



Original

The relationship between Depersonalization and Self-perceived Interpersonal Intelligence among Ecuadorian Higher Education Teachers

La relación entre la despersonalización y la inteligencia interpersonal autopercibida entre profesores ecuatorianos de educación superior

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Recibido: 06/07/2024

Aceptado: 01/10/2024



Abstract

Introduction: The relationship between burnout and emotional intelligence has been widely studied. Alterations in dimensions, such as emotional exhaustion, personal accomplishment and intrapersonal skills have shown a close relationship with teaching, with notable differences with other dimensions, such as depersonalization and interpersonal skills.

Objective: Assess the association between the depersonalization indicator and interpersonal skills in Ecuadorian university professors.

Materials and methods: The adapted version for teachers of the Maslach Burnout Inventory Educator Survey was applied. An ad hoc scale developed by researchers was used to determine interpersonal intelligence.

Results: Low levels of depersonalization and high levels of interpersonal intelligence were observed. Most teachers assessed their interpersonal skills to be positive. A negative, but significant relationship was found between depersonalization and interpersonal intelligence, with notable differences between genders. Men showed higher levels of depersonalization compared to women.

Conclusions: This study reveals a significant association between depersonalization and interpersonal intelligence in the academic context. Findings suggest that, although men experience higher levels of depersonalization, self-perception of interpersonal skills is generally high in both genders. These results highlight the importance of considering personal and gender factors in the well-being and performance of university teachers, challenging the notion that academic experience alone is sufficient for good educational performance.

Keywords: teacher burnout, depersonalization, cynicism, interpersonal skills, self-concept, sex differences.

Resumen

Introducción: La relación entre el desgaste profesional y la inteligencia emocional se ha estudiado ampliamente. Alteraciones en dimensiones como el agotamiento emocional, la realización personal y las habilidades intrapersonales han demostrado una estrecha relación con el ejercicio de la docencia, con diferencias notables con otras dimensiones como la despersonalización y las habilidades interpersonales.

Objetivo: Evaluar la asociación entre el indicador de despersonalización y las habilidades interpersonales en profesores universitarios ecuatorianos.

Materiales y método: Se aplicó la versión adaptada para docentes del Maslach Burnout Inventory Educator Survey. Para la determinación de la inteligencia interpersonal se utilizó una escala ad hoc elaborada por los investigadores.

Resultados: Se observaron bajos niveles de despersonalización y altos niveles de inteligencia interpersonal. La mayoría de los docentes valoraron positivamente sus habilidades interpersonales. Se encontró una relación negativa, pero significativa entre la despersonalización y la inteligencia

interpersonal, con diferencias notables entre géneros. Los hombres mostraron niveles más altos de despersonalización en comparación con las mujeres.

Conclusiones: Este estudio revela una asociación significativa entre la despersonalización y la inteligencia interpersonal en el contexto académico. Los hallazgos sugieren que, aunque los hombres experimentan mayores niveles de despersonalización, la autopercepción de habilidades interpersonales es generalmente alta en ambos géneros. Estos resultados subrayan la importancia de considerar factores personales y de género en el bienestar y desempeño de los docentes universitarios, al desafiar la noción de que la experiencia académica por sí sola es suficiente para un buen desempeño educativo.

Palabras clave: burnout docente, despersonalización, cinismo, habilidades interpersonales, autoconcepto, diferencias de sexo.

Introduction

The emotional well-being of teachers is of concern to universities and society, since they are responsible for transferring knowledge to students, guiding them during their studies, and consequently, preparing future workers.⁽¹⁾ Teachers are often vulnerable to sustained burnout known as Burnout Syndrome (BS) and their overall performance could be compromised at different levels.⁽²⁻⁴⁾ Emotional exhaustion (EE), depersonalization (DP) and low perception of personal accomplishment underlie BS, which usually affects subjects who work directly with people.

There are multiple factors that make up BS, among which is depersonalization (DP).

Depersonalization represents an individual's interpersonal tension or cynicism toward clients or work in response to an overload of emotional exhaustion,^(5, 6) with an extreme response of detachment or mental distancing toward the work and its components.^(7,8)

Depersonalization can constitute a manifestation of illness, represented by the alteration of the understanding of the psychic phenomena that develop in the subject's own body, and although they verbally express their experiences, do not recognize them as their own.⁽⁹⁾ The phenomenon of DP refers to all the experiences of the subject, but much more frequently it is limited to a small group of them, such as thoughts, feelings, etc.^(10, 11)

Some authors have studied the importance of depersonalization in teaching performance.⁽¹²⁾ Educators who suffer from DP develop negative attitudes toward their students when interaction increases.⁽¹³⁾ This attitudinal problem is perceived by students, affecting their behavior and academic performance.^(14, 15) Depersonalization can be evaluated with multiple instruments, the most used being the Maslach Burnout Inventory (MBI), and the version adapted for teachers (MBI-ES).⁽¹⁶⁾

Relevant research on the differences in the appearance of depersonalization in relation to gender report disparate results, with some studies obtaining higher scores in female teachers in relation to male teachers at different educational levels (17-19), and in others the results have not been sufficiently conclusive.^(13,20)

The evaluation of the development of interpersonal skills proposes a gender challenge where some academic studies show that women have significantly higher levels than men⁽²¹⁻²³⁾ and in others, no statistically significant differences have been reported,⁽²⁴⁾ which can be explained by the management of self-perception, which refers to how people think about themselves through a process of self-observation of the behavior of individuals, and which can differ positively or negatively from the judgment of the others.^(10,11) An optimistic self-perception could have positive implications in the mental area⁽²⁶⁾ or in promoting self-esteem.⁽⁴⁾ In contrast, a pessimistic self-perception is common when individuals experience depression and have expectations of poor performance.^(14,16) In this scenario, individuals are less likely to display selfish reasoning.

