

## **CORTISOL LEVELS, PROFESSIONAL BURNOUT AND JOB SATISFACTION IN UNIVERSITY EMPLOYEES**

*NIVELES DE CORTISOL, DESGASTE PROFESIONAL Y SATISFACCIÓN LABORAL EN EMPLEADOS UNIVERSITARIOS*

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### **Abstract**

People's psychological relationship with work can be conceptualized as a continuum ranging from negative experiences of professional burnout to positive experiences, known as engagement. A retrospective ex post facto study was carried out for the purpose of exploring and measuring the degree of relation of professional burnout and job engagement to cortisol levels and the filing of claims for medical costs among university employees. One hundred ninety-nine subjects participated. A weak positive relation was found between the factor Emotional Exhaustion and cortisol levels, as well as a negative relationship between health symptoms and cortisol levels. No differences in burnout and cortisol levels were found between subjects who put in claims for health services and those who do not, or in health service claims when paired with the factors of professional burnout and cortisol levels. We conclude that low levels of cortisol could be related to engagement levels, and are related to low levels of professional burnout. We suggest that organization management should pay attention not just to administrative issues, but also to factors of organizational structure, the redesign of substantive activities, and the development of competencies for life development, as a way of contributing to overall organizational effectiveness.

Key words: cortisol, burnout, use of health services.

## Resumen

La relación psicológica de la gente con su trabajo, se puede conceptualizar como un continuo entre experiencias negativas de desgaste profesional (burnout) y las positivas de entusiasmo laboral (engagement), como un estado opuesto al desgaste profesional o relación positiva con el trabajo. Se utilizó un estudio *ex post facto* retrospectivo para explorar y medir la relación entre el desgaste profesional, el entusiasmo laboral, con niveles de cortisol para evaluar el estrés y reclamo de gastos médicos en empleados universitarios. Participaron 199 sujetos. Se encontró una correlación positiva baja entre el factor de desgaste emocional y los niveles de cortisol, y una negativa entre síntomas y niveles de cortisol. No se encontraron diferencias en desgaste profesional y niveles de cortisol entre los sujetos que reclaman servicios de salud y los que no lo hacen, tampoco entre reclamos de los servicios de salud con los factores del desgaste profesional y niveles de cortisol. Se concluye que los bajos niveles de cortisol podrían estar relacionados con los niveles de entusiasmo laboral y tendrían relación con los bajos niveles de desgaste profesional. Se sugiere que las organizacionales, además de las habilidades administrativas, pongan atención a factores de estructura organizacional, el rediseño de actividades y el desarrollo de competencias para la vida.

Palabras clave: cortisol, burnout, uso de servicios de salud.

People satisfy different needs at their job, which means that when job characteristics do not allow these needs to be satisfied, or make their satisfaction difficult, these characteristics can become a potential source of stress, impacting workers' physical health as well as the organization's productivity (Carreño García, Medina-Mora, Martínez Vélez, Juárez García, & Vázquez Pérez, 2006). For the last several decades it has been assumed that job-related stress leads to health problems and illness. The significant number of studies on these topics attests to the importance of problems associated with the growing levels of job-related stress, together with the increased costs of health care, as well as labor-market problems (Drach-Zahavy, 2008), as one of the byproducts of the worldwide financial crisis.

Teaching is a field where professional burnout has been extensively studied, among other reasons because it is a profession that deals directly with people. Factors contributing to burnout include changes in the role of teachers, lack of social recognition, the implementation of different educational models that put greater demands on teachers, scarce resources for coping with these demands, and interaction with students (Durán Extremera, Montalban, & Rey, 2005). These factors and others make burnout a relevant topic of study. (Quick, Nelson, Quick, & Orman, 2001).

Work-related stress has been widely recognized as an occupational hazard that can impair physical health, psychological well-being, and organizational performance (Maslach & Leiter, 2008). Stress can also be addressed from the perspective of people's relationship with their job and the difficulties that this relationship can cause (Hermosa Rodríguez, 2006). Many organizations have therefore begun to pay attention to their workers' health. Recent studies have looked at the opposite of burnout, which is known as engagement and defined as an energetic state of involvement with personally satisfying activities that enhance one's personal sense of professional effectiveness. According to Maslach and Leiter (2008), the multi-dimensional nature of the concept of professional engagement (Salanova, Schaufeli, Llorens, Peiro, & Grau, 2000) makes it more complex and complete than variables like commitment or satisfaction when it comes to examining people's relationship with their job.

