96 (1.14)	D = 0.21***	6.23 (0.96)	D = 0.213***	F = 2.052	T (51.1) = 1.857	
TSR	5.08 (1.06)	D = 0.112	5.60 (1.00)	D = 0.143***	F = 2.513	T (47.87) = 3.196	0.38
ACC	2.95 (1.10)	D = 0.128*	2.74 (0.97)	D = 0.127***	F = 0.867	T (56.53) = 1.439	

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

* $p < .05$; ** $p < .01$

Small differences were observed between men and women in the variables analysed, with the only significant difference being in TSR, where the women had a higher mean (5.60 vs 5.08; $p < 0.01$, $SE = 0.38$). In DTR, the men had a slightly higher mean (5.35 vs 4.98), but without statistical significance ($p = 0.051$). Women also displayed slightly higher means in CMTE (5.18 vs 5.00) and TEC (6.23 vs 5.96), without significant differences. No significant differences by gender were found in ACC.

Table 4. Differences in socioemotional competencies and resilience by type of school

	State		Private				
Variables	**Mean (*SD*)**	**Lilliefors K–S**	**Mean (*SD*)**	**Lilliefors K–S**	**Levene**	**Yuen**	*SE*
DTR	5.19 (1.53)	D = 0.161***	4.99 (1.32)	D = 0.113***	F = 1.747	T (106.34) = 1.677	
CMTE	5.21 (1.49)	D = 0.141***	5.10 (1.29)	D = 0.111***	F = 2.499	T (101.66) = 1.146	
TEC	6.17 (1.10)	D = 0.242***	6.17 (0.95)	D = 0.194***	F = 0.543	T (112.91) = 0.673	
TSR	5.68 (0.95)	D = 0.154***	5.39 (1.06)	D = 0.131***	F = 2.639	T (137.28) = 2.336	0.20
ACC	2.62 (1.09)	D = 0.153***	2.87 (0.94)	D = 0.129***	F = 2.415	T (93.83) = 2.252	0.22

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

* $p < .05$; *** $p < .001$

Small differences between public and private schools were observed in the variables analysed. Significant differences were only found in TSR (public mean = 5.68, private mean = 5.39; $p = 0.021$, $SE = 0.20$) and ACC (public mean = 2.62, private mean = 2.87; $p = 0.027$, $SE = 0.22$), with small effect sizes. For the other variables (DTR, CMTE, TEC), the differences were not statistically significant. School ownership generally had a limited impact on the scores obtained.

Table 5. Descriptive analysis of central tendency, dispersion, and shape of SVI

Group	*n*	**mean**	*SD*	**median**	**min.**	**max.**	**range**	**skew**	**kurtosis**
Q1	72	64.29	12.93	68	41	80	39	0.02	-1.69
Q2	114	88.72	2.49	90	81	90	9	-2.25	3.9
Q3	20	91.15	0.37	91	91	92	1	1.82	1.37
Q4	67	96.18	2.09	96	93	99	6	0.07	-1.4

With regards to SVI, the schools on average displayed 84.29 % ($SD = 14.13$) of vulnerability. In quartile Q1 (lower vulnerability), the mean was 64.29 ($SD = 12.93$), while in quartile Q4 (higher vulnerability), there was a mean of 96.18 ($SD = 2.09$). The intermediate quartiles displayed means of 88.72 ($SD = 2.49$) for Q2 and 91.15 ($SD = 0.37$) for Q3.

Table 6. Descriptive analysis by quartile

Variable	**Q1 Mean (*SD*)**	**Q2 Mean (*SD*)**	**Q3 Mean (*SD*)**	**Q4 Mean (*SD*)**
DTR	4.90 (1.44)	5.13 (1.24)	5.24 (1.77)	5.07 (1.50)
CMTE	4.96 (1.40)	5.20 (1.26)	5.15 (1.43)	5.22 (1.48)
TEC	6.12 (1.05)	6.18 (0.91)	6.32 (0.98)	6.17 (1.13)
TSR	5.39 (1.10)	5.39 (1.03)	5.84 (0.87)	5.67 (0.97)
ACC	2.87 (1.01)	2.79 (0.96)	2.46 (1.09)	2.78 (1.04)

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

The CMTE means varied between 4.96 (*SD* = 1.40) in Q1 and 5.22 (*SD* = 1.48) in Q4, while in TEC they were between 6.12 (*SD* = 1.05) in Q1 and 6.32 (*SD* = 0.98) in Q3. In TSR, the highest mean was observed in Q3 (5.84; *SD* = 0.87), and the lowest for ACC was also in Q3 (2.46; *SD* = 1.09). The highest DTR was recorded in Q3 (5.24; *SD* = 1.77) and the lowest in Q1 (4.90; *SD* = 1.44).

