Duazary / Vol. 16, No. 1 - 2019 / 23 - 37
DOI: http://dx.doi.org/10.21676/2389783X.2530

The academic burnout, engagement, and mental health changes during a school semester

Cambios del *burnout académico*, engagement y la salud mental durante un semestre de estudio

Short title: The academic burnout, engagement and mental health changes

Yuly Suárez-Colorado[1], Carmen Caballero-Domínguez[2], Jorge Palacio-Sañudo[3], Raimundo Abello-Llanos[4]

Typolgy: Scientific and technological research articles
Cited in this article: Suárez-Colorado Y, Caballero-Domínguez C, Palacio-Sañudo J, Abello-Llanos R. The academic burnout, engagement, and mental health changes during a school semester. Duazary. January 2019; 16(1): 21-37. Doi: http://dx.doi.org/10.21676/2389783X.2530

Received on October 31, 2017
Accepted on December 27, 2017
Published online on September 01, 2018

ABSTRACT

A cross-sectional study was carried out, aimed to establish the academic *burnout,* engagement, and mental health changes in engineering and health sciences students at the beginning and at the end of the semester studied. 145 students between ages 16-36, from a Colombian public university, were the participants evaluated from February to June in 2015 by the Maslach *Burnout* Inventory Student Survey, Utrecht Work Engagement Scale Symptom Inventory 90-R. The results indicate increase in exhaustion and cynicism, and reduction on dedication and depression during the semester. *Burnout* is more severe in engineering at the beginning of the semester, while the *engagement* is greater in health sciences. It is concluded that there are changes in exhaustion raise (exhaustion-cynicism), decrease in engagement (dedication), and mental health, especially in the symptoms of depression; in addition, there is the distinction of burnout-engagement in engineering and health sciences at the beginning of the semester.

Keywords: *burnout*; mental health; university.

RESUMEN

Se realizó un estudio transversal repetido, que tuvo por objetivo establecer los cambios del *burnout* académico, *engagement* y la salud mental en estudiantes de ingenierías y ciencias de la salud al inicio y final de un semestre de estudio. Los participantes fueron 145 estudiantes entre 16-36 años de una universidad pública colombiana, evaluados

1. Universidad del Magdalena. Santa Marta, Colombia. Correo: ysuarez@unimagdalena.edu.co - http://orcid.org/0000-0001-7715-3556
2. Universidad del Magdalena. Santa Marta, Colombia. Correo: ccaballero@unimagdalena.edu.co - http://orcid.org/0000-0003-3730-2750
3. Universidad del Norte. Barranquilla, Colombia. Correo: jpalacio@uninorte.edu.co - http://orcid.org/0000-0001-6971-7067
4. Universidad del Norte. Barranquilla, Colombia. Correo: rabello@uninorte.edu.co - http://orcid.org/0000-0002-5780-2798

en Febrero 2015- Junio 2015 por el Maslach *Burnout* Inventory Student Survey, Utrecht Work Engagement Scale Inventario de Síntomas 90-R. Los resultados indican incrementos del agotamiento y cinismo, y reducción de la dedicación y depresión durante el semestre; el *burnout* es más severo en ingenierías al inicio del semestre, mientras el e*ngagement* es mayor en ciencias de la salud. Se concluye que existen cambios en ascenso del *burnout* (agotamiento-cinismo), descenso del *engagement* (dedicación) y la salud mental, sobre todo en los síntomas de depresión, además de distinción del *burnout-engagement* en ingenierías y ciencias de la salud al comienzo de un semestre.

Palabras clave: agotamiento emocional; salud mental; universitarios.

INTRODUCTION

The students' common activity is composed by the compliance of attending classes and performing tasks[1]. In the academic environment, some characteristics of the learning process are perceived as a source of stress[2]; that is, the process of learning seen as the stress generator suggesting to the student a position between the responsibility and lacking resources to meet the demands; but in addition, the work overload on the student turns out to be equivalent to an actual load of the psychological and social point of view[3]. In both cases individuals can be receptors of psychosocial risks present in the organization.

This exposure to psychosocial risks in the college community promotes non-adaptive symptoms of cognitive, somatic, emotional, social, behavioral type of emotional exhaustion, cynical-self-abuse attitudes, and beliefs of not being competent[4]. These responses are common within the academic burnout syndrome, a psychological syndrome that produces symptomatic responses in an insidious, negative way altering the psychosocial health or psychological well-being, until it causes variations in academic performance, in fulfilment[5,6], perseverance in learning[7], and it can finally lead to withdrawal[6]. According to Schaufeli et al[8], it is also a persistent state.

Analyzing the trayectory of the burnout is essential to accurately understand its development or grit[9]. Likewise, it allows an early appreciation[10] and as a result, anticipating and treating burnout at its beginnings before it turns into a long-lasting state.

According to Noh et al[1], studies that examine the process of development of academic burnout of students are not abundant. The study of the trajectory of academic burnout has been reflected through studies in school and university contexts[1,11-14]. These follow-ups on the origin and evolution of academic burnout don't show a unified trajectory, on the contrary, they show three time lines: some studies show the increase of exhaustion, cynicism, and incompetence over time; indicating their insidiousness and resistance to the dissolution. Other studies report its stepping back over time, suggesting that it isn't entirely indissoluble. In addition, a static pattern is recorded when there are no changes in a certain time cycle.

It is necessary to indicate that the study of the changes of academic burnout has particular different intervals between observations, generally from six months, one year, and more than two years[11,15]. Whatever the interval between observations is, it's possible to recognize a pattern -static or fluctuating - of the dimensions of academic burnout.