According to Maslach and Leiter (2008), the inner experience of workers' effort plays a mediating role between the external impact of job-related demands (sources of stress) and job-related results, such as absenteeism or illness. This basic mediation model characterizes the phenomenon of job-related stress known as professional burnout, as well as its

positive counterpart, engagement. The authors point out that burnout is an unpleasant and dysfunctional condition that both people and organizations would prefer to change. Much of the interest in the study of these phenomena stems from a desire to understand them better in order to identify their interrelations and design effective interventions, especially preventive interventions. In the view of these authors, people's psychological relationship with their job can be regarded as a continuum between negative experiences of professional burnout and positive experiences of job engagement.

The three dimensions of burnout, according to Maslach, Schaufeli and Leiter (2001) are: Emotional Exhaustion-Energy, Cynicism-Involvement, and Ineffectiveness-Effectiveness. The component of Emotional Exhaustion represents the basic individual dimension of effort as part of the overall phenomenon of professional burnout. It refers to feelings of overload and exhaustion of emotional and physical resources. The component of Cynicism (or Depersonalization) represents the interpersonal context of the phenomenon of professional burnout, and refers to a negative, cruel or overly detached response to different aspects of the job. Finally, the ineffectiveness (or underachievement) component represents the self-evaluation dimension of professional burnout and refers to feelings of incompetence and lack of output and productivity on the job.

According to Durán et al. (2005), professionals in the field of academics are prone to developing burnout. These authors also assert that teachers experience increasing levels of stress, which affects their physical and emotional health as well as their results in terms of educational objectives.

In educational institutions, professionals are instruments that play an essential role in facilitating the development of job-related competencies, as well as competencies for life, which are just as important as professional skills. Paradoxically, these demands and expectations can easily become sources of dissatisfaction, or a sense of underachievement.

Job satisfaction is an indicator of job-related well-being. It is a psycho-social variable can be defined as a positive affective or emotional response to one's job in general or to some aspect of this job. This research makes use of a general assessment of job satisfaction, as recommended by Robbins (2009).

The variables under study have been approached from a different angle: as Manning, Jackson and Fusilier (1996) point out, there are studies based on self-reporting of both physical and mental health/illness and stress. This study uses an objective measure of stress (cortisol in saliva) and recourse to health services, as well as a checklist of health symptoms. It is important to introduce objective measurements into the study of the relation between the variables of burnout in academic workers and their physiological stress responses, such as cortisol (Castro, Martinelli, Antonini, Santiago, & Moreira, 2000; IBL-America, 2006; Kirschbaum & Hellhammer, 1989, 1994, 2000). One of the purposes of this study was to investigate the methodological usefulness of the objective measurement of the association between burnout, stress (salivary cortisol), and recourse to health services and job satisfaction in university employees.

## Method

### *Participants*

199 subjects participated (88 women and 111 men, ranging in age from 20 to 65 years). Full-time university employees. 150 with a spouse/partner and 49 without. 31% had a bachelor's degree; 44%, a master's degree; 10%, a PhD; and the rest, 13.5%, other.

### *Instruments*

- General information
- Burnout instrument for Mexicans (EMEDO) (Uribe Prado, 2008), consisting of 30 items that measure the three factors of professional burnout: Emotional Exhaustion, Depersonalization and Dissatisfaction or Underachievement. It has a total Cronbach's alpha internal consistency of .89, with a range from .77 to .86, among the three factors.
- Symptoms List (Chibnall & Trait, 1989).

This list included 17 symptoms. Its Cronbach's alpha internal consistency = .81. The test-retest reliability coefficient is  $r = .53$  ( $p < 0.001$ ).

- For the analysis of salivary cortisol levels, samples were collected in 1.7-mL polypropylene tubes, and the ELISA method (Gould & Stephano, 2005) was employed for their analysis, using a commercial kit (EIA DSL-10-67100) on each of the samples. The intra- and inter-test variability of these kits is less than 4.8% and 7.2% respectively.

#### Variables and procedure

A retrospective ex post facto design with one group was used, since the study focused on the relationship of the dependent variable with other independent variables (Montero & León, 2007).

Participants with major medical insurance were selected, and invited to participate in the study. Once they accepted, they signed a letter

of consent. A contrast group was formed with participants who work at the university but do not have major medical insurance ( $n=55$ ). A saliva sample was taken from all the participants during the afternoon in order to measure their cortisol levels, previous to their rinsing out their mouth with water and subsequently the instruments were applied. After these were answered, another saliva sample was taken. The time elapsed between one sample and the next did not exceed 30 minutes. All the saliva samples were taken in the afternoon to avoid variability in the hormone's circadian cycle in the morning (see Figure 1).

#### Data Analysis

The SPSS 15.0 program was used to analyze the data: descriptive statistics, variance analysis and Pearson product-moment correlations among the variables analyzed.

