

ORIGINAL

## Burnout Syndrome: invisible wear and tear in students of the administration and business area in higher education

### Síndrome de burnout: desgaste invisible en los estudiantes del área de administración y negocios en la educación superior

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**Cite as:** Rojas Lertora CM, Román Palma LP, Leiva Mardones WD, Yuras Maltes P. Burnout Syndrome: invisible wear and tear in students of the administration and business area in higher education. Health Leadership and Quality of Life. 2025; 4:922. <https://doi.org/10.56294/hl2025922>

Submitted: 11-07-2025

Revised: 13-09-2025

Accepted: 12-11-2025

Published: 13-11-2025

Editor: PhD. Neela Satheesh 

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#### ABSTRACT

**Introduction:** to develop the state of the art of the main academic and institutional factors and variables that are associated with the presence of burnout syndrome in undergraduate university students of two higher education institutions in Chile, considering its three dimensions, Emotional Exhaustion - Depersonalization and Reduced Personal Accomplishment, providing essential data to support students' academic, personal, and professional development, strengthen student-focused academic policies, and inform international discussions on educational quality.

**Method:** the study is based on a non-experimental, cross-sectional, exploratory design, with an analytical-synthetic, inductive-deductive, documentary, descriptive and multimethod. A total of 792 students were surveyed remotely, with voluntary, consensual and anonymous participation, in accordance with Law 21.719, using the Maslach Burnout Inventory - Student Survey (MBI-SS) instrument and then statistical tests, Student's t-test, chi-square, with a significance level established at  $\alpha=0,05$ , Cramer's V, using the Python programming language.

**Results:** the findings show that university students present significant levels of signs of burnout in their three dimensions, according to mean, T-Student statistic, and P-Value, where emotional exhaustion was the most affected dimension, followed by depersonalization and reduced personal fulfillment. Statistically significant differences were identified according to current career, income level, and employment status.

**Conclusions:** the results show the need to implement institutional strategies that promote emotional well-being, strengthen student resilience and prevent academic dropout in highly demanding contexts

**Keywords:** Burnout Syndrome; Reduced Personal Accomplishment, Emotional Exhaustion; Academic Stress; Higher Education.

#### RESUMEN

**Introducción:** desarrollar el estado del arte de los principales factores y variables académicas e institucionales que se asocian a la presencia del síndrome de burnout en estudiantes universitarios de pregrado de dos instituciones de educación superior de Chile, considerando sus tres dimensiones, Agotamiento Emocional - Depersonalización y Reducción de la Realización Personal, proporcionando datos esenciales para apoyar el desarrollo académico, personal y profesional de los estudiantes fortalecer las políticas académicas centradas en los estudiantes e informar las discusiones internacionales sobre la calidad educativa.

**Método:** el estudio se basa en un diseño no experimental, transversal, exploratorio, con un diseño analítico-sintético, inductivo-deductivo, documental, descriptivo y multimétodo. Un total de 792 estudiantes fueron encuestados de forma remota, con participación voluntaria, consensuada y anónima, de acuerdo con la Ley 21.719, utilizando el instrumento Maslach Burnout Inventory - Student Survey (MBI-SS) y luego pruebas estadísticas, prueba t de Student, chi-cuadrado, con un nivel de significancia establecido en  $\alpha=0,05$ , V de Cramer, utilizando el lenguaje de programación Python.

**Resultados:** los hallazgos muestran que los estudiantes universitarios presentan niveles significativos de signos de burnout en sus tres dimensiones, conforme media, estadístico T-Student y P-Value, en donde el agotamiento emocional fue la dimensión más afectada, seguida de la despersonalización y la reducción de la realización personal. Se identificaron diferencias estadísticamente significativas según la carrera actual, el nivel de ingresos y la situación laboral.

**Conclusiones:** resultados muestran la necesidad de implementar estrategias institucionales que promuevan el bienestar emocional, fortalezcan la resiliencia de los estudiantes y prevengan la deserción académica en contextos de alta exigencia.

**Palabras clave:** Síndrome de Burnout; Reducción de los Logros Personales, Agotamiento Emocional; Estrés Académico; Enseñanza Superior.