Table 7. Anova results by quartile

Variables	Q1	Q2	Q3	Q4	Levene	ANOVA	*SE*
DTR	D = 0.138**	D = 0.118***	D = 0.203*	D = 0.137**	F = 1.098	F(3,42.69) = 0.604	n/a
CMTE	D = 0.123**	D = 0.079	D = 0.19	D = 0.134**	F = 0.38	F(3,48.32) = 0.637	n/a
TEC	D = 0.201***	D = 0.191***	D = 0.271***	D = 0.241***	F = 0.281	F(3,46.91) = 0.735	n/a
TSR	D = 0.206***	D = 0.121***	D = 0.15	D = 0.148***	F = 1.147	F(3,42.69) = 2.645	n/a
ACC	D = 0.131**	D = 0.128***	D = 0.116	D = 0.151***	F = 0.257	F(3,44.97) = 1.169	n/a

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

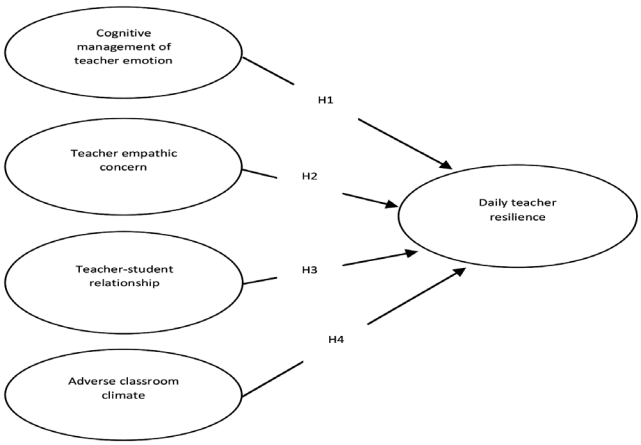
* p < .05; ** p < .01; *** p < .001

Regarding the results of the trimmed means ANOVA test, as Table 7 shows, significant differences between the quartiles of the SVI were not identified in any of the variables.

3.4. Results of hypothesis 4

For H4 – socioemotional competencies predict teacher resilience in primary education in the Biobío and Ñuble regions – two structural equation models were estimated. Model 1 considered direct effects and model 2 incorporated adverse classroom climate as a mediator. Both were calculated through maximum likelihood estimation and were evaluated with fit indices and parsimony criteria (AIC, BIC).

Figure 1. Direct effects model hypothesis (M1)



As Figure 1 shows, the direct effects model (M1) considered the following variables as predictors of daily teacher resilience: cognitive management of emotion, empathetic concern, teacher–student relationship, and adverse classroom climate. The model displayed a perfect fit with the data with optimal indicators: CFI = 1.000, TLI = 1.000, RMSEA = 0.000, and SRMR = 0.000. The parsimony criteria were AIC = 822.179 and BIC = 840.227.

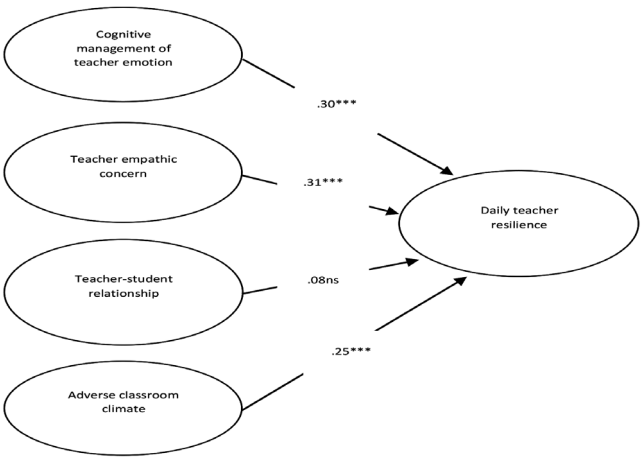
Table 8. Results of the direct effects model

Predictor	Estimate (B)	Standard error (*SE*)	*z*	*p*	Standardised estimate (β)
CMTE	0.306	0.063	4.842	< 0.001	0.299
TEC	0.424	0.092	4.600	< 0.001	0.305
TSR	-0.110	0.090	-1.224	0.221	-0.081
ACC	-0.347	0.079	-4.413	< 0.001	-0.249

Note: R2 = 0.414 for daily teacher resilience (DTR). CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

The path coefficient analysis indicated that cognitive management of emotion (CMTE; β = 0.299, $p < 0.001$), empathetic concern (TEC; β = 0.305, $p < 0.001$), and adverse classroom climate (ACC; β = −0.249, $p < 0.001$) were significant predictors of daily teacher resilience. In contrast, teacher–student relationship (TSR) did not have a significant effect (β = −0.081, $p = 0.221$). The model explained 41.4 % of the variance in resilience ($R^2 = 0.414$), confirming hypotheses H1, H2, and H4 (see Figure 2).