On the other hand, burnout research has focused on the exploration of engagement as neces-

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

sary in the empowerment of academic work[16, 17]. If burnout is the experience of wear and tear related to studies, the engagement is related to the psychological link[18] or involvement[19] in relation to work, including academic work. In the university context, studies have shown the relevant role of engagement, where, unlike burnout, it has to be related to better performance, gratification, intrinsic motivation, expectations of self-efficiency, and flexibility, in addition, it would have a predictive effect on academic permanence[20-22].

Burnout and engagement are part of an antagonistic model, ranging from attrition to attachment, where exhaustion is transformed into force, and cynicism into dedication[23]. Precisely, the heart of these constructs vigor /dedication and exhaustion /cynicism is negatively related[24].

Another aspect that stands out in the study of engagement has been its exploration over time, where the engagement has fluctuating properties[25,26]. In these follow-ups of the engagement trajectory, there is no unified line either since studies show the increase in vigor, absorption, and dedication; while others refer to the decrease in vigor and absorption over time.

As indicated above, burnout and engagement are states related to wellbeing or mental health[27-29], where a higher level of involvement is related to minor problems mental health[30,31], and academic burnout has been related to anxious, depressive, somatic, alcohol consumption, and abuse of other substances symptoms[32-35]. In this regard, the possibility that burnout is considered a risk factor for mental disorders has been indicated, while the engagement could be considered as a protective factor for mental health in university students. However, the manifestation of anxiety-depression as proper disorders could be caused by a diffusing, insidious, and permanent course of the syndrome[35]. With all of the above, it is possible to consider academic burnout and emotional disturbances as a negative and progressively self-reinforcing circuit[36].

Likewise, it has been explored in students how academic burnout is associated with dimensions related to mental health problems such as somatization, compulsive obsession, interpersonal susceptibility, hostility, phobia, and paranoid and psychotic anxiety. The results show how the severity of academic burnout is gradually to the manifested symptomatology[36].

Taking into account the divergences in the study of the trajectory of academic burnout, engagement, and mental health, this study aims to establish the changes of these in engineering and health sciences students at the beginning and end of a semester.

METHOD AND MATERIALS

Type of research

A cross-sectional study with repeated measurements that observe an event at a fixed point of time through several measurements; these studies examine the individual changes in the variables and not the changes due to age[37]. In the present investigation the variables are observed in two times: at the beginning (t1) and at the end (t2) of an academic semester, with a three month gap between them. The evaluations were conducted in February and June 2015.

Participants

The population is composed of students from the Universidad del Magdalena, a public university in northern Colombia. The students that

participated were from first to tenth semester of the engineering (industrial, systems, and electronics) and the health (psychology, medicine, dentistry) faculties; subsequently, the subjects of higher and lower academic failure were selected. A probabilistic-layered sampling program was carried out, and the final sample was with 145 subjects (health= 44, engineering= 101), between ages of 16-36 (Mean= 19.46, typical deviation= 3.27), 40% female and 60% male, and they were present in the two stages of the evaluation.

Instruments

Maslach Burnout Inventory - Student Survey [38]. It was adapted to Colombian university students[39] to evaluate the three dimensions that categorize the academic burnout syndrome: emotional exhaustion, cynicism, and efficacy. The scale consists of 14 items that are scored in three levels (high, medium, and low); and to establish the presence of academic burnout, once the values of the efficacy dimension have been inverted (inefficacy), the total of the items is added and according to the theoretical value of the scale equal ranges that are classified in five dimensions are established (without burnout, mild burnout, moderate burnout, high burnout and clinical burnout).

The scale has demonstrated reliability by Cronbach's alpha suitable for exhaustion (0.72), cynicism (0.71) and efficacy (0.79)[38]. In this study the consistency test-test for the dimensions was between 0.70 and 0.79; that is, it presents a satisfactory level. (Table 1).

Utrecht Work Engagement Scale (UWES) - Utrecht of Academic Engagement Scale[38]. It evaluates the three dimensions of academic engagement: vigor, absorption, and dedication. The scale consists of seventeen items that are scored in three levels (high, medium and low); and to establish the presence of the engagement, the total of the items is added; and according to the theoretical value of the scale, five equal ranges are established (without engagement, light engagement, moderate engagement, high engagement, and engaged).

The scale registers reliability for Cronbach's alpha suitable for vigor (0.91), absorption (0.76) and dedication (0.68) 40. In this study the consistency test-test for the dimensions was found between 0.64 and 0.87, showing a satisfactory level (Table 1).

Symptom Inventory (SCL-90-R)[41,42]. It evaluates mental health-related symptoms in nine primary dimensions (somatizations, obsessions and compulsions, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism), and three global indexes of psychological distress (global index of severity, positive index of discomfort, and total of positive symptoms). The total scale consists of ninety items and for each dimension, items divided by the number of questions are added to subsequently convert it to a T score, which determines on a nominal scale whether or not there is risk according to gender.

The scale presents reliability by Cronbach's alpha suitable for somatization (0.84), obsessive-compulsiveness (0.80), interpersonal sensitivity (0.82), depression (0.88), anxiety (0.83) hostility (0.76), phobic anxiety (0.69), paranoid ideation (0.74), psychoticism (0.75) and global severity (0.97) 42. In this study, the test-test consistency for the dimensions was between 0.60 and 0.88, reflecting a satisfactory level (Table 1).