In the teaching context, interpersonal skills are also necessary within the educational institution, since educators are expected to recognize and manage relationships in the classroom to achieve effective student participation in classes.^(25, 26) On this basis and considering that self-efficacy is related to the stress of interpersonal interaction,⁽²⁷⁾ some authors have developed constructs to measure the interpersonal self-efficacy of teachers.^(28, 29)

Apart from the classroom context and with co-workers in the management of the interpersonal skills of educators, self-efficacy also addresses management with directors and superiors,⁽²⁸⁾ being possible to integrate the measurement of self-efficacy through trust of teachers in their interaction with students and the organization through consideration and influence.⁽²⁹⁾ On the other hand, it is possible to measure teachers' interpersonal skills using relaxation techniques such as mindfulness.⁽³⁰⁾ Finally, interpersonal skills can be measured taking emotional intelligence as an indicator due to its direct relationship with understanding and monitoring the emotions of others.⁽³¹⁻³³⁾

The objective of this research is to analyze depersonalization, measured through the MBI-ES scale, based on a self-perceived IPI score to demonstrate whether the IPI and the DP maintain the statistical relationship reported in previous studies, and its relationship with gender.

Materials and methods

Data collection.

For data collection, an ad hoc survey was developed with questions to obtain demographic data, the evaluation of self-perception of mastery of multiple intelligences, according to Gardner's theory;⁽³⁴⁾ and a proposal to determine the level of professional burnout.⁽⁵⁾

For interpersonal intelligence, participants were asked to rate on a continuous scale, from 0 (not competent) to 10 (completely competent), how skilled they thought they were in IPI at the time of the survey. Along with this, we provided an explanatory note on the definition of IPI that would be used: "Consider interpersonal intelligence as the ability to understand and interact with other people".⁽³⁴⁾

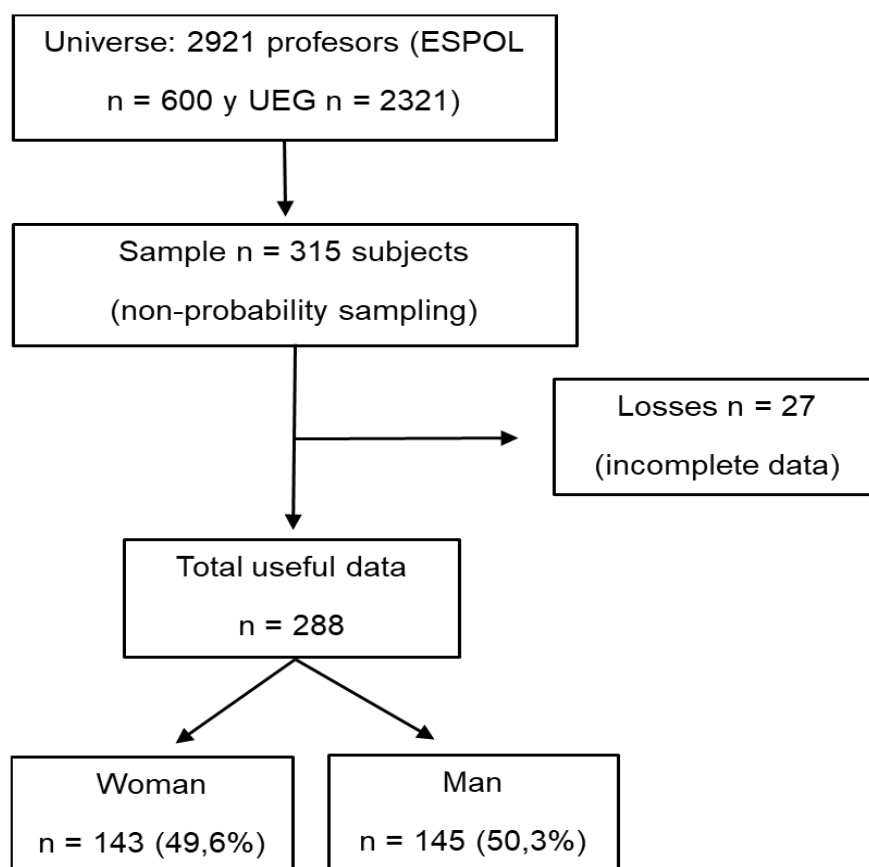
The level of depersonalization was measured using the homonymous factor of the Maslach Burnout Inventory Educator Survey,⁽¹⁶⁾ which is a scale of 22 items distributed in three factors: (a) Emotional exhaustion, nine items ($\alpha = .88$); (b) Personal accomplishment, eight items ($\alpha = .8$) and (c) Depersonalization, five items ($\alpha = .56$). The responses in the construct represent the frequency with which participants experienced the proposition of the items on a Likert scale ranging from 0 (never) to

6 (every day). The original instrument yielded a Cronbach's alpha of 0.83 (5), and the present study obtained a coefficient of 0.85.

Survey and participants

We conducted a paper survey applied to 315 teachers from two public universities in Ecuador, selected through non-probabilistic sampling from a total population of 2921 teachers (ESPOL $n = 600$ and UEG $n = 2321$). The questionnaire was administered anonymously to the teachers who responded with prior consent from the authorities of the institutions. The authorities of the faculties invited teachers to participate in the survey, which was carried out in an institutional facility provided by each university.

Figure 1. Participant breakdown for the Survey on Teacher Burnout and Interpersonal Intelligence in Ecuadorian Universities



Note: figure 1. The sample consisted of 315 teachers from two public universities in Ecuador, using non-probabilistic sampling. The study used only complete datasets, resulting in 288 valid cases (143 women and 145 men), which represents 91.4% of the initial sample. Surveys were conducted anonymously and with the approval of the respective university authorities.

Attendees were informed of the main purpose of the study before agreeing to participate in the survey. The sample for this research included only complete cases on the burnout scale and interpersonal intelligence measurement, totaling 288 (91.4% of the observations in the initial data set).

Statistical analysis:

The teachers' DP score was calculated by adding the items that make up the DD dimension in the MBI-ES construct (items 5, 10, 11, 15 and 22) (5). Next, internal consistency was measured for each facet of the burnout scale using Cronbach's alpha (R package psych) (35). Descriptive statistics was summarized on individual items, overall DP and IPI scores.