Figure 2. Direct effects model estimators



The model's assumptions were verified by diagnosis of collinearity (VIF and tolerance) and residual analysis for linearity, homoscedasticity, and normality. The VIF values varied from 1.482 to 2.056, and the tolerance values from 0.486 to 0.675, indicating absence of multicollinearity and adequate independence between the predictor variables.

Table 9. Diagnosis of collinearity in model 1

Predictor	VIF	Tolerance
CMTE	1.777	0.563
TEC	2.056	0.486
TSR	2.055	0.487
ACC	1.482	0.675

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

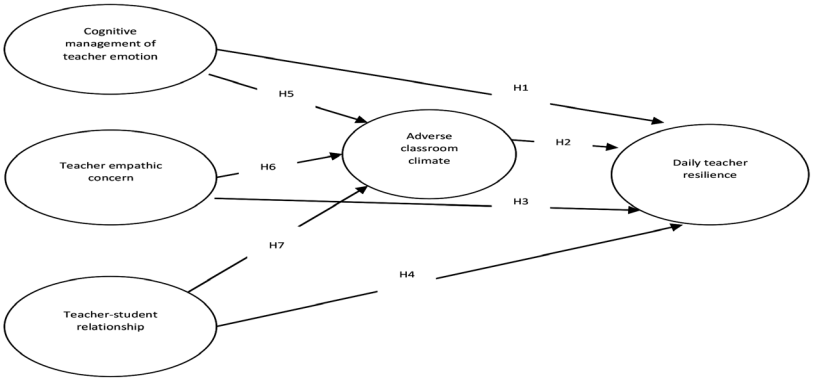
To evaluate the assumptions of homoscedasticity and normality, two graphic diagnoses were done for the equivalent OLS model: (i) residuals versus fitted values using a LOESS curve to evaluate linearity and homoscedasticity; and (ii) a Q–Q plot of residuals to evaluate the approximate normality.

FIGURE 3. Residuals graphs and Q-Q plot

In the first of these, the LOESS curve remains close to zero and does not display systematic patterns, suggesting acceptable linearity and an approximately constant variance, albeit with slightly greater dispersion in the extremes. In the Q-Q plot, the points align well with the theoretical line in the central area and they show moderate deviations in the tails, compatible with somewhat heavier tails. Taken together, the results support the use of the linear model.

Next, a mediation model was calculated which included adverse classroom climate (ACC) as a mediator variable among the predictors (CMTE, TEC, and TSR) and daily teacher resilience (DTR).

FIGURE 4. Mediation model hypothesis (M2)



The mediation analysis was done using maximum likelihood estimation (MLE) and the bootstrap method with 5000 repetitions to estimate the direct and indirect effects. The model explained 41.7 % of the variance in DTR (R^2 = 0.417) and 32.5 % in ACC (R^2 = 0.325). Given that the model is saturated (*df* = 0), the global fit indices are perfect (CFI = 1.000; TLI = 1.000; RMSEA = 0.000; SRMR = 0.000) and do not discriminate between specifications.

Table 10. Results of the mediation model with bootstrap CI

Panel A. Direct effects

H	Relationship	βstd	Est	SE	z	p	95%CIboot
H1	DTR <- CMTE	0.300	0.308	0.066	4.688	< 0.001	[0.174, 0.433]
H2	DTR <- ACC	−0.249	−0.348	0.088	−3.953	< 0.001	[-0.526, -0.174]
H3	DTR <- TEC	0.307	0.427	0.099	4.317	< 0.001	[0.240, 0.615]
H4	DTR <- TSR	−0.081	−0.110	0.092	−1.199	0.231	[-0.283, 0.080]
H5	ACC <- CMTE	−0.060	−0.044	0.047	−0.934	0.351	[-0.136, 0.047]
H6	ACC <- TEC	−0.167	−0.167	0.078	−2.136	0.033	[-0.311, -0.004]
H7	ACC <- TSR	−0.409	−0.397	0.076	−5.240	< 0.001	[-0.552, -0.254]