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

Table 1. Consistency of the Instruments in the two measurements

Instruments	Subscales	Alpha Subscales t1 t2		Items
Maslach Burnout Inventory	Exhaustion	0.71	0.76	1,2,10,11,12
	Cynicism	0.70	0.79	3,8,13,14
	Inefficiency	0.77	0.77	4,5,6,7,9
Utrecht Work Engagement Scale	Vigor	0.74	0.74	5,8,9,12,15,16
	Absorption	0.64	0.71	1,2,3,10,11,13
	Dedication	0.76	0.87	4,6,7,14,17
Mental Health - *SCL-90-R*	Somatizations	0.82	0.82	1,4,12,27,40,42,48,49,52,53,56,58
	Obs-Compulsions	0.85	0.80	3,9,10,28,38,45,46,51,55,65
	Interpersonal-Sesitivity	0.76	0.79	6,21,34,36,37,41,61,69,73
	Depression	0.88	0.83	5,14,15,20,22,26,29,30,31,32,54,71,79
	Anxiety	0.84	0.82	2,17,23,33,39,57,72,78,80,86
	Hostility	0.77	0.72	11,24,63,67,74,81
	Phobic Anxiety	0.60	0.70	13,25,47,50,75,82
	Paranoid Ideation	0.77	0.70	8,18,43,68,76,83
	Psychoticism	0.77	0.86	7,16,35,62,77,84,85,87,88,90

Process

Starting the semester 2015-I (t1) there was the first meeting with the engineering faculty and health sciences students, to whom the agreement was presented, explaining in detail the project's information and applying instrumentation, in a three-month interval. At the end of the semester 2015-II, students who participated in t1 and who were willing to participate in the second measurement phase (t2) were located, proceeding to re-apply the instruments.

Subsequently, the design of the database, the systematization of the questionnaires, and the statistical analysis were also carried out with the Statistical Package for the Social Sciences (SPSS). The Kolmogorov Smirnov test was used to determine the distribution of academic burnout (t1) Z = 0.240 p <0.000; academic burnout (t2) Z = 0.169 p <0.000; engagement (t1) Z = 0.099 p <0.001 engagement (t2) Z = 0.179 p <0.000, mental health (t1) somatizations Z = 0.121 p <0.000, obsessions-compulsions Z = 0.078 p <0.030, interpersonal sensitivity Z = 0.115 p <0.000, depression Z = 0.112 p <0.000, anxiety Z = 0.082 p <0.020, hostility Z = 0.180 p <0,000, anxiety phobic Z = 0.164 p <0.000, paranoid ideation Z = 0.129 p <0.000, psychoticism Z = 0.129 p <0.000; mental health (t2) somatizations Z = 0.111 p <0.000, obsessions-compulsions Z = 0.068 p <0.093, interpersonal sensitivity Z = 0.093 p <0.004, depression Z = 0.112 p <0.000, anxiety Z = 0.111 p <0.000, hostility Z = 0.132 p <0.000, phobic anxiety Z = 0.157 p <0.000, paranoid ideation Z = 0.115 p <0.000, psychoticism Z = 0.103 p <0.000. Because a non-

normal distribution was used, the non-parametric Wilcoxon test was chosen for the analysis of differences, where the Z value, with significance level greater than 0.05, indicates the rejection of the research hypothesis.

Declaration on ethical aspects

This study adapted the norms established in the Declaration of Helsinki of 1975 and the Resolution 8430 of 1993 by the Health Ministry of Colombia for the investigation with human beings. The informed consent was presented and the welfare and integrity of the participants was protected through confidentiality, right to non-participation, withdrawal, and return of results. The research was endorsed by the ethics committee of the Universidad Del Magdalena REC-029-14.

RESULTS

The level of general *academic burnout* at the beginning of the semester showed a significant increase compared to the observation at the end of the semester ($Z = -4.800$ $p < 0.000$). When analyzing the tridimensional composition of burnout, statistically significant changes in emotional exhaustion and cynicism are identified. The level of general engagement showed changes with respect to the initial and final levels ($Z = -2.042$ $p < 0.041$), and from its three-dimensional configuration, the most significant changes were observed in the dedication dimension; which decreased in the second observation (Table 2). The symptoms related to mental health didn't show significant changes except for the subscale of depression, which decreased in the second observation.

Table 2. Differences in Burnout, engagement, and mental health at the beginning and the end of a semester studied.

Variables	Subscales	Time	Average Range	Z	p
Burnout	Exhaustion	t1	62.53	-3.738	0.000*
		t2	71.65		
	Cynicism	t1	51.82	-5.205	0.000*
		t2	71.36		
	Inefficiency	t1	71.91	-1.195	0.232
		t2	66.86		
Engagement	Vigor	t1	37.84	-1.210	0.226
		t2	35.84		
	Absorcion	t1	38.37	-0.278	0.781
		t2	35.81		
	Dedication	t1	29.83	-2.637	0.008*
		t2	24.87		

