

Predictors of academic burnout: The roles of self-efficacy, self-determination, and boredom among health sciences students in Northern Chile

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INTRODUCTION & AIM

University education in the Health Sciences takes place in contexts of high academic, clinical, and emotional demands that impose sustained pressure on students (Martos et al., 2018). Unlike other disciplinary areas, students in programs such as medicine, nursing, or physical therapy must integrate a heavy theoretical curricular load with early exposure to clinical settings involving human suffering, diagnostic uncertainty, and responsibility for the well-being of others (Bitrán et al., 2019). These conditions create an educational environment that, while fostering the development of complex professional competencies, also significantly increases the risk of burnout (Ardiles-Irarrázabal et al., 2022; Ghods et al., 2022).

Research that simultaneously examines the interaction between motivational resources and achievement emotions as predictors of burnout in health sciences students is still limited, particularly in Latin American contexts (Bitrán et al., 2019; Galdino et al., 2020). Therefore, the aim of the present study was to describe the levels of self-efficacy, self-determination, boredom in class, and burnout among Health Sciences students at a university in northern Chile, analyzing the role of self-efficacy and boredom as predictors of academic burnout.

METHOD

Theoretical framework

The present study is grounded in two complementary theoretical frameworks that, taken together, allow for an understanding of the interaction between motivation, emotions, and burnout in university education. Social Cognitive Theory (Bandura, 2001; Pintrich, 2003) provides the foundation for understanding students' motivational resources (self-efficacy and self-determination) as self-regulation mechanisms that influence learning and resistance to exhaustion. The Control-Value Theory of achievement emotions (Pekrun, 2006; Pekrun & Perry, 2014), in turn, offers an explanatory framework for understanding how cognitive appraisals of control and value shape emotional experiences in the classroom—among them, boredom—which in turn affect student engagement and well-being.

Design and Participants

A quantitative, descriptive-correlational study with a cross-sectional design was conducted. The sample comprised 442 students from Health Sciences programs at a public university in northern Chile, selected through non-probabilistic convenience sampling. Data were collected during the second academic semester of 2024. Of the total sample, 74.89% were women ($n = 331$) and 25.11% were men ($n = 111$). Regarding distribution by year of study, the largest group was first-year students (40.27%, $n = 178$), followed by fourth-year (21.72%, $n = 96$), fifth-year (18.33%, $n = 81$), second-year (9.95%, $n = 44$), and third-year students (9.50%, $n = 42$), with marginal participation from sixth-year students (0.23%, $n = 1$).

Instruments

Data were collected through a questionnaire composed of subscales adapted to assess the motivational, emotional, and academic exhaustion dimensions. Both self-efficacy and self-determination were measured with three items each, on a 1-to-5 response scale, adapted from the Science Motivation Questionnaire II developed by Glynn et al. (2011). Boredom in class was assessed through three items on a 1-to-4 scale, derived from the Achievement Emotions Questionnaire by Pekrun et al. (2005). Finally, exhaustion was measured using the exhaustion subscale of the Maslach Burnout Inventory–Student Survey (Maslach et al., 1996), which comprises three items rated on a 0-to-6 scale. The study's analyses focused exclusively on these four dimensions given their strong theoretical relevance for predicting emotional exhaustion among students.

Procedure and Data Analysis

The study was carried out after obtaining institutional authorization from the university and approval from an external research ethics committee. Data collection was conducted in a hybrid format (in-person and digital) in the classrooms of the Faculty of Health Sciences. To ensure response stability and avoid bias due to situational stress, the questionnaire was administered during periods of academic normalcy, excluding exam weeks and periods of high assessment load. Administration took approximately 20 minutes and occurred at the beginning or end of each scheduled session, depending on classroom dynamics and the pedagogical context.