The distributions of DP and IPI scores were then analyzed, and outliers were identified (R package univOutl) (36) using the boxplot method adjusted for non-normal distributions with a narrow margin length of 1.5 as suggested in the literature (37, 38). Once the atypical points were identified, no case was eliminated from the analysis, but their behavior with respect to the variables of interest was analyzed.

Subsequently, the relationship between DP was quantified as a function of self-perceived IPI using Spearman correlation (ρ_s) and quantile regressions (QR; R package quantreg) (39) as robust methods for the presence of outliers (40); The 25th, 50th, 75th, and 95th percentile equations for the QR models were fitted to understand the overall relationship between DP and IPI. The XY pairwise method was also used to estimate the standard errors of the regressors (40, 41), setting the seed to 123456 for reproducibility.

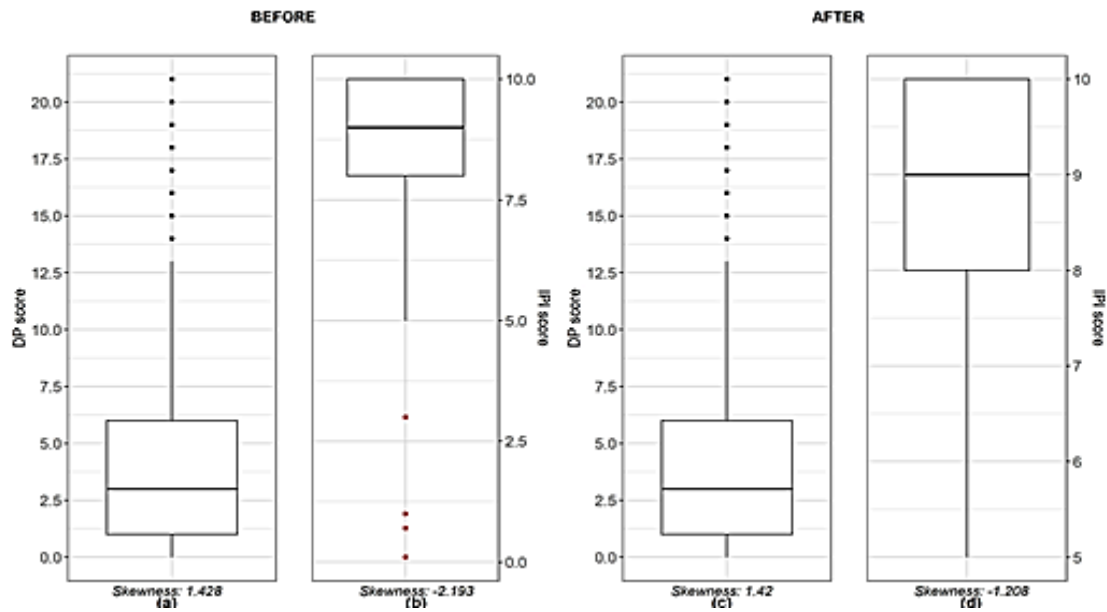
Gender differences in DP and IPI scores were measured using percentile comparisons (R package WRS2) (42). Therefore, the 25th, 50th, 75th and 95th percentiles of the two reported genders were compared to explore changes at different levels (43-45). Finally, gender differences in the relationship between DP and IPI were analyzed using QR models under the same conditions mentioned above. All statistical data analysis was performed in R (version 4.1.2) and the significance level was set at 0, 05.

Results

Participants included 143 (49.6%) women and 145 (50.3%) men, aged 29 to 79 years, with a mean age of $49 \pm 0, 7$. The teachers in the sample came from social sciences, education, business administration or law faculties ($n = 149, 51.7\%$); from engineering, industry, or construction faculty ($n = 54, 18.8\%$); from science faculties ($n = 48, 16.7\%$); and from health or social service faculties ($n = 37, 12.8\%$).

Most teachers were in a stable relationship at the time of the study, both cohabiting and married ($n = 181; 62.8\%$), and 106 (36.8%) were separated, divorced, single or widowed. Most participants had completed a postgraduate degree, either a master's degree ($n = 225; 77.4\%$), or a doctorate ($n = 33; 11.4\%$) and 14 (4.8%) had a bachelor's degree. Regarding working conditions, most teachers worked full-time ($n = 239; 82.6\%$) and with an indefinite employment contract ($n = 211; 73.2\%$) (See Figure 2).

Figure 2. Distributions of depersonalization and interpersonal intelligence scores



Note: figure 2. Distributions of depersonalization and interpersonal intelligence scores. (a) and (c) display the distribution of DP scores before and after removing outliers, respectively. (b) and (d) show the distribution of IPI scores before and after removing outliers, respectively. Highlighted points in red stand for the outliers detected by the adjusted boxplot criterion.

The emotional exhaustion (EE) and depersonalization (DP) items showed low averages and positive asymmetry. Personal achievements (PA) reported a negative skewness of less than -1, suggesting that most teachers positively agreed on what was asked; therefore, most of the group obtained moderate to high levels of personal accomplishment. Furthermore, respondents obtained a mean DP score of 4.17 ± 4.43 with a positive bias greater than 1, suggesting low levels of depersonalization for most teachers.

Among the DP items, most teachers stated that they never felt “treating some students as if they were impersonal objects” ($S = 3.96$). Regarding the IPI, educators rated their interpersonal intelligence between 0.1 and 10, with an average value of 8.78 ± 1.56 and an asymmetry value of -2.19 , indicating a high self-assessment of their abilities. Interpersonal (see Table 2).