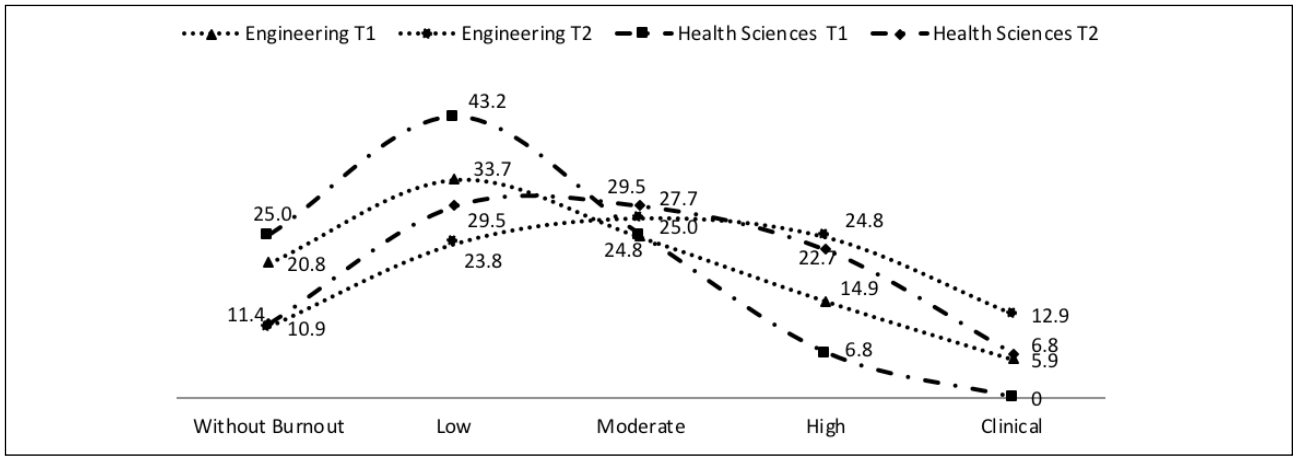
Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

Table 2. Continuation

Variables	Subscales	Time	Average Range	Z	p
Mental Health	Somatizations	t1 t2	65.11 74.82	-0.784	0.433
	Obs-Compulsion	t1 t2	69.63 72.43	-0.015	0.988
	Interpersonal-Sesitivity	t1 t2	60.78 74.22	-1.001	0.317
	Depression	t1 t2	71.48 62.78	-2.637	0.008*
	Anxiety	t1 t2	65.84 70.86	-0.965	0.334
	Hostility	t1 t2	64.38 65.43	-1.838	0.066
	Phobic Anxiety	t1 t2	61.83 68.02	-0.700	0.484
	Paranoid Ideation	t1 t2	65.41 76.20	-0.197	0.844
	Psychoticism	t1 t2	61.20 75.11	-0.806	0.420

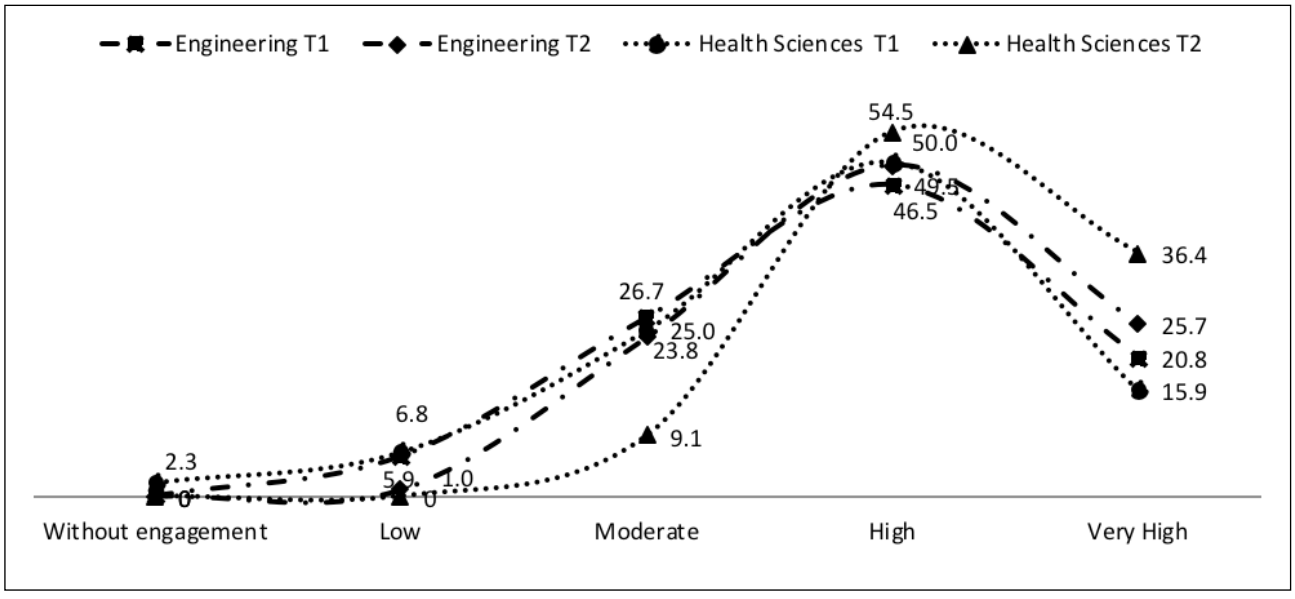
When exploring the levels of academic burnout according to the academic faculty, progress is shown in the levels of academic burnout severity as the academic semester passes by. At the end of the semester there was an increase in clinical burnout compared to a smaller number of students without symptoms of academic burnout (Figure 1).

Figure 1. Burnout levels in the group of Engineering and Health Sciences at the beginning and end of a semester studied.



The engagement score according to the academic faculty in both t1 and t2 doesn't present large variations. The frequency of moderate-high engagement in t1 and t2 for both faculties is highlighted. The results indicate that at the end of the semester there is a greater number of "engaged" or highly committed students, with respect to a lower number of students without commitment or with slight engagement at the beginning of the semester (Figure 2).