Panel B. Indirect effects

H	Effect	Est	*SE*	*z*	*p*	95%CIboot
H8	Indirect (CMTE →ACC → DTR)	0.015	0.018	0.877	0.381	[-0.015, 0.053]
H9	Indirect (TEC → ACC → DTR)	0.058	0.032	1.812	0.070	[0.002, 0.129]
H10	Indirect (TSR → ACC → DTR)	0.138	0.044	3.120	0.002	[0.061, 0.236]

Panel C. Total effects

Effect	Est	*SE*	*z*	*p*	95%CIboot
Total (CMTE → DTR)	0.323	0.069	4.682	< 0.001	[0.183, 0.457]
Total (TEC → DTR)	0.485	0.105	4.641	< 0.001	[0.282, 0.682]
Total (TSR → DTR)	0.028	0.092	0.306	0.759	[-0.143, 0.216]

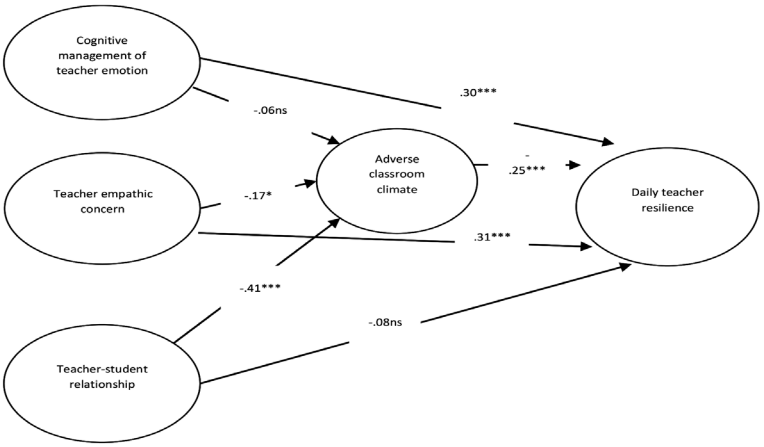
Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

Regarding the direct effects on DTR, it was observed that CMTE (βstd = 0.300, $p < .001$, 95%CIboot [0.174, 0.433]), TEC (βstd = 0.307, $p < .001$, IC95%boot [0.240, 0.615]), and ACC (βstd = −0.249, $p < .001$, 95%CIboot [−0.526, −0.174]) were significant. On the other hand, TSR did not display a significant effect (βstd = −0.081, $p = .231$, 95%CIboot [−0.283, 0.080]). Next, regarding the effects on ACC, the variables TEC (βstd = −0.167, $p = .033$, 95%CIboot [−0.311, −0.004]) and TSR (βstd = −0.409, $p < .001$, 95%CIboot [−0.552, −0.254]) displayed significant effects. In contrast, CMTE did not display a significant effect (βstd = −0.060, p = .351, 95%CIboot [−0.136, 0.047]).

Regarding indirect effects, ACC was only significant for TSR (est = 0.138, $p = .002$, 95%CIboot [0.061, 0.236]); on the other hand, TEC (est = 0.058, $p = .070$, 95%CIboot [0.002, 0.129]) and CMTE (est = 0.015, $p = .381$, 95%CIboot [−0.015, 0.053]) did not present a significant mediation.

Finally, in relation to the total effects on DTR, it could be seen that CMTE (est = 0.323, $p < .001$, 95%CIboot [0.183, 0.457]) and TEC (est = 0.485, $p < .001$, 95%CIboot [0.282, 0.682]) displayed significant total effects, unlike TSR (est = 0.028, $p = .759$, 95%CIboot [−0.143, 0.216]).

FIGURE 5. Mediated effects model estimators



To verify the stability and directionality of the results, two alternative minimum models were calculated and were compared with the original theoretical model (M2). As the saturated models display perfect fit, the analysis focussed on parsimony and stability of the coefficients. In the reversed path model (DTR → ACC), the fit was perfect (CFI = 1.000; RMSEA = 0.000; AIC = 3743.5; BIC = 3797.7), with a significant and negative relationship (βstd = -0.269, $p < .001$). Nonetheless, this model does not improve the parsimony or provide empirical evidence to favour the inverse directionality over the proposed theoretical model.