## INTRODUCTION

International studies define Burnout syndrome as the psychological state of Emotional Exhaustion - Depersonalization and/or Reduced Personal Accomplishment, in the face of academic tasks<sup>(1,2,3,4,5)</sup> in this sense and considering the perception of low personal efficacy, own stress, curricular and socioeconomic demands and scarce accompaniment and/or student development policies, have been postulated as key factors and variables to infer that they manifest as precursors of the Burnout.

Although burnout has been primarily studied in occupational settings,<sup>(6,7)</sup> growing evidence supports its relevance in educational contexts, particularly among university students facing academic, emotional, economic, and social stressors.<sup>(8,9)</sup> The adaptation of the Maslach Burnout Inventory-Student Survey (MBI-SS) has enabled accurate operationalization of the construct in student populations,<sup>(10,11,12)</sup> supporting the development of institutional policies to enhance students' academic, professional, and emotional development.<sup>(13)</sup>

In this sense, the attributes of the MBI-SS define the dimensions and base levels of the student risk profiles and, in accordance with this, allow the definition of academic and socio-emotional support policies for the benefit of students<sup>(14,15,16)</sup> with direct implications in the reformulation of curricular redesign, teacher training in andragogical competencies, active methodologies, among others.

Therefore, it is considered essential that the early identification of those students with signs of burnout, through periodic diagnoses and/or consensual psychoeducational interventions, be defined as a basic and key strategy in the management of early warning, student well-being, the strengthening of progression rates, graduation and timely graduation which in their essence point to better and greater satisfaction with their decision to pursue higher education.<sup>(7,17)</sup>

In the Chilean case, although public policies have recognized the importance of students' mental health, there are still significant gaps between the problem of burnout and the effective implementation of institutional strategies for prevention, detection, and accompaniment, so defining the state of the art of Burnout syndrome in students, It is considered vital to contribute empirical data in the development of policies for the formulation of plans and development of continuous educational improvement.<sup>(18,19)</sup> Consequently, the following hypotheses were formulated:

### Hypothesis 1

$H_0$ : there is no significant difference in the means of the three dimensions of burnout between men and women, according to Student's t-test for independent samples.

$H_a$ : there is a significant difference in the means of the three dimensions of burnout between men and women, according to Student's t-test for independent samples.

### Hypothesis 2

$H_0$ : the proportion of students with signs of burnout is the same in the five majors.

$H_a$ : the proportion of students with signs of burnout differs in the five majors.

### Hypothesis 3

$H_0$ : the proportion of students with signs of burnout does not vary according to income level.

$H_a$ : the proportion of students with signs of burnout varies according to income level.

**Hypothesis 4**

$H_0$ : there is no association between having a job and the presence of signs of burnout.

$H_a$ : there is an association between having a job and the presence of signs of burnout.

Where:

$H_0$ : null hypothesis.

$H_a$ : alternative hypothesis.

**METHOD**

Methodologically, it adopts a non-experimental design, postulating an analytical-synthetic, Inductive-Deductive, as well as Hypothetical-Deductive method, to finally be based on a type of documentary research, with a quantitative, cross-sectional, exploratory, and descriptive approach.<sup>(20)</sup>

Operationally, the research was based on the Maslach Burnout Inventory-Student Survey (MBI-SS) questionnaire, considered a convenience sampling method and defined as the target population, students enrolled in the programs of Business Engineering, Business Administration, Information Engineering and Management Control, and Accounting and Auditing of the Faculty of Economics, Government and Communications and the Faculty of Economics and Administration of two educational institutions the Metropolitan Region, Santiago de Chile. Participants were informed about the study's objectives, data confidentiality, and anonymity via an online questionnaire, and consented to the use of their data solely for academic purposes, in compliance with Chilean Law 21719<sup>(21)</sup> and the approval of the ethics committee of University 1 on July 12, 2024, in accordance with the provisions of Resolution 622/2023 dated July 3, 2023.

Hypothesis tests were conducted, Student's t-test (equation 1), after complying with assumptions of normality and homogeneity of variances (equation 2), as well as chi-square (equation 3) assuming a level of significance equivalent to  $\alpha=0,05$ , to then verify their association of variables according to Cramer's V statistic (equations 1 - 2 - 3 and 4), with the application of the Python (SciPy) Software.