Figure 2. Levels of engagement in groups of Engineering and Health Sciences at the beginning and end of a semester of classes.



Regarding mental health, there is a greater frequency of risk in the subscales of positive symptoms, global severity, and malaise rate, specifically in the faculty of engineering in both t1 and t2. (Figure 3).

The nonparametric differences tests for independent samples indicate that the academic burnout in t1 is expressed in a distinctive way in the faculty of health sciences and engineering; however, the academic burnout in t2, manifests in the same way for both faculties. While for the engagement, the tests of nonparametric differences for independent samples, indicate that the engagement in t1 is manifested in greater measure in the students of health sciences, registering statistically significant differences. Nevertheless, in t2 there are no differences between both Faculties In terms of mental health according to the academic faculty, the nonparametric differences tests for independent samples show that there are no differences between t1 and t2 in positive symptoms. There are also no significant differences in the subscales of global severity and malaise index (Table 3).

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

Figure 3. Positive symptoms in students of Engineering and Health Sciences at the beginning and end of a semester studied.

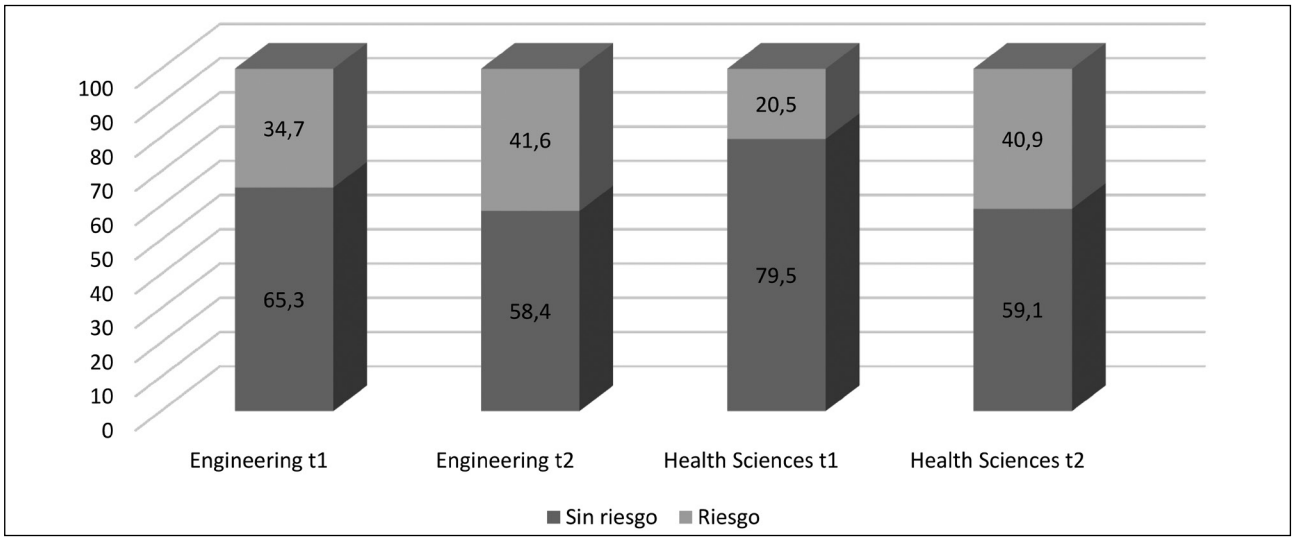


Table 3. Academic Burnout, engagement and mental health according to the faculty, at the beginning and end of a semester studied.

Variables	Time	Faculty	Average Range	Z	Sig
Academic Burnout	t1	Engineering	78.81	-2.524	0.012*
		Health Sciences	59.67		
	t2	Engineering	75.21	-0.96	0.337
		Health Sciences	67.93		
Engagement	t1	Engineering	66,73	-2.723	0.006*
		Health Sciences	87.39		
	t2	Engineering	73.65	-0.282	0.778
		Health Sciences	71.51		
Positive Symptoms	t1	Engineering	74.49	-0.647	0.517
		Health Sciences	69.58		
	t2	Engineering	76.73	-1.622	0.105
		Health Sciences	64.43		
Global Severity	t1	Engineering	74.14	-0.497	0.619
		Health Sciences	70.38		
	t2	Engineering	77.16	-1.809	0.071
		Health Sciences	63.44		

Table 3. Continuation.

Variables	Time	Faculty	Average Range	Z	Sig
Discomfort Index	t1	Engineering	77.16	-0.069	0.945
		Health Sciences	63.44		
	t2	Engineering	76.20	-1.391	0.164

DISCUSSION

The objective of the study was to identify changes in academic burnout, engagement and mental health during an academic semester in engineering and health sciences students. The results indicate changes in the academic burnout between the beginning (t1) and final (t2) of an academic semester, suggesting the temporary increase of the syndrome. These changes originate specifically in the increase in the severity of emotional exhaustion and cynicism towards academic work, consistent with studies in schoolchildren and college students[1,11,12,14].

From the three-dimensional theory, the profile of the academic burnout configuration is characterized by a course / curve in which subjects exhaust themselves more and express greater cynical attitudes. This means that the exhaustion and cynicism show to be changing under its insidious character reflected in the severity, but, on the contrary, the thoughts of ineffectiveness seem to be preserved when not presenting changes during the academic semester. It is important to note that exhausted and cynical university students may be at risk for the development of the syndrome over time, based on the existence of two affected dimensions.