Data were analyzed using Jamovi software (version 2.6). First, descriptive statistics (mean, standard deviation, skewness, and kurtosis) were computed for each item and subscale. The reliability of the subscales was estimated using Cronbach's alpha and McDonald's omega coefficients. A four-factor correlated confirmatory factor analysis (CFA) model was then specified (self-efficacy, self-determination, boredom, and exhaustion), from which standardized factor loadings and latent correlations among the variables were extracted. Model fit was evaluated using the chi-square (χ^2), CFI, TLI, and RMSEA indices, the latter reported with its 90% confidence interval. Finally, a hierarchical linear regression model was estimated with exhaustion as the dependent variable and the three remaining dimensions as predictors, testing the assumptions of autocorrelation (Durbin–Watson), multicollinearity (VIF), and normality of residuals (Shapiro–Wilk).

RESULTS & DISCUSSION

Descriptive levels (N = 442). Students reported moderate-to-high self-efficacy ($M = 3.78$, $SD = 0.72$) and self-determination ($M = 3.94$, $SD = 0.69$) on a 1–5 scale, low classroom boredom ($M = 2.21$, $SD = 0.67$; 1–4 scale), and moderate burnout ($M = 3.81$, $SD = 1.39$; 0–6 scale). Internal consistency was acceptable to high ($\alpha = .75$ –.87; $\omega = .76$ –.87).

Correlations. Boredom was the only variable positively linked to burnout ($r = .392$, $p < .001$); self-efficacy showed a protective negative association ($r = -.192$, $p < .001$), and self-determination was unrelated to burnout ($r = .032$, ns).

Measurement model. A four-factor correlated CFA showed good fit: $\chi^2(48) = 84.60$, $p < .001$; CFI = .984; TLI = .979; RMSEA = .042, 90% CI [.026, .056]. All standardized loadings were significant (.67–.87, $p < .001$).

Predicting burnout. In a hierarchical regression (Table 1), adding classroom boredom to the motivational predictors produced a substantial gain in explained variance ($\Delta R^2 = .135$, $p < .001$); the final model accounted for 19.5% of the variance in burnout. Boredom was the strongest predictor ($\beta = .379$, $p < .001$), self-efficacy was protective ($\beta = -.206$, $p < .001$), and self-determination showed a positive effect ($\beta = .206$, $p < .001$) consistent with a suppressor effect (its bivariate correlation with burnout was near zero, $r = .032$). Model assumptions held (Durbin–Watson = 1.91; VIF = 1.07–1.41).