Table 1. Descriptive statistics of the Maslach Burnout Inventory items: depersonalization and self-perceived interpersonal intelligence scores

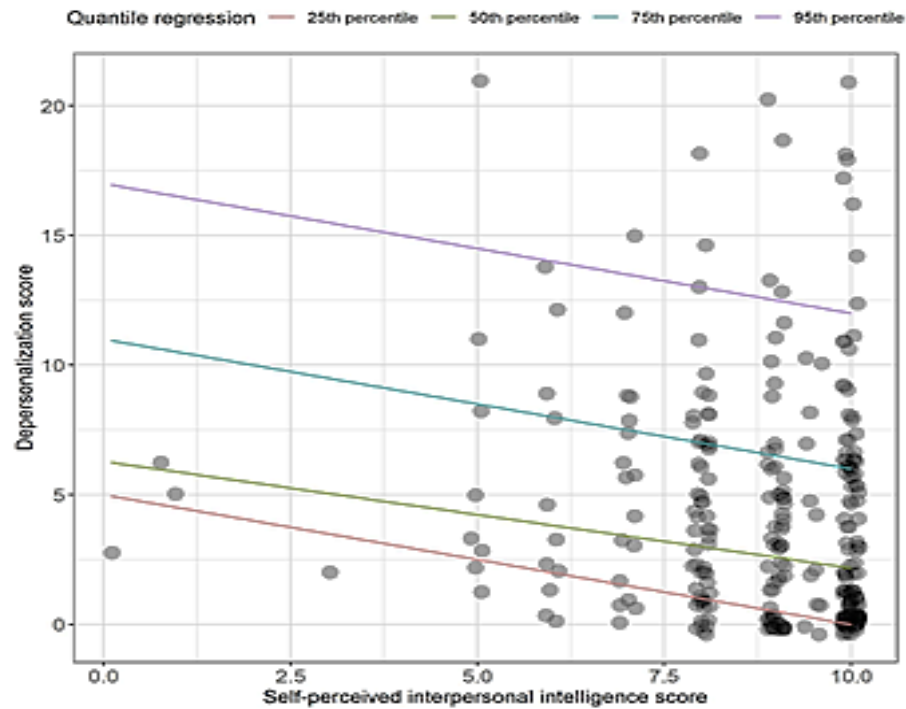
Item	Min	Q1	\tilde{X}	\bar{X}	Q3	Max	SD	S
EE1: Emotionally drained	0	1	2	2.12	3	6	1.66	.57
EE2: Used up at the end of the day	0	2	2	2.8	4	6	1.71	.42
EE3: Fatigued in the morning	0	0	1	1.49	2	6	1.49	1.1
EE6: Working with people is a strain	0	0	1	1.68	2.25	6	1.7	.96
EE8: Burned out	0	0	1	1.6	2	6	1.64	1.06
EE13: Frustrated	0	0	0	.92	1	6	1.42	1.76
EE14: Working too hard	0	0	2	1.99	3	6	1.85	.74
EE16: Working with people put stress on me	0	0	1	1.12	2	6	1.4	1.62
EE20: At the end of the rope	0	0	1	1.16	2	6	1.5	1.38
PA4: Easily understand students	0	4	5	4.69	6	6	1.23	-1.12
PA7: Deal effectively with students' problems	0	4	5	4.79	6	6	1.36	-1.36
PA9: Positively influence others	0	5	5	5.05	6	6	1.22	-1.88
PA12: Feeling energetic	1	5	5	5.06	6	6	1.19	-1.26
PA17: Create a relaxed atmosphere	0	5	5	5.04	6	6	1.22	-1.96
PA18: Feel exhilarated	0	5	5.5	5.2	6	6	1.04	-1.68
PA19: Accomplished worthwhile things	0	5	6	5.32	6	6	.94	-1.88
PA21: Deal with emotional problems calmly	0	4	5	4.62	6	6	1.5	-1.12
DP5: Treat students as impersonal objects	0	0	0	.32	0	6	.89	3.96
DP10: Callous toward people	0	0	0	.87	1	6	1.56	1.94
DP11: Job hardening me	0	0	0	.88	1	6	1.45	1.91
DP15: Don't care what happens to students	0	0	0	1.39	2	6	2.06	1.35
DP22: Students blame me	0	0	0	.69	1	6	1.07	2
DP score	0	1	3	4.17	6	21	4.43	1.42
Self-perceived IPI score	.10	8	9	8.78	10	10	1.56	-2.19

Note: Abbreviations: EE, emotional exhaustion; PA, personal accomplishment; DP, depersonalization; IPI, interpersonal intelligence; \tilde{X} , median; \bar{X} , mean; SD, standard deviation; S, skewness.

In the DP distribution, teachers with higher levels of DP were less frequent in group (A). Regarding the IPI score, educators who self-perceived their interpersonal skills as low (less than five) were considered atypical behavior according to the adjusted box plot criterion (B). By dropping these points from the analysis, the IPI skewness decreased, but the distribution was still negatively skewed (D). However, it was desirable to explore the DP scores of those outlier points.



Figure 3. Depersonalization (DP) vs. Self-reported interpersonal intelligence (IPI) scores

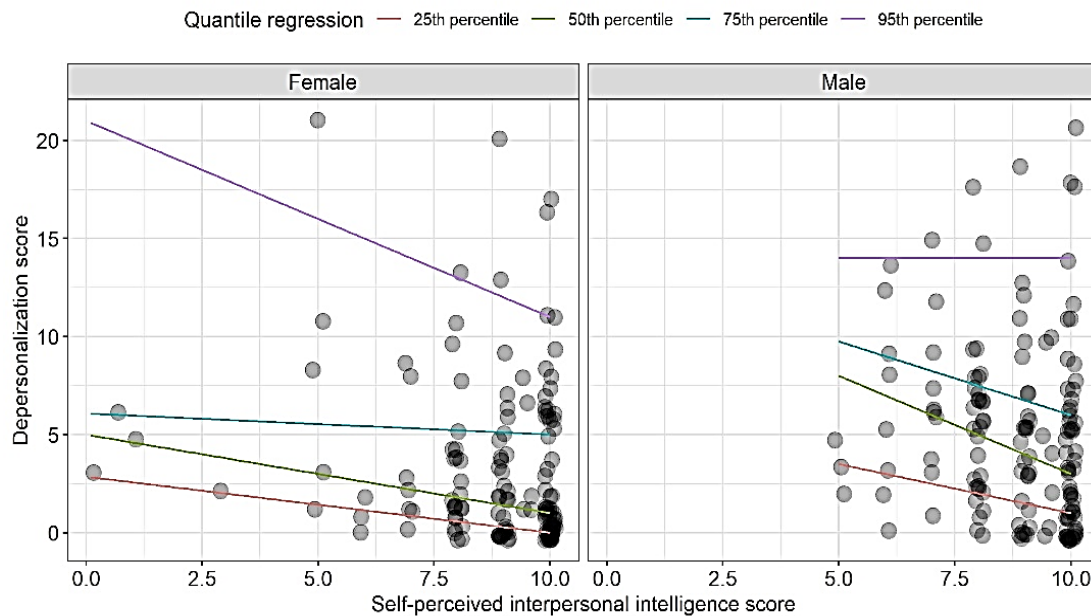


Note: figure 3

Depersonalization (DP) vs. self-reported interpersonal intelligence (IPI) scores. Spearman correlation coefficient: $\rho_s = -.17$, $p\text{-value} = .002$. The highlighted lines represent the estimated QR equations $DP \sim IPI$ for the 25th, 50th, 75th, and 95th percentiles, respectively