On the other hand, the vulnerability for the development of academic burnout can also be increased by the psychosocial risks of the university or family organization, and by personal conditions such as failure in the strategies to face the demands for problem solutions, in the searching of social or professional support, religious orientation or positive reassessment [43].

Regarding engagement, at a general level, the results show changes between the beginning (t1) and end (t2) of an academic semester behaving as opposed to academic burnout, but in particular there is a change in the dedication of students regarding academic work at the end, precisely for the t2 where a decrease in this dimension is observed, which agrees with a similar study carried out by Llorens-Gumbao and Salanova-Soria[25], but in secondary school teachers.

The literature points out that after a burnout progresses in exhaustion-cynicism, expressions of strengths and personal virtues are affected, and the student's dedication to the university decreases. Consistent with the idea of González and Rubio[44], it is considered that engagement is an optimizing resource for psychosocial health, even preventing the burnout. At this point, it is important to consider the individual differences in students' engagement and the experience of attrition. It has been reported that they can be explained by a passion for study, which could be beyond autonomous and controlled motivation[45].

Meanwhile, in relation to mental health, the symptoms evaluated as somatizations, obsessions and compulsions, interpersonal sensiti-

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

vity, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, do not present changes from t1 (beginning) to t2 (end) of a semester in agreement with another study 46, likewise, the depression that indicates decreasing for t2 (final), is similar to the report of Wang, Chow, Hofkens and Salmela-Aro[14]. This decrease could be explained from the socio-family support and even from the support of classmates, conditions that influence mental health but can do so from its role in the academic burnout experience containing its severity and increasing the commitment to face the academic challenges[47,48].

It is important to detail the analysis of academic burnout, engagement and mental health in the Faculties of Engineering and Health Sciences, taking into account the characteristics of the teaching-learning process. The configuration of the level of academic burnout is evidenced to a greater extent in students of a higher level engineering faculty of and clinical level in the health case. These students would find themselves under particular characteristics at a curricular level, work dynamics, demands and academic challenges, in addition, this is the faculty with the highest drop out level at this university. However, the statistical tests of differences indicate that, although the burnout at the beginning of the semester is more severe in the Faculty of Engineering, at the end of the semester it does not present significant differences between the faculties, its severity is statistically independent. Therefore, for this sample, it is not the characteristics of university careers, but the dynamics of overload and tension of a semester about to end, which seems to affect the evolution of academic burnout. Precisely, Kim and Lee[49] indicate the relationship between the load or academic requirement with the presence of academic burnout.

The general levels of engagement according to the academic faculty show that the evaluated university students respond to academic work with moderate and high levels of engagement, without presenting wide variations between Engineering and Health Sciences. Certainly, higher proportions of engagement are registered at the end (t2) of the semester, especially in health sciences. These results indicate that the expression of the engagement may be subject to the particular dynamics of the university organization, where there are demands for a certain performance for the permanence in the institution. Low engagement could represent expulsion due to poor academic performance. The statistical tests indicate that at the beginning there is a lower state of engagement in Engineering, but at the end between faculties there are no significant changes. This continues to reaffirm their dual relationship with academic burnout.

In the case of symptoms related to mental health, the engineering faculty has a number of subjects who report the presence of symptoms. However, there are no statistically significant variations in positive symptoms, global severity and discomfort index between faculties in t1 and t2. The symptoms related to mental health as they are not distinctive among the academic faculties could be in line with the presence of burnout, independently of the dynamics of the university career.

It can be concluded that there are changes in the syndrome of academic burnout, engagement and symptoms of depression at the beginning and end of an academic semester. When comparing the variations between faculties, although at the beginning of a semester the burnout is more severe in engineering, at the end of the semester, regardless of the faculty, students in both Engineering and Health Sciences have a higher level of burnout. Likewise, the engagement behaves in the opposite direction to burnout, although initially there is less engagement in Engineering, in the end regardless of the abi-

lity this variable decreases. Finally, there are no differences between faculties in positive symptoms, global severity and malaise index referring to mental health.

The study presents some limitations such as the non-equivalence in the participation of students of Engineering and Health Sciences, as well as the data collection only in two moments, so that it would not be enough two follow-ups to explain in depth what the evolution of the academic burnout in the university context is. However, it is relevant given that the distinctive characteristics at the beginning and end of a semester could suggest the course of academic burnout in terms of its origin and evolution in the occupational dynamics of students in higher education. It is recommended to direct the research towards the longitudinal designs with four or more follow-ups over at least one year and with wider intervals between observations that allow the understanding of the start, development, maintenance or extinction of academic burnout, engagement and the related symptoms with mental health.

SPECIAL THANKS

Thanks to the funding entities of this project: Colciencias publication 677-2013 and Universidad Del Norte de Barranquilla, Colombia. Also, thanks for the support in the execution of the research to the Universidad Del Magdalena De Santa Marta, Colombia.

DECLARATION OF INTEREST CONFLICTS

The authors declare that there does not exist a conflict interest.

BIBLIOGRAPHIC REFERENCES

1. Noh H, Shin H, Lee S. Developmental process of academic burnout among Korean middle school students. Learning and Individual Differences. 2013; 28: 82-9. Doi: 10.1016/j.lindif.2013.09.014

2. Barraza A, Martínez J, Silva J, Camargo E, Antuna R. Estresores académicos y género. Un estudio exploratorio de su relación en alumnos de licenciatura. Visión Educativa IUNAES. 2012; 5(12): 33-43.