On the same line, the competitive partial mediation model that permitted residual covariance between ACC and DTR (DTR ~~ ACC) showed that the residual dependence was not significant and the information criteria were slightly worse than in M2 (AIC = 3745.5; BIC = 3803.3). The ACC → DTR path remained significant (βstd ≈ −0.249, $p < .001$) and the mediations of TEC and TSR were maintained through ACC ($p = .033$ and $p < .001$, respectively), while CMTE did not display significant mediation.

The collinearity, homoscedasticity, and normality of the measurement model were evaluated. To do this, the two principal regressions of the model were reviewed. (model A. Collinearity: VIF and Tolerance) (Model A: ACC ~ CMTE + TEC + TSR), (model B: DTR ~ ACC + CMTE + TEC + TSR).

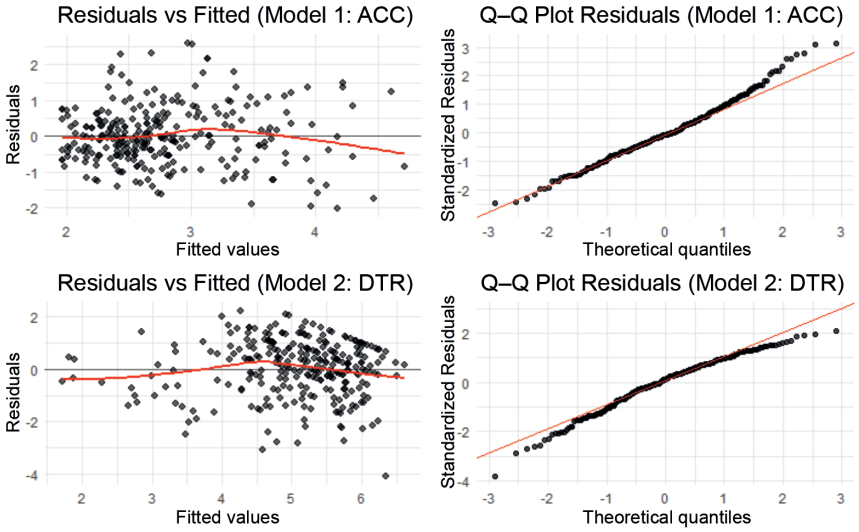
TABLE 11. Diagnosis of collinearity, mediation model

Model	Predictor	VIF	Tolerance
Model A	CMTE	1.772	0.564
	TEC	2.014	0.496
	TSR	1.808	0.553
Model B	ACC	1.482	0.675
	CMTE	1.777	0.563
	TEC	2.056	0.486
	TSR	2.055	0.487

Note: DTR: daily teacher resilience; CMTE: cognitive management of teacher emotion; TEC: teacher empathic concern; TSR: teacher–student relationship; ACC: adverse classroom climate.

The results showed that collinearity was low in both models. Model A (ACC ~ CMTE + TEC + TSR) showed VIF between 1.77 and 2.01 and tolerances between 0.49 and 0.56, while Model B (DTR ~ ACC + CMTE + TEC + TSR) displayed VIF between 1.48 and 2.06 and tolerances between 0.49 and 0.67, complying with the criteria (VIF < 5; tolerance > 0.20).

Figure 6. Residual graphs and Q–Q plot.



The graphs showing residuals compared with fitted values with smoothed LOESS indicated approximately linear relations and acceptable homoscedasticity, with slight heteroscedasticity in the extremes. The Q–Q plots displayed approximate normality of the residuals, with moderate deviations in the tails.

Taken together, these analyses indicate that the M2 findings are robust. No improvement in fit or parsimony is observed when modifying the directionality or when permitting additional residual dependency. However, given the transversal design, these results must be interpreted as consistent with the proposed theoretical framework without involving causal inferences.

The results highlight that CMTE and TEC are key factors for strengthening DTR. Moreover, ACC significantly mediates the relationships between TEC, TSR, and DTR, although the last of these does not have a significant direct effect.

4. Discussion

Teachers display moderate levels of socioemotional competencies and resilience, which are sufficient to face the demands of teaching, albeit with individual differences associated with experience and social support (Segovia-Quesada *et al.*, 2020). Teachers display medium levels of emotional management, but some of them report difficulties that could affect their performance. Empathetic concern is high on average, and is key for student well-being and academic performance (Rodríguez-Saltos *et al.*, 2020). The teacher–student relationship directly affects motivation and prevention of burnout, especially in vulnerable contexts (Silva *et al.*, 2020). An adverse classroom climate is perceived in a moderate and heterogeneous way; improving this requires training in emotional self-regulation and conflict resolution (Sáez-Delgado *et al.*, 2025).