**Student Test**

$$t \text{ Student} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \quad (1)$$

Where:

$\bar{X}_1$ : Average of group 1.

$\bar{X}_2$ : Average of group 2.

$S_1^2$ : Group Standard Deviation 1.

$S_2^2$ : Group Standard Deviation 2.

$n_1$ : Group sample size 1.

$n_2$ : Group sample size 2.

**F statistic for homogeneity of variances**

$$F = \frac{\hat{S}_1^2}{\hat{S}_2^2} \quad (2)$$

Where:

F: F Statistic.

$\hat{S}_1^2$ : Group Standard Deviation 1.

$\hat{S}_2^2$ : Group Standard Deviation 2.

**Chi square**

$$X^2 = \sum \frac{(f_o - f_e)^2}{f_e} \quad (3)$$

Where:

$X^2$ : Chi-square statistician.

$f_o$ : Frequency of the observed value.

$f_e$ : Expected value frequency.

**Cramer’s V Statistic**

$$V = \sqrt{\frac{X^2}{N \min(k - 1; r - 1)}} \quad (4)$$

Where:

V: Cramer’s V Statistic.

$X^2$ : Chi-square statistician.

N: Total Sample.

$\min(k-1;r-1)$ : Adjusted minimum dimension.

**Theoretical framework**

International studies show two main lines to address the issue of Burnout the first, contextualized in the workplace and the second in the educational environment, manifesting both lines as a response to chronic stress and composed of 3 major dimensions, Emotional Exhaustion, Depersonalization and Reduced Personal Accomplishment.<sup>(22,23,24)</sup>

According to the object of study, its application in the educational field has been widely applied and validated,<sup>(9,25)</sup> proving to be a viable and reliable instrument when evaluating prevalence and correlates of burnout syndrome in students from different cultures, levels of training, through the analysis of its three declared core dimensions.<sup>(26,27)</sup>

Within this line, the main variables of burnout syndrome in higher education institutions are related to those of a personal, academic and contextual nature,<sup>(28,29,30)</sup> with the risk factors with the highest incidence being those linked to curricular demands, performance, teaching support, work-study balance, economic insecurity, motivation.<sup>(31,32,33)</sup>

Within the emotional context, it is linked to chronic fatigue, a sense of failure, loss of interest in studying, and the desire to drop out of college<sup>(2,34)</sup> and in the third dimension (cognitive) it defines that risk factors are associated with attentional difficulty, low performance, procrastination and negative thinking, an event that from the gender perspective is postulated with greater intensity<sup>(3)</sup>, even more so considering in highly competitive academic socio-labor scenarios, scenarios, climates, methodology and/or didactics rigid and scarce institutional accompaniment.<sup>(35)</sup>

into related research, they confirm the presence of Burnout syndrome in students in European and Latin American latitudes,<sup>(36,37,38,39,40)</sup> where, as an example, a direct relationship is declared between academic load, work, structural inequality, economic conditions, emotional exhaustion, significant differences according to gender, employment status and type of career.<sup>(41,42)</sup>

In Chile, and according to the literature reviewed, it is possible to observe brief applied empirical evidence which declares high degrees of emotional exhaustion,<sup>(43)</sup> particularly in careers with higher levels of demand such as commercial engineering, law and medicine,<sup>(44,45,46)</sup> an event that allows the present study to contribute with applied information based on the area of management sciences. which means that generating, promoting and strengthening academic environments that allow well-being through psycho-social and labor tools, are defined as precursors of academic success and personal development.<sup>(17,18)</sup>

**RESULTS**

The results of hypothesis 1 are presented in table 1, which states that gender is not constituted as a statistically significant differentiating variable, which leads to the declaration that the null hypothesis of equality of means is fails to reject  $H_0$ .

Table 1. Results of hypothesis 1				
Dimension	Average Male	Average women	Statistic t	P value
Emotional exhaustion	20,88	21,97	-1,6563	0,0981
Depersonalization	7,65	7,21	1,1695	0,2426
Reduced Personal Accomplishment	31,18	30,80	0,7597	0,4477

In this framework, figure 1 shows the behavior in the three dimensions with the Burnout Syndrome (levels), showing overall asymmetric distributions and the presence of outliers. The width of the violin plot suggests greater density in the variable in the middle range of scores, suggesting severe cases of “Emotional Exhaustion” and “Reduced Personal Accomplishment”, with lower degrees in “Depersonalization”.