Figure 3 shows the estimated 25th, 50th, 75th, and 95th percentiles of DP based on IPI scores. Although we observed some items with a direct relationship (i.e., teachers with low scores on both the DP and the IPI, and other educators with high scores on both the DP and the IPI), depersonalization and self-perceived IPI showed a negative correlation in the four DP percentiles. Spearman's correlation coefficient reported this correlation to be low but statistically significant, $\rho_s = -.17$, $p\text{-value} = .002$.





Note: figure 4. Depersonalization, self-reported interpersonal intelligence score and gender: The highlighted lines stand for the estimated QR equations $DP \sim IPI$ for the 25th, 50th, 75th, and 95th percentiles, respectively. Spearman correlation coefficients between depersonalization and interpersonal intelligence across genders were $\rho_s = -.15$, $p\text{-value} = .07$ for females and $\rho_s = -.20$, $p\text{-value} = .01$ for males.

When modeling DP as a function of IPI using quantile regressions, the estimated coefficients of IPI were negative at an approximately constant rate. The slopes were equivalent in all percentile equations, except for the median, where the IPI coefficient was the lowest. Even so, the IPI effect was statistically relevant only for the first quantile ($\theta = 0.25$).

Table 2. QR estimated coefficients of the depersonalization (DP) equation as a function of the self-perceived interpersonal intelligence (IPI) (25th, 50th, 75th, and 95th percentiles)

	Estimator			
	$\theta=.25$	$\theta=.50$	$\theta=.75$	$\theta=.25$
	$\theta=.25$	$\theta=.50$	$\theta=.75$	$\theta=.25$
IPI score	-.500** (.119)	-.410 (.298)	-.500 (.342)	-.500 (.925)
Constant	5.000*** (1.062)	6.287* (2.692)	11.000*** (3.170)	17.000* (7.807)

Note: P-value < 0.001 (***), < 0.01 (**), < 0.05 (*), < 0.1 (.). Standard errors are given in parentheses.



Regarding the gender effect, the quantile lines showed a similar behavior within each gender, except in the 95th percentile equation. When comparing the two groups, the slopes of the quantile equation were steeper for men, but the upper percentile was flatter than that of the opposite group. According to Spearman correlations, men and women showed a negative relationship between DP and IPI, but only men exhibited a statistically significant association (see Figure 4 and Table 4).

Table 3. Differences between gender in depersonalization and interpersonal intelligence scores

	Depersonalization			Interpersonal intelligence		
	Female (F)	Male (M)	Difference F-M	Female (F)	Male (M)	Difference F-M
$\theta=.25$ $\theta=.25$.115	1.424	-1.308**	8.059	8.001	.057
$\theta=.50$ $\theta=.50$	1.610	4.459	-2.849***	9.108	9.029	.079
$\theta=.75$ $\theta=.75$	5.302	7.168	-1.865**	10.000	9.999	.000
$\theta=.95$ $\theta=.95$	11.808	14.714	-2.905	10.000	10.000	.000
Min.	0	.000		0.100	5.000	
Máx.	21.000	21.000		10.000	10.000	
SD.	4.136	4.552		1.802	1.300	
Skewness	1.853	1.157		-2.506	-1.022	

Note: P-value < 0.001 (***), < 0.01 (**), < 0.05 (*), < 0.1 (.). Differences between genders were computed through comparisons in the 25th, 50th, 75th and 95th percentiles. The null hypotheses for the percentile comparisons were $\theta_{q1} = \theta_{q2}$.

Furthermore, the range of DP was the same for both sexes, but men showed higher DP scores at different percentiles. In fact, there were statistically significant differences within the quantiles, but not at the 95th percentile. Furthermore, Table 3 shows that the asymmetry in the DP scores was greater for women than for men, that is, the levels higher DP were less common in the first group. Therefore, up to the 75th percentile, women in the sample reported significantly lower DP scores than men.

On the other hand, IPI evaluations in women had a wider range and greater negative asymmetry, and male teachers rated their IPI above five, showing a statistically insignificant difference in the four percentiles analyzed. (See Table 3).

In Figure 4 gender showed an additive effect in the relationship between DP and IPI. Therefore, we added gender as a covariate to the existing models in Table 2. As a result, the effect of IPI score on DP decreased, but was still significant in the first two quantiles.



According to the QR models, being male increased the first and second quantiles of DP by one and three units, respectively. However, the estimated effect of gender on the third quantile of DP was negative, but not significant. Furthermore, the equation for the 95th percentile was constant, suggesting that DP was independent of gender and IPI at the highest levels of DP (see Table 4).

Table 4. QR estimated coefficients of the depersonalization equation as a function of self-perceived interpersonal intelligence (25th, 50th, and 95th percentiles), adding gender

	Estimator			
	$\theta=.25$ $\theta=.25$	$\theta=.50$ $\theta=.50$	$\theta=.75$ $\theta=.75$	$\theta=.25$ $\theta=.25$
IPI score	-.303** (.103)	-.444* (.205)	-.107 (.353)	.000 (.904)
Gender = Male	1.000** (.385)	3.000*** (.696)	1.892 (1.075)	3.000 (2.453)
Constant	3.030** (1.031)	5.444** (1.964)	6.075 (3.177)	11.000 (8.074)

Note: P-value < 0.001 (***), < 0.01 (**), < 0.05 (*), < 0.1 (.). Standard errors are given in parentheses.