The results suggest that teacher resilience is positively associated with cognitive management of emotion, empathy, and the teacher–student relationship, indicating that the most resilient teachers regulate their emotions better, are more empathetic, and strengthen bonds of trust (Villalobos *et al.*, 2022). In contrast, resilience correlates negatively with adverse classroom climate, displaying a protective role against stress. Emotional management and empathy are also related positively with each other and with the quality of the pedagogical relationship, contributing to healthier school environments (Geiger *et al.*, 2025; Brieba-Fuenzalida, 2025). Likewise, adverse environment presents negative correlations with all of the socioemotional competencies, confirming that these act as protective factors (Levi-Keren *et al.*, 2021).

The analysis of differences in socioemotional competencies and resilience by gender, type of school, and level of vulnerability, show slight variations (Concha-Herrera *et al.*, 2025). Men display slightly greater resilience, with no significant differences in emotional management, empathy, or classroom environment (López-Angulo *et al.*, 2022). In contrast, women stand out in the teacher–student relationship, a key factor in student motivation and self-esteem. No significant differences were observed between public and private schools, although greater teacher closeness and a less adverse environment were reported in the former (Villalobos *et al.*, 2022). There were no differences by level of vulnerability, although development of socioemotional competencies is associated with greater emotional management and greater student success (Gebre *et al.*, 2025).

In the direct effects model (M1), teacher socioemotional competencies (cognitive emotional management, empathetic concern, teacher–student relationship, and adverse classroom climate) were evaluated as predictors of daily teacher resilience. The results showed that cognitive emotional management, empathetic concern, and adverse classroom climate are significant factors (Li *et al.*, 2023). However, the teacher–student relationship did not have a significant direct effect, suggesting that other factors such as environment and emotional management are more determinative for teacher resilience (Segovia-Quesada *et al.*, 2020). In the mediation model (M2), adverse classroom climate was a mediator between empathetic concern and resilience and between the teacher–student relationship and resilience, confirming the importance of contextual factors (Mikalauskaite, 2024). These findings suggest that teacher resilience is strongly influenced by internal factors such as emotional management and external ones such as adverse classroom climate (Villalobos *et al.*, 2022).

While previous research has mainly considered this relationship as a result or a context (Roorda *et al.*, 2011), these findings position it as a relational and moderating factor that interacts with internal competencies and contextual conditions. Likewise, as significant differences by gender are apparent in this relationship, it is proposed that relational dynamics with gender bias could have an effect on the construction of teacher resilience (Villalobos *et al.*, 2022). Taken together, these results expand existing conceptual frameworks by linking internal, relational, and contextual dimensions of teacher well-being and resilience.

This study has some limitations that must be considered. The transversal design does not allow causality or temporality between the variables to be established, thus restricting interpretation to concurrent associations. The sample, which was mainly female and was obtained through voluntary participation, could involve selection and generalisation biases, as well as limited power in some subgroups. The absence of years of teaching experience as a variable reduces comprehension of the effect of the career path. The use of self-reports might introduce social desirability bias, and the lack of verification of factor invariance limits comparisons between groups. The analytic decisions, such as using robust tests without multiplicity correction, could affect the statistical significance. Similarly, SVI requires greater validation and sensitivity analysis. These limitations shape the findings and should guide future studies towards longitudinal or multilevel designs that enhance the evidence obtained.

5. Conclusions

Developing socioemotional competencies is essential to reduce feelings of adversity and promote healthy school environments. Teacher resilience is strengthened through appropriate emotional management, genuine empathetic concern, and a positive classroom environment, while the teacher–student relationship acts indirectly through this environment. There is a notable need for institutional strategies that boost socioemotional competencies and improve teaching conditions, especially in challenging contexts. Likewise, implementing intervention and continuous training programmes aimed at teacher well-being and emotional coping is suggested. These competencies must be explicitly integrated into initial teacher training curricula in line with teacher training standards, Chile's Framework for Quality Teaching (Marco para la Buena Enseñanza), and its National Educational Coexistence Policy (Política Nacional de Convivencia Educativa 2024-2030).

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Dr. Fabiola SÁEZ-DELGADO. Funding acquisition, project administration, resources, writing – review & editing.

Dr. Jaime CONSTENLA-NÚÑEZ. Formal analysis, supervision, validation, writing – review & editing.

Dr. Javier MELLA-NORAMBUENA. Data curation, formal analysis, methodology, software.

Artificial Intelligence (AI) Policy:

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