3. Caballero C, Bresó E, González O. Burnout en estudiantes universitarios. Psicología desde el Caribe. 2015; 32(3): 424-41. doi: 10.14482/psdc.32.3.6217

4. Pacheco N, Durán A, Rey L. Inteligencia emocional y su relación con los niveles de burnout, engagement y estrés en estudiantes universitarios. Revista de educación. 2007; 342: 239-56.

5. Duru E, Duru S, Balkis M. Analysis of Relationships among Burnout, Academic Achievement, and Self-Regulation. Educational Sciences: Theory and Practice. 2014; 14(4): 1274-284. doi: 10.12738/estp.2014.4.2050

6. Salanova M, Martínez I, Bresó E, Llorens S, Grau R. Bienestar psicológico en estudiantes universitarios: obstáculos y facilitadores del desempeño académico. Anales de psicología. 2005; 21(1): 170-80.

7. Chun H, Kim G. The Impact of Academic Burnout and Environmental Characteristics of Department on Academic Satisfaction and Learning Persistence among Hospitality and Tourism Management Students in Cyber University. Journal of Foodservice Management. 2012; 15(2): 77-95.

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

8. Schaufeli W, Maassen G, Bakker A, Sixma H. Stability and change in burnout: A 10-year follow-up study among primary care physicians. Journal of Occupational and Organizational Psychology. 2011; 84(2): 248-67. doi: 10.1111/j.2044-8325.2010.02013.x

9. Dierendonck D, Schaufelli W, Bunnk B. Burnout and inequityamong human service professionals: A longitudinal study. Journal of Occupational and Organizational Psychology. 2001; 6(1): 43-52. Doi: 10.1037/1076-8998.6.1.43

10. Lee T, Ashforth E. A further examination of managerial burnout: Toward an integrate model. Journal of Organizational Behavior. 1993; 14: 3-20. doi: 10.1002/job.4030140103

11. Chun H, Park S, Lee H, Kim Y. Academic burnout and selection-optimization-compensation strategy in medical students.Korean journal of medical education. 2014; 26(4): 299-308. doi: 10.3946/kjme.2014.26.4.299

12. Galbraith C, Merrill G. Academic and Work-Related Burnout: A Longitudinal Study of Working Undergraduate University Business Students. Journal of College Student Development. 2012; 53(3): 453-63.

13. Salmela-Aro K, Tynkkynen L. Gendered pathways in school burnout among adolescents. Journal of Adolescence. 2012; 35(4): 929-39. doi:10.1016/j.adolescence.2012.01.001

14. Wang T, Chow A, Hofkens K, Salmela-Aro K. The trajectories of student emotional engagement and school burnout with academic and psychological development: Findings from Finnish adolescents. Learning and Instruction, 2015; 36: 57–65. doi:10.1016/j.learninstruc.2014.11.004

15. Raiziene S, Pilkauskaite-Valickiene R, Zukauskiene R. School burnout and subjective well-being: evidence from cross lagged relations in a 1-year longitudinal sample. Social and Behavioral Sciences. 2014; 116: 3254- 258

16. Demerouti E, Mostert K, Bakker A. Burnout and Work Engagement: A Thorough Investigation of the Independency of Both Constructs. Journal of Occupational Health Psychology. 2010; 15(3): 20-22.doi: 10.1037/a0019408

17. Schaufeli W, Salanova M. Work engagement: On how to better catch a slippery concept. European Journal of Work and Organizational Psychology. 2011; 20(1): 39-46.

18. Salanova M, Llorens S. Estado actual y retos futuros en el estudio del burnout. Papeles del psicólogo. 2008: 29(1): 59-67.

19. Gil- R. Aproximación psicosocial al estudio del síndrome de quemarse por el trabajo (burnout). En M. A. Carrión F, López J. Tous (Ediciones Pirámide), evaluación e intervención psicosocial (pp. 15-32). 2007; Barcelona: AEPA.

20. Archambault I, Janosz M, Fallu S, Pagani S. Student engagement and its relationship with early high school dropout. Journal of adolescence. 2009; 32(3): 651-70.doi: 10.1016/j.adolescence.2008.06.007

21. Nerstad C, Richardsen A, Martinussen M. Factorial validity of the utrecht work engagement scale (UWES) across occupational groups in Norway. Scandinavian Journal of Psychology. 2010; 51(4): 326-33. doi: 10.1111/j.1467-9450.2009.00770.x

22. Ríos Rísquez M, Carrillo García C, Sabuco Tebar E. Resiliencia y síndrome de burnout en estudiantes de enfermería y su relación con variables sociodemográficas y de relación interpersonal. International Journal Of Psychological Research. 2012; 5(1): 88-95.

23. Caballero C, Hederich C, García A. Relación entre burnout y engagement académico con variables sociodemográficas y académicas. Psicología desde el Caribe. 2015: 32(2): 254-67. doi: 10.14482/psdc.32.2.5742

24. Schaufeli W, Bakker A. Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. Journal of Organizational Behavior. 2004; 25: 293-315. doi: 10.1002/job.248

25. Llorens-Gumbau S, Salanova-Soria M. Loss and gain cycles? A longitudinal study about burnout, engagement and self-efficacy. Burnout Research, 2014;1:3–11.doi: 10.1016/j.burn.2014.02.001

26. Salmela-Aro K, Tolvanen A, Nurmi J. Social strategies during university studies predict early career work burnout and engagement: 18-year longitudinal study. Journal of Vocational Behavior. 2011; 7 (1): 145-57. doi:10.1016/j.jvb.2011.01.002