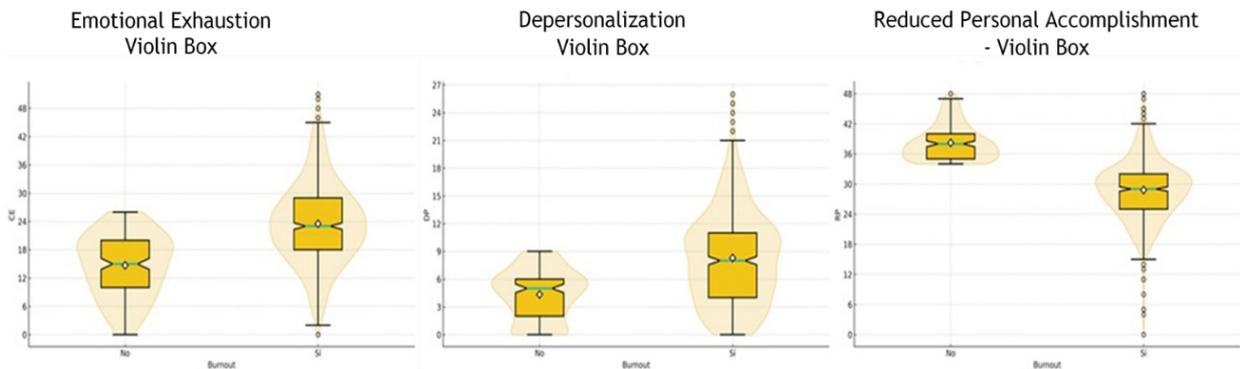


Figure 1. Burnout Syndrome behavior versus Dimension and Gender

On the other hand, table 2 and figure 2, present results for Hypothesis 2, relate the variable “Career” with the degree of presence - absence of signs of burnout in University 1.

**Table 2. Burnout syndrome versus career (University 1)**

Academic Career	No signs of burnout	%	With signs of Burnout	%	Total General	%	Chi Square (X <sup>2</sup> )	Degrees of freedom	P-Value
Information Engineering and Management Control	5	20,00	29	25,00	34	24,11	5,085	4	0,2787
Management Engineering	6	24,00	11	9,48	17	12,06			
Commercial Engineering	2	8,00	20	17,24	22	15,60			
Engineering in Business Administration	5	20,00	20	17,24	25	17,73			
Auditor Accountant	7	28,00	36	31,03	43	30,50			
Total General	25	100,00	116	100,00	141	100,00			