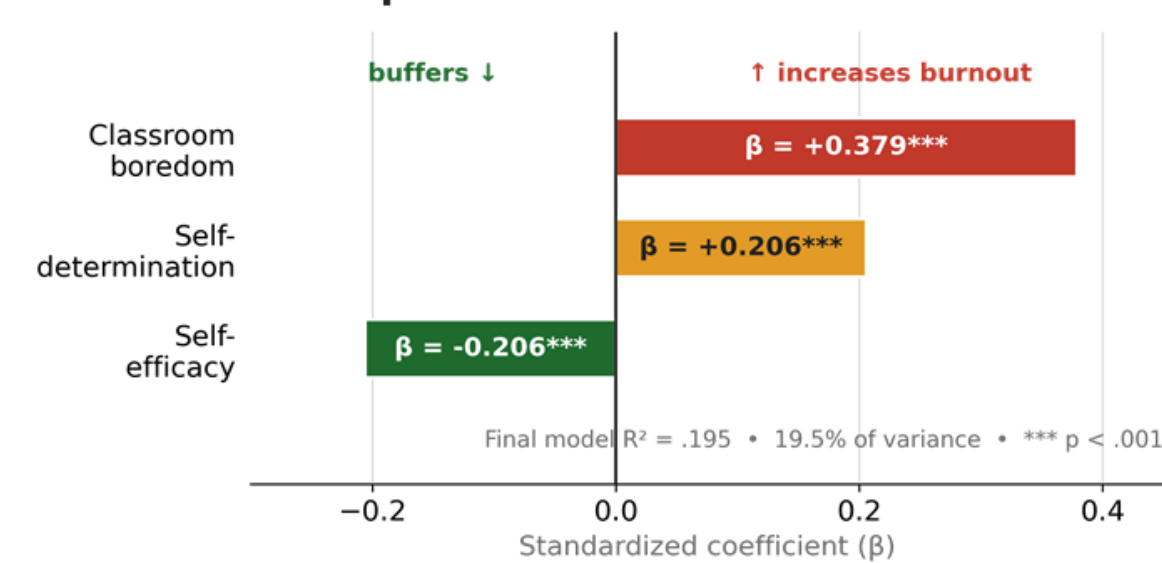
Table 1

Hierarchical regression predicting burnout

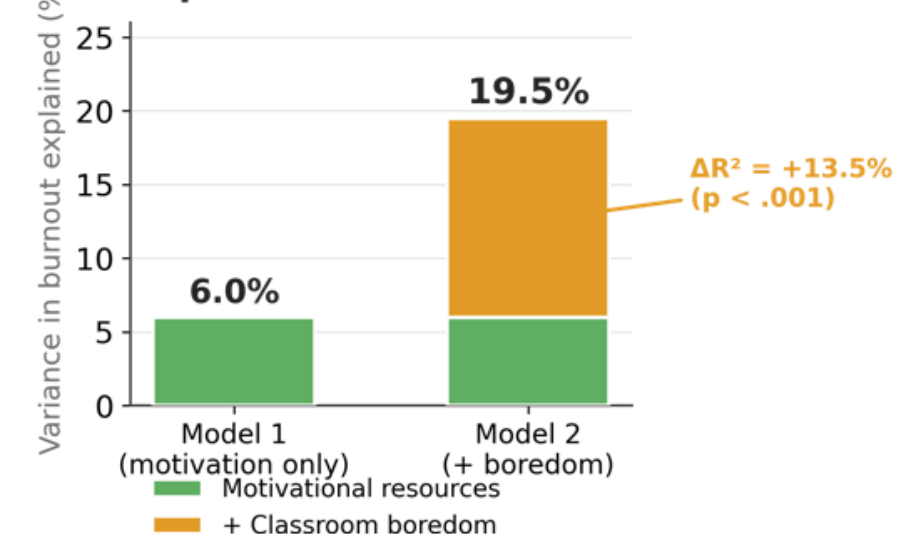
Predictor	B	SE	95% CI	β	t	p
Model 1						
Constant	13.379	1.230	[10.962, 15.797]	—	10.877	< .001
Self-efficacy	−0.546	0.104	[−0.751, −0.342]	−.284	−5.253	< .001
Self-determination	0.358	0.109	[0.145, 0.571]	.178	3.296	.001
Model 2						
Constant	5.780	1.445	[2.940, 8.620]	—	4.000	< .001
Self-efficacy	−0.395	0.098	[−0.588, −0.203]	−.206	−4.036	< .001
Self-determination	0.414	0.101	[0.216, 0.612]	.206	4.103	< .001
Classroom boredom	0.789	0.092	[0.608, 0.970]	.379	8.558	< .001

Note. Dependent variable: burnout. B = unstandardized coefficient; SE = standard error; CI = confidence interval; β = standardized coefficient. Model 1 $R^2 = .060$; Model 2 $R^2 = .195$, $\Delta R^2 = .135$, $p < .001$.

What predicts burnout?



Boredom more than triples explained variance



CONCLUSION

Self-determination: a paradoxical effect. Self-determination *positively* predicted burnout ($\beta = .206$, $p < .001$) despite a near-zero bivariate correlation ($r = .032$), a suppressor effect (Preacher & Hayes, 2008). Once its overlap with self-efficacy is removed, self-determination captures volitional over-investment: when demands chronically exceed available resources, sustained effort depletes rather than protects.

Boredom was the strongest predictor ($\beta = .379$), consistent with higher-education evidence (Tze et al., 2016; Camacho-Morles et al., 2021). Strikingly, even modest, chronic boredom predicted burnout, especially relevant in preclinical stages, where theory–practice disconnection peaks (Erschens et al., 2019; Pekrun et al., 2010). Self-efficacy buffered burnout ($\beta = -.206$), echoing findings in nursing (Lopes & Nihei, 2020; Bulfone et al., 2022) and on resilience (Erschens et al., 2024).

Limitations. The cross-sectional, self-report design precludes causal inference, and the model explained 19.5% of variance, leaving institutional and socioemotional factors for future work.

REFERENCES