27. Bakker A. B. The crossover of burnout and ist relation to partner health. Stress and Health, 2009; 25: 343-53. doi :10.10002/smi.1278

28. Gerber M, Lang C, Feldmeth A, Elliot C, Brand S, Holsboer-Trachsler E, *et al*. Burnout and Mental Health in Swiss Vocational Students: The Moderating Role of Physical Activity. Journal of Research on Adolescence. 2013; 25(1): 63-74. doi: 10.1111/jora.12097

29. Shirom A. Epilogue: mapping future research on burnout and health. Stress and Health. 2009; 25 (4): 375-80. doi:101002/smi.1284

30. Toppinen-Tanner S, Ahola K, Koskinen A, Väänänen A. Burnout predicts hospitalization for mental and cardiovascular disorders: 10-year prospective results. Stress and Health. 2009; 25 (4): 287-96. doi:10.1002/smi.1282

31. Simbula S, Guglielmi D. I am engaged, I feel good, and I go the extra-mile: Reciprocal relationships between work engagement and consequences. Journal of Work and Organizational Psychology. 2013; 29 (3): 117-25. doi: 10.5093/tr2013a17

32. Caballero C, González O, Palacio J. Relación del burnout y el engagement con depresion, ansiedad y rendimiento académico en estudiantes universitarios. Revista Científica Salud Uninorte. 2015; 31(1): 59-69.doi: 10.14482/sun.31.1.5085

33. Lopes Cardozo B, Gotway Crawford C, Eriksson C, Zhu J, Sabin M, *et al*. Psychological Distress, Depression, Anxiety, and Burnout among International Humanitarian Aid Workers: A Longitudinal Study. PLoS ONE. 2009; 7(9): e44948. doi: 10.1371/journal.pone.0044948

34. Reyes A, Medina M, Mesa X, Paredes Y, Barahona Y, Sierra M. Estudio de síndrome deburnout, depresión y factores asociados en los practicantes internos del Hospital Escuela. Revista Facultad de Ciencias Médicas. 2012; 9(1): 14-20.

35. Caballero C. El burnout académico: Prevalencia y factores asociados en estudiantes universitarios del área de la salud de la ciudad de Barranquilla. (Tesis doctoral). Universidad del Norte, Barranquilla (Colombia); 2012.

36. Pepe-Nakamura A, Míguez C, Arce R. Equilibrio psicológico y burnout académico. 2014. Revista de Investigación en Educación; 1(12): 32-39.

37. Arnau J, Bono R. Estudios longitudinales de medidas repetidas: Modelos de diseño y análisis. Escritos de Psicología (Internet). 2008; 2(1): 32-41.

38. Schaufeli W, Salanova M, González-Romá V, Bakker,A. B. The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. Journal of Happiness studies. 2002; 3(1): 71-92.

39. Hederich-Martínez C, Caballero-Domínguez C. Validation of Maslach Burnout Inventory-Student Survey (MBI-SS) in Colombian academic context. CES Psicología. 2016; 9(1): 1-15.

40. Martínez I, Salanova M. Niveles de burnout y engagement en estudiantes universitarios. Relación con el desempeño y desarrollo profesional. Revista de Educación. 2003; (330): 361-84.

Duazary / ISSN: 1794-5992 / Vol. 16, No. 1, enero - abril de 2019
DOI: http://dx.doi.org/10.21676/2389783X.2530

41. Casullo M, Castro A. Síntomas psicopatológicos en estudiantes adolescentes argentinos. Anuario de Investigaciones. 1999; 7: 147-57.

42. Caparrós-Caparrós B, Villar-Hoz E, Juan-Ferrer J, Viñas-Poch F. Symptom Check-List-90-R: fiabilidad, datos normativos y estructura factorial en estudiantes universitarios. International Journal of Clinical and Health Psychology. 2007; 7(3): 781-794.

43. Caballero C, Hederich C, Palacio J. El burnout académico. Delimitación del síndrome y factores asociados con su aparición. Revista Latinoamericana de Psicología. 2010; 42 (1): 131-146.

44. González A, Rubio J. Engagement: Un recurso para optimizar la salud psicosocial en las organizaciones y prevenir el burnout y estrés laboral.Revista digital de salud y seguridad en el trabajo. 2010; (1): 1-22.

45. Stoeber J, Childs J, Hayward J, Feast A. Passion and motivation for studying: predicting academic engagement and burnout in university students. Educational Psychology: An International Journal of Experimental Educational Psychology. 2011; 31(4): 513-28. doi 10.1080/01443410.2011.570251

46. Shin H, Kim B, Lee M, Noh H, Kim K. Lee S. A short-term longitudinal study of mental health and academic burnout among middle school students. The Korean Journal of School Psychology. 2011; 8(2): 133-52. doi: 10.16983/kjsp.2011.8.2.13

47. Khatib Y, Bhui K, Stansfeld S. Does social support protect against depression & psychological distress? Findings from the RELACHS study of East London adolescents. Journal of adolescence. 2013; 36 (2): 393-402. doi:10.1016/j.adolescence.2013.01.001

48. Shih S, Shu-Shen S. The relationships among Taiwanese adolescents' perceived classroom environment, academic coping, and burnout. School Psychology Quarterly. 2015; 30(2): 307. doi:10.1037/spq0000093

49. Kim Y, Lee J. The Mediating effects of Self-esteem on the Relationships between Heavy academic demands to Elementary school students and Academic burnout. Authority Korea Youth Facility and Environment. 2012; 10 (3): 115-26.