Discussion

The present research has explored the relationship between depersonalization and self-perceived interpersonal intelligence among university educators, considering possible differences between genders. The results suggested that DP and IPI scores were biased, as high DP levels and low IPI scores were unusual in the sample. Even so, their overall correlation was negative and statistically significant ($\rho_s = -0.17^{**}$). However, compared to other studies relating DP and interpersonal dimensions in the academic context, the correlation reported in this study was weaker.

Strong correlations were found between DP and teachers' interpersonal self-efficacy in classroom management (-0.59^{***}), obtaining support from colleagues (-0.44^{***}) and principals (-0.31^{***}). (20). Furthermore, similar associations were concluded when relating depersonalization to a different construct of teaching self-efficacy based on interpersonal interactions ($-.38^{**}$), for the consideration of effectiveness in the classroom and ($-.21^{**}$), for organizational influence). (25). Furthermore, similar results were reported when relating DP to interpersonal mindfulness ($-.28^*$) (30).

We could attribute the weakness in the correlation coefficient found in this study to the influence of self-perceived IPI since the scale used was a single item that depended on the teachers' perceptions. As evidence, we found that 75% of educators in this research self-rated more than eight, making IPI scores of less than five outliers. It is worth noting that these outlier IPI scores reported low DP, which argues against the negative conceptual association. However, the presence of these outliers could have helped accentuate the effect of IPI on DP levels in the first quantile regression ($\theta_{25} = -0.50^{***}$), where lower

DP levels for higher scores IPI increases made sense (Maslach and Leiter, 2008). This is not the case for the highest DP percentiles ($\theta_{50} = -0.41$; $\theta_{75} = -0.50$; $\theta_{95} = -0.50$), where all IPI scores were above five. Therefore, the negative association could not be confirmed to be statistically relevant.

These disparities could be supported by the argument of Yammarino and Atwater (46), who state that self-ratings are often inaccurate, that is, they could differ from actual performance and the judgment of others. Furthermore, our results would suggest optimistic interpersonal competence as perceived by educators. However, in this study we cannot infer about the teachers' judgment behind their self-evaluation, although some researchers have explained the reasons for an optimistic self-perception (46-48), where selfishness is the main one (49). On the other hand, the discrepancy between atypical IPI scores (less than five) and low DP levels may suggest negative states (e.g., depression) among these educators (50, 51).

Regarding the mediating role of gender in the experience of depersonalization and interpersonal skills, the literature reviewed shows statistical differences between genders in two dimensions, where female teachers show lower levels of PD than male teachers at different educational levels (17-19). In addition, it has been described that women's interpersonal skills seem to be superior to those of men (22, 23, 57)

Our results support the difference between genders in the depersonalization facet, since the educators showed statistically lower levels in all quantiles and even in the 95th percentile. However, the IPI scores between genders had practically no difference, which raises the issue of the effect of gender on self-perception.

In this sense, some studies have concluded that women underestimate more frequently than men due to low self-perception (52), and higher performance expectations in men than in women (53). In this research, teachers of both genders self-rated their IPI similarly high, which could be supported by each expecting high performance from their gender (53-55). Women reported instances of low IPI scores, while male teachers self-rated their interpersonal skills above five.

Contributions to the field statement

This study reveals a negative, but significant relationship between depersonalization and interpersonal intelligence in Ecuadorian university professors, with findings that highlight notable gender differences. It shows that, although men experience higher levels of depersonalization, the perception of their own interpersonal intelligence tends to be optimistic in both genders. These results are fundamental to inform intervention strategies and professional development in the educational field and provide a solid basis for future research on the dynamics of stress and interpersonal skills in university teaching.

Conclusions

This study showed the relationship between depersonalization and interpersonal intelligence. Gender had an additive effect on this relationship as men experienced higher levels of depersonalization than women. However, self-perception seemed to obscure the strength of the interest association, regardless of gender. This research contributed to the study of the attitudinal importance of teachers in the

performance of university students, where it is common to think that academic experience is sufficient to perform adequately as an educator.

Bibliography References

1. Datnow A. The role of teachers in educational reform: A 20-year perspective. *J Educ Change*. 2020;21(3):431-41. Available from: https://atrico.org/wp-content/uploads/2019/11/Datnow2020_Article_TheRoleOfTeachersInEducational.pdf
2. Gastaldi FGM, et al. Measuring the Influence of Stress and Burnout in Teacher-Child Relationship. *Eur J Educ Psychol*. 2014;7(1):17-28. Available from: <https://doi.org/10.30552/ejep.v7i1.99>
3. Vera-Bermudez J, et al. Distinción por sexo en el rol del profesor como investigador y sus implicaciones en el quemado profesional. Proceedings of the 15th LACCEI International Multi-Conference for Engineering, Education and Technology. 2017:239. Available from: <http://dx.doi.org/10.18687/LACCEI2017.1.1.239>
4. Puertas Molero P, et al. Influence of Emotional Intelligence and Burnout Syndrome on Teachers Well-Being: A Systematic Review. *Soc Sci*. 2019;8(6):185. Available from: <https://doi.org/10.3390/socsci8060185>
5. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav*. 1981;2(2):99-113. Available from: <https://doi.org/10.1002/job.4030020205>
6. Maslach C, Jackson SE, Leiter MP. Maslach burnout inventory. In: Zalaquett CP, Wood RJ, editors. *Evaluating Stress: A Book of Resources*. Lanham: Scarecrow Press; 1997. Available from: <https://psycnet.apa.org/record/1997-09146-011>
7. Maslach C. A multidimensional theory of burnout. In: Cooper CL, editor. *Theories of organizational stress*. Oxford: Oxford University Press; 1998. p. 85. Available from: https://www.researchgate.net/publication/280939428_A_Multidimensional_Theory_of_Burnout
8. Simbula S, Guglielmi D. Depersonalization or cynicism, efficacy or inefficacy: what are the dimensions of teacher burnout? *Eur J Psychol Educ*. 2010;25(3):301-14. Available from: <https://doi.org/10.1007/s10212-010-0017-6>
9. Shepperd J, Malone W, Sweeny K. Exploring Causes of the Self-serving Bias. *Soc Personal Psychol Compass*. 2008;2(2):895-908. Available from: <https://doi.org/10.1111/j.1751-9004.2008.00078.x>