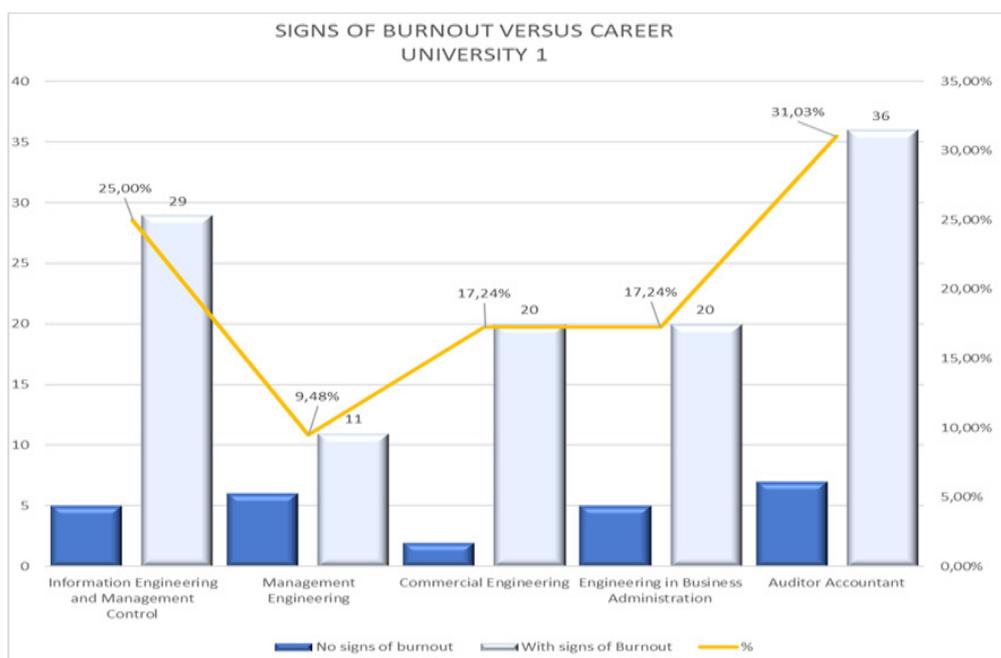


Figure 2. Burnout syndrome versus career (University 1)

In this regard, it can be stated that the null hypothesis for university 1 is rejected, since there are statistically significant differences in the sample according to the career that the students are developing.

Likewise, and in order to define the statistical strength of the association, equations 5, declare the form, calculation, and result of Cramer’s V-statistic.

$$V = \sqrt{\frac{5,085}{141 \cdot 1}} = \sqrt{0,0361} \approx 0,190 \quad (5)$$

Where:

N: Total Sample

k: Columns (2)

r: Rows (5)

min (k-1,r-1): = 1

Cramer’s V-statistic suggests that the variable “career” is postulated, although to a non-significant degree, with limited practical magnitude in the degree of variability (presence-absence) of the burnout syndrome.

In the same way, and for university 2, according to table 3 and figure 3, it can be pointed out that the null hypothesis is not rejected, since p value does not vary significantly between the careers analyzed.

Table 3. Indications of Burnout versus career (University 2)

Academic career	No signs of burnout	%	With signs of Burnout	%	Total General	%	Chi Square (X <sup>2</sup> )	Degrees of freedom	P-Value
Information Engineering and Management Control	4	2,61	11	2,21	15	2,30	23,135	4	0,00012
Management Engineering	67	43,79	123	24,70	190	29,19			
Commercial Engineering	56	36,60	239	47,99	295	45,31			
Engineering in Business Administration	0	0,00	10	2,01	10	1,54			
Auditor Accountant	26	16,99	115	23,09	141	21,66			
Total General	153	100,00	498	100,00	651	100,00			

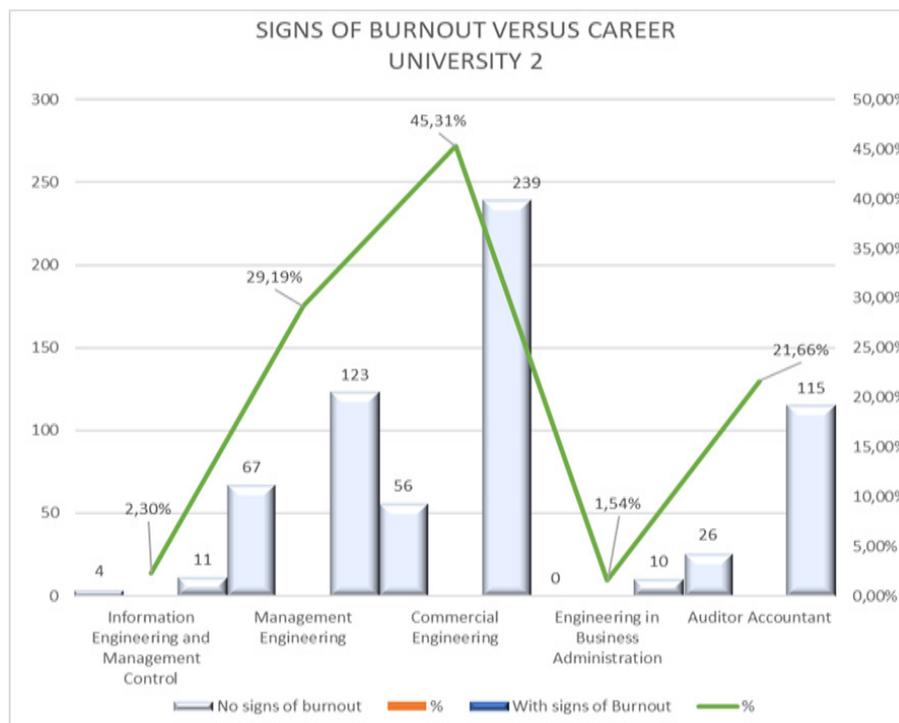


Figure 3. Indications of Burnout versus career (University 2)

In relation to Cramer’s V-statistic, equation (6) declares the calculation and result of the calculation.

$$V = \sqrt{\frac{23,135}{651 \cdot 1}} = \sqrt{0,0355} \approx 0,2239 \quad (6)$$

Accordingly, in the first instance, the statistician declares an association of significant degree, has a limited magnitude of practice, likewise, and considering the p-value, it can be inferred that the variable “Career” is significantly associated with the presence of signs of burnout, which allows contributing to future institutional interventions. In relation to the postulate of hypothesis 3, table 4 and figure 4 show the results of the relationship between students with signs of burnout and personal income.

Incomes	No signs of burnout	%	With signs of Burnout	%	Total General	%	Chi Square (X <sup>2</sup> )	Degrees of freedom	P-Value
< US\$ 524,1	26	14,61	113	18,40	139	17,55	23,47	5	0,00064
US\$524,2 - US\$733,74	12	6,74	33	5,37	45	5,68			
US\$ 733,75 - US\$1048,21	7	3,93	18	2,93	25	3,16			
US\$1048,22 - US\$1572,31	15	8,43	18	2,93	33	4,17			
> US\$1572,32	99	55,62	351	57,17	450	56,82			
I don't receive income	18	10,11	81	13,19	99	12,50			
Total General	178	100,00	614	100,00	792	100,00			

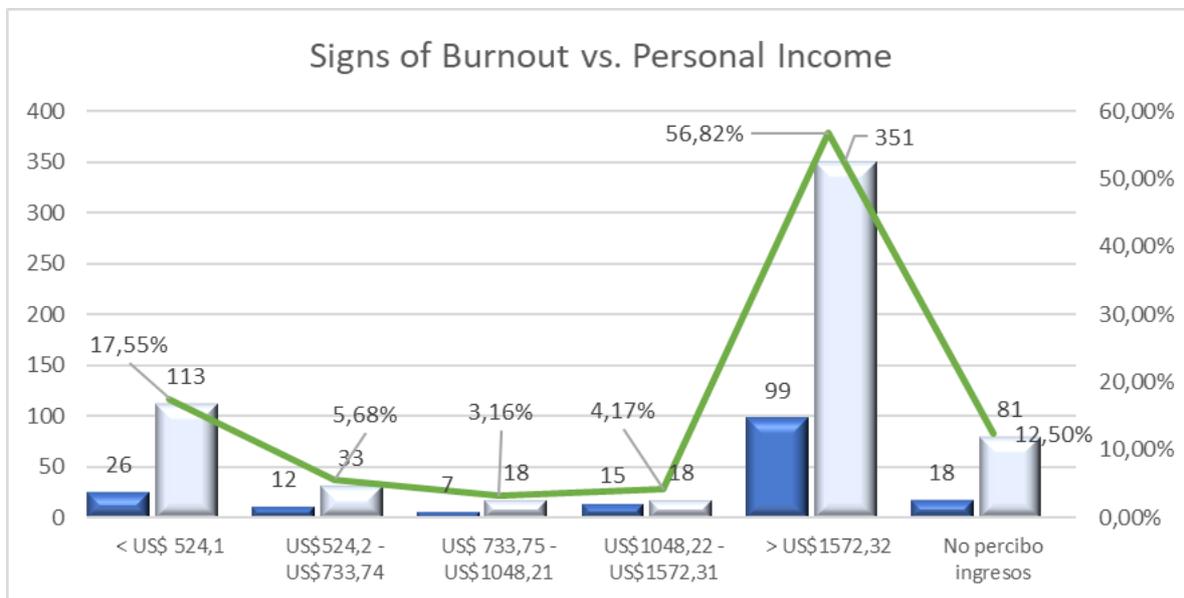


Figure 4. Indications of Burnout versus Personal Income

According to Cramer’s background and V-statistic, it can be stated that a small but significant association is observed in the presence - absence of indications of Burnout syndrome and added to the p-value analysis, the null hypothesis of independence is rejected, since they suggest that the indications of burnout vary according to the level of personal income of the student.

$$V = \sqrt{\frac{23,47}{792 \cdot 1}} = \sqrt{0,0296} \approx 0,172 \quad (7)$$

For hypothesis 4, table 5 and figure 5 state the results of the relationship between students with indications of burnout versus employment status.

Employment status	No signs of burnout	%	With signs of Burnout	%	Total General	%	Chi Square (X <sup>2</sup> )	Degrees of freedom	P-Value
Not working	114	64,04	441	71,82	555	70,08	4,648	1	0,0311
Works	64	35,96	173	28,18	237	29,92			
Total General	178	100,00	614	100,00	792	100,00			

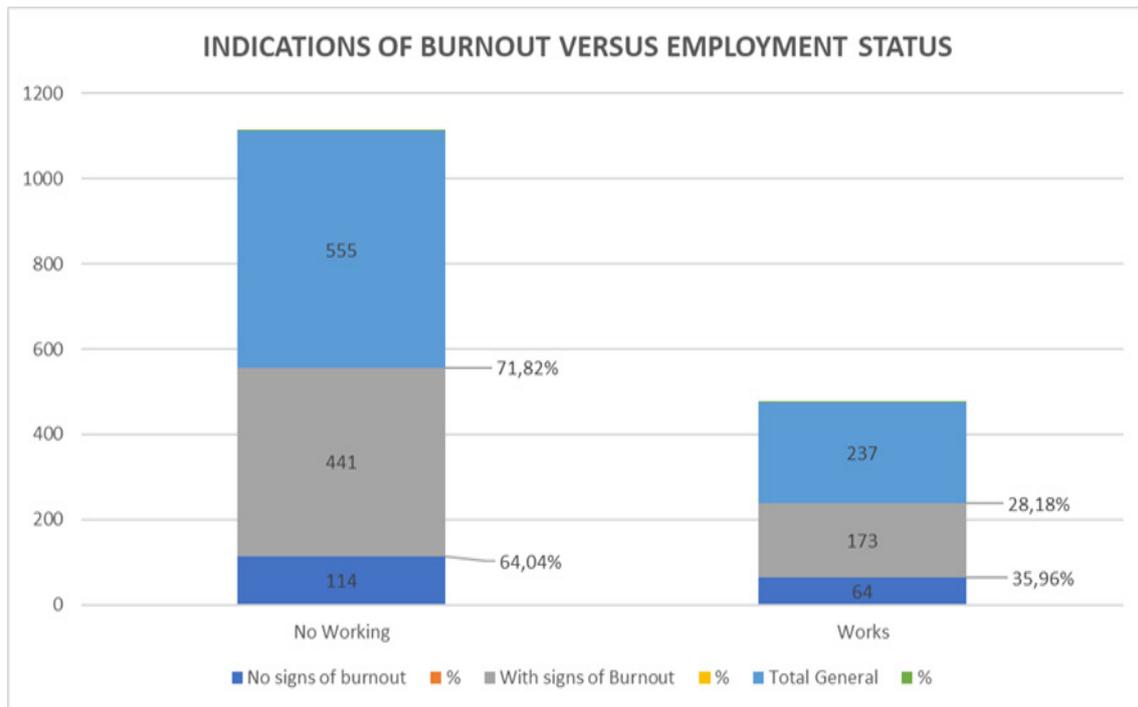


Figure 5. Indications of Burnout versus Employment Status

According to the results, it can be pointed out that the null hypothesis is rejected, since it proposes a significant association between their work condition and the condition of presenting signs of burnout syndrome, at the same time and considering that both proportions are high, the variable of work condition can influence the emotional state of the student.

**DISCUSSION**

Basic objective of this study was to define the state of the art of burnout syndrome in students in the area of administration and business of two higher education institutions in Chile. The results and findings derived from it confirm the validity of the Maslach Burnout Inventory-Student Survey (MBI-SS) questionnaire, to infer the main variables and/or factors that affect student academic development, differentiated in its three dimensions, promoting instances of institutional strategic reflection around the basic problem under study.

The results, factors, variables and components observed are consistent with international studies<sup>(47,48,49)</sup> that propose, in the first instance, an academic scenario - socio-descriptive, qualitative and quantitative, of the presence - absence of burnout syndrome in students of the Administration and Business area<sup>(50,51)</sup> which establish the basic information to propose and contribute to the strengthening of institutional strategies of accompaniment academic,<sup>(52,53)</sup> in favor of the degree, timely degree, retention, and consequently in the methodology and didactics used in academic metacognition.

It is worth mentioning that in this study, only some component variables of the sociodemographic questionnaire are mentioned and that, in the opinion of this researcher, they are postulated as relevant for the effect of this paper and the analysis of it in its entirety is declared in a doctoral thesis.

The findings of this study reinforce the concept of teaching in its formative role and that instances of institutional accompaniment through the holistic integration of students, as well as those related to intelligence and emotional regulation, allow minimizing the risks of dropout, strengthening stress management tools,<sup>(54,55,56,57)</sup>

which lays the foundations to outline an international comparative analysis, through Data Envelopment Analysis or Exploratory Factor Analysis, becoming a pioneer in this comparative statistical line, contributing to reduce the sectoral research gap of the object of study, as well as to the strengthening of academic development policies, promoting inter-university collaboration networks.

## CONCLUSIONS

The present study developed a mixed methodological strategy to define the state of the art of burnout syndrome in undergraduate students from two higher education institutions in Santiago de Chile, in which students participated voluntarily, anonymously and with informed consent that the data collected and the resulting information will be used exclusively for research and academic purposes, in accordance with the provisions of Law 21719<sup>(21)</sup> on the protection of personal data, of the Ministry of the General Secretariat of the Presidency in Chile.

Differences in the three dimensions of Burnout syndrome –Emotional Exhaustion (EC), Depersonalization (PD) and Reduced Personal Accomplishment (PRA)– according to gender (men and women) were evaluated, through the application of statistical criteria related to hypothesis tests, Student’s t- for independent samples (Welch’s version), after complying with assumptions of normality and homogeneity of variances as well as Chi-square assuming a level of significance equivalent to  $\alpha=0,05$ .

It can be concluded in Hypothesis 1 that the gender variable is not constituted as a statistically significant differentiating variable, since “it is not rejected”. Regarding hypothesis 2, related to the burnout-career relationship, it can be pointed out that, for university 1, there are no significant differences, since “It is not rejected”, however, for university 2, “It is rejected” because its p-value is lower than the level of significance. In relation to hypothesis 3, linked to income level, it can be established that the null hypothesis of independence is “rejected”, since it is positively associated with the presence of signs of burnout. Finally, and in relation to Hypothesis 4, linked to “Personal Income Level”, the null hypothesis is “rejected”, where it suggests indications of the syndrome.

The findings describe, in the first instance, a socio-descriptive, qualitative, and quantitative academic scenario of the presence or absence of burnout syndrome in students, as well as establishes base information to contribute to the strengthening of institutional strategies in favor of graduation, timely graduation, retention, and consequently in the methodology and didactics used in academic metacognition

## Limitations

The results of this study are adjusted to a local reality, dissimilar sample sizes, of two higher education institutions, which could be enriched with a larger sample, an event that could be replicated nationally and internationally.

## Future Studies

According to the stated study limitation and institutional academic agreements, it is considered that future studies could be linked to an international correlational comparative analysis among Latin American universities through the application of a data envelopment analysis model and/or exploratory factor analysis.

## ACKNOWLEDGEMENTS

My sincere thanks to Dr. Anna Soldevila, from the University of Lleida, for her incessant motivation to the development of this study, to Post Dr. Luis Román Palma, for his contributions in the methodological-statistical context and to Mg. Walter Leiva Mardones for his contributions in data and systems, to the Members of the Tribunal and Expert Evaluators for their valuable comments and suggestions to my doctoral research, to the journal SJR Health Leadership and Quality of Life in the scientific review, methodology and recommendations for the publication of this article.

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### **FINANCING**

The authors did not receive financing for the development of this research.

### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest.

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