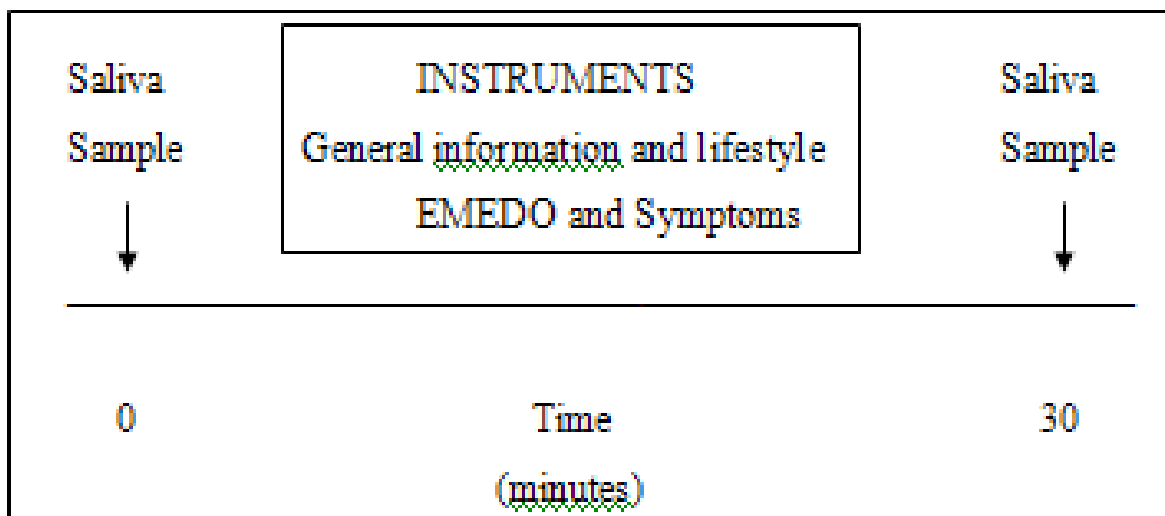


Figure 1. Procedure used in study.

Results

Since one of the objectives of this study was to explore the association among professional burnout, stress (salivary cortisol), job satisfaction and recourse to health services, a correlation analysis and variance analysis were carried out among the variables (Table 1).

As no significant differences were found between the two cortisol samples, the average of the two was used for the correlation analysis among the variables.

The aggregate results indicate a negative relation ( $r = -.15, p = .020$ ) between cortisol and one of the three factors of the professional burnout syndrome: Emotional Exhaustion. However, the other two factors, Cynicism or Depersonalization, and Underachievement or Dissatisfaction with the results, showed no relation whatsoever, while the relation with the Frequency of Symptoms is negative ( $r = -.27, p = .024$ ).

Moreover, the relation of these three factors with the Frequency of Symptoms is positive for Emotional Exhaustion, ( $r = .59, p = .0001$ ), for Underachievement ( $r = .35, p = 0.0001$ ) and for Depersonalization ( $r = .14, p = .021$ ).

Overall job satisfaction registers a negative relation with the three factors of Professional Burnout. In first place, with the sense of Underachievement ( $r = -.519, p = .0001$ ). Next comes the relation with Emotional Exhaustion ( $r = -.330; p = .0001$ ) and finally with Cynicism or Depersonalization ( $r = -.232; p = .001$ ). There is also a negative relation of job satisfaction with Frequency of Symptoms ( $r = -.263, p = .0001$ ).

The analysis of the results of the groups formed by those who put in claims for major medical expenses, those who did not put in claims and those who did not have insurance shows no statistically significant differences in the perception of the three factors of Professional Burnout, Job Satisfaction, Frequency of Symptoms and Cortisol Levels.

Discussion

We expected to find that cortisol levels would show variations in accordance with the levels of professional burnout syndrome, as reported in the literature (Kudielka, Bellingrath, & Hellhammer, 2006; Sonnentag, 2006), and yet, contrary to expectations, we were only able to confirm a slight negative relation of cortisol with emotional exhaustion and with frequency of symptoms. As some authors report, no deregulation is observed between the HPA axis response and cortisol levels with professional burnout syndrome (Sertöz, Binbay, & Elbi Mete, 2008). It would seem that the lack of relation between cortisol levels and burnout-related variables could be explained by the low levels found, both of cortisol levels and of burnout, since various authors have reported that no HPA axis activation is found at low levels of professional burnout (Pruessner, Hellhammer, & Kirschbaum, 1999). This could also be explained by the following: consideration would have to be given to whether the subjects, at the moment of stress, were in the resistance or surrender phase (Selye, 1960); the duration of the stress would also have to

Table 1. Correlations among variables

Pearson Correlation						
N= 199	1	2	3	4	5	6
1. Cortisol		<b>-0.15 *</b>	-0.06	-0.05	<b>-0.27*</b>	-0.07
2. Emotional Exhaustion			0.11	<b>0.43 **</b>	<b>0.59 **</b>	<b>-0.33 **</b>
3. Depersonalization