10. Paredes M, et al. Burnout y afrontamiento en docentes universitarios de Ecuador. GICOS: Revista del Grupo de Investigaciones en Comunidad y Salud. 2020;6(4):39-55. Available from: <http://erevistas.saber.ula.ve/gicos>
11. Revelle W. psych: Procedures for Psychological, Psychometric, and Personality Research. Evanston, Illinois: Northwestern University; 2021. Available from: <https://CRAN.R-project.org/package=psych>
12. Hakanen JJ, Bakker AB, Schaufeli WB. Burnout and work engagement among teachers. J Sch Psychol. 2006;43(6):495-513. Available from: <https://doi.org/10.1016/j.jsp.2005.11.001>
13. Benita M, Butler R, Shibaz L. Outcomes and antecedents of teacher depersonalization: The role of intrinsic orientation for teaching. J Educ Psychol. 2019;111(6):1103-18. Available from: <https://doi.org/10.1037/edu0000328>
14. Tabera Galván MV, et al. Percepción de los estudiantes universitarios de Ciencias de la Salud sobre las actitudes de los docentes y su influencia en el clima de aprendizaje. Rev Complut Educ. 2015;26(2):275-93. Available from: https://doi.org/10.5209/rev_RCED.2015.v26.n2.43028
15. Madigan DJ, Kim LE. Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported outcomes. Int J Educ Res. 2021;105:101714. Available from: <https://doi.org/10.1016/j.ijer.2020.101714>
16. Maslach C, Jackson SE, Schwab RL. Maslach burnout inventory-educators survey (MBI-ES). MBI manual. 1996; 3:27-32. Available from: <https://www.scrip.org/reference/referencespapers?referenceid=2804221>
17. Byrne BM. Burnout: Investigating the impact of background variables for elementary, intermediate, secondary, and university educators. Teach Teach Educ. 1991;7(2):197-209. Available from: [https://doi.org/10.1016/0742-051X\(91\)90027-M](https://doi.org/10.1016/0742-051X(91)90027-M)
18. Bayani AA, Bagheri H, Bayani A. Influence of gender, age, and years of teaching experience on burnout. Ann Biol Res. 2013;4(4):239-43. Available from: <http://scholarsresearchlibrary.com/archive.html>
19. Rumschlag KE. Teacher burnout: A quantitative analysis of emotional exhaustion, personal accomplishment, and depersonalization. Int Manag Rev. 2017;13(1):22-36. Available from: https://www.researchgate.net/publication/359894508_Techers'_Emotional_Intelligence_and_Burnout



20. García-Ros R, Fuentes MC, Fernández B. Teachers' interpersonal self-efficacy: evaluation and predictive capacity of teacher burnout. EJREP. 2015;13(3):483. Available from: <http://dx.doi.org/10.14204/ejrep.37.14105>
21. Eagly AH, Karau SJ. Gender and the emergence of leaders: A meta-analysis. J Pers Soc Psychol. 1991;60(5):685-710. Available from: <https://doi.org/10.1037/0022-3514.60.5.685>
22. Shehzad S, Mahmood N. . Gender Differences in Emotional Intelligence of University Teachers. Pak J Soc Clin Psychol. 2013;11(1). Available from: <https://www.gcu.edu.pk/pages/gcupress/pjscp/volumes/pjscp20131-3.pdf>
23. Soanes DG, Sungoh SM. Influence of Emotional Intelligence on Teacher Effectiveness of Science Teachers. Psychol. 2019;10(13):1819-31. Available from: <https://doi.org/10.4236/psych.2019.1013118>
24. Zamir S, Hina QA. An Analysis of Interpersonal Skills of Teachers at Higher Level. J Res Soc Sci. 2017;5(2):135-48. Available from: <https://www.proquest.com/scholarly-journals/analysis-interpersonal-skills-teachers-at-higher/docview/2006718919/se-2>
25. Friedman IA. Self-Efficacy and Burnout in Teaching: The Importance of Interpersonal-Relations Efficacy. Soc Psychol Educ. 2003;6(3):191-215. Available from: <https://doi.org/10.1023/A:1024723124467>
26. Tan YJ, Quek CLG, Fulmer G. Validation of Classroom Teacher Interaction Skills Scale. Asia-Pacific Educ Res. 2019;28(5):429-46. Available from: <https://doi.org/10.1007/s40299-019-00444-6>
27. Alden L. Self-efficacy and causal attributions for social feedback. J Res Pers. 1986;20(4):460-73. Available from: [https://doi.org/10.1016/0092-6566\(86\)90126-1](https://doi.org/10.1016/0092-6566(86)90126-1)
28. Brouwers A, Tomic W. The factorial validity of scores on the teacher interpersonal self-efficacy scale. Educ Psychol Meas. 2001;61(3):433-45. Available from: <https://doi.org/10.1177/00131640121971301>
29. Friedman IA, Kass E. Teacher self-efficacy: A classroom-organization conceptualization. Teach Teach Educ. 2002;18(6):675-86. Available from: [https://doi.org/10.1016/S0742-051X\(02\)00027-6](https://doi.org/10.1016/S0742-051X(02)00027-6)



30. Frank JL, Jennings PA, Greenberg MT. Validation of the mindfulness in teaching scale. *Mindfulness*. 2016;7(1):155-63. Available from: <https://doi.org/10.1007/s12671-015-0461-0>
31. Mayer JD, Salovey P. The intelligence of emotional intelligence. *Intelligence*. 1993;17(4):433-42. Available from: [https://doi.org/10.1016/0160-2896\(93\)90010-3](https://doi.org/10.1016/0160-2896(93)90010-3)
32. Dulewicz V, Higgs M. Can emotional intelligence be measured and developed? *Leadersh Organ Dev J*. 1999;20(5):242-53. Available from: <https://doi.org/10.1108/01437739910287117>
33. Mayer JD. What is emotional intelligence? Research. Durham: University of New Hampshire; 2004. Available from: https://scholars.unh.edu/personality_lab/8
34. Gardner H. *Frames of mind*. New York: Basic Books; 1983. Available from: <https://www.scirp.org/reference/referencespapers?referenceid=2633225>
35. Revelle W. How to use the psych package for mediation/moderation/regression analysis. *Personal. Proj*. 2021. Available from: <https://personality-project.org/r/tutorials/HowTo/mediation.pdf>
36. D’Orazio M. *univOutl: Detection of Univariate Outliers*. 2021. Available from: <https://CRAN.R-project.org/package=univOutl>
37. Hubert M, Vandervieren E. An adjusted boxplot for skewed distributions. *Comput Stat Data Anal*. 2008;52(12):5186-201. Available from: <https://doi.org/10.1016/j.csda.2007.11.008>
38. Wilcox RR. Some outlier detection methods. In: *Introduction to Robust Estimation and Hypothesis Testing*. 3rd ed. St. Louis: Elsevier Science & Technology; 2013. p. 96-100. Available from: <https://doi.org/10.1016/C2010-0-67044-1>
39. Koenker R. *quantreg: Quantile Regression*. 2021. Available from: <https://CRAN.R-project.org/package=quantreg>
40. Davino C, Furno M, Vistocco D. *Quantile Regression: Theory and Applications*. 1st ed. New York: John Wiley & Sons, Incorporated (Wiley Series in Probability and Statistics Ser); 2013. Available from: https://www.academia.edu/39779234/Quantile_Cristina_Davino_Marilena_Furno_Domenico_Vistocco



41. Kocherginsky M, He X. Extensions of the Markov chain marginal bootstrap. *Stat Probab Lett.* 2003;77(12):1258-68. Available from: <https://doi.org/10.1016/j.spl.2007.03.010>
42. Mair P, Wilcox R. Robust Statistical Methods in R Using the WRS2 Package. *Behav Res Methods.* 2020; 52:464-88. Available from: <https://cran.r-project.org/web/packages/WRS2/vignettes/WRS2.pdf>
43. Harrell FE, Davis CE. A new distribution-free quantile estimator. *Biometrika.* 1982;69(3):635-40. Available from: <https://doi.org/10.1093/biomet/69.3.635>
44. Wilcox RR, et al. Comparing two independent groups via the lower and upper quantiles. *J Stat Comput Simul.* 2014;84(7):1543-51. Available from: <https://doi.org/10.1080/00949655.2012.754026>
45. Rousselet GA, Pernet CR, Wilcox RR. Beyond differences in means: robust graphical methods to compare two groups in neuroscience. *Eur J Neurosci.* 2017;46(2):1738-48. Available from: <https://doi.org/10.1111/ejn.13610>
46. Ilaja B, Reyes C. Burnout y estrategias de inteligencia emocional en profesores. *Psicol desde el Caribe.* 2016;33(1):31-46. Available from: <https://doi.org/10.14482/psdc.33.1.8081>
47. Cansoy R, Parlar H, Kılınç AÇ. Teacher Self-Efficacy as a Predictor of Burnout. *Int Online J Educ Sci.* 2017;9(1). Available from: <http://dx.doi.org/10.15345/iojes.2017.01.011>
48. Harter S, Whitesell NR. On the importance of importance ratings in understanding adolescents' self-esteem: beyond statistical parsimony. In: Riding RJ, Rayner SG, editors. *Self-perception.* Westport: Ablex Publishing; 2001. p. 3-23. Available from: <https://psycnet.apa.org/record/2001-05481-001>
49. Karpen SC. The Social Psychology of Biased Self-Assessment. *Am J Pharm Educ.* 2018;82(5):6299. Available from: <https://doi.org/10.5688/ajpe6299>
50. Dobson K, Franche R-L. A conceptual and empirical review of the depressive realism hypothesis. *Can J Behav Sci.* 1989;21(4):419-33. Available from: <https://doi.org/10.1037/h0079839>



51. Thomson W. Depression, Neuroticism, and the Discrepancy Between Actual and Ideal Self-Perception. *Pers Individ Dif.* 2016; 88:219-24. Available from: <https://doi.org/10.1016/j.paid.2015.09.003>
52. Beyer S. Gender Differences in Self-Perception and Negative Recall Biases. *Sex Roles.* 1998;38(1):103-33. Available from: <https://doi.org/10.1023/A:1018768729602>
53. Moyano N, et al. Burned or engaged teachers? The role of mindfulness, self-efficacy, teacher and students' relationships, and the mediating role of intrapersonal and interpersonal mindfulness. *Curr Psychol.* 2021. Available from: <https://doi.org/10.1007/s12144-021-02433-9>
54. Rosenfield D, Stephan WG. Sex differences in attributions for sex-typed tasks 1. *J Pers.* 1978;46(2):244-59. Available from: <https://doi.org/10.1111/j.1467-6494.1978.tb00178.x>
55. Deaux K. From individual differences to social categories: Analysis of a decade's research on gender. *Am Psychol.* 1984;39(2):105. Available from: <https://doi.org/10.1037/0003-066X.39.2.105>

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

JAVF, ORB and IDCP participated in the conceptualization of the idea, supervising the methodology and software. The rest of the authors participated in validation, formal analysis of the research, data curation, and resources. All authors participated in writing, reviewing, editing, viewing and supervising the prepared versions of the article. All authors have read and approved the final version of the manuscript.

Ethical statement

The study was approved by the ESPOL ethics committee. Informed consent was obtained from all participants. The confidentiality and anonymity of the participants' data was guaranteed. Specific tools or instruments such as questionnaires or inventories (for example, the Maslach Burnout Inventory) were

used, which are not protected by trademark. All procedures were in accordance with relevant institutional ethical standards and nationally or internationally recognized ethical principles.

Funding

This research received no external funding.

Acknowledgments

This is a brief text to acknowledge the contributions of specific colleagues, institutions or agencies that assisted the authors' efforts. The group of authors would like to extend special thanks to Vilma St. Omer Navarro, Claudia Márquez-Pinoargote and Maria Elena Murrieta for her active and necessary participation in the general organization of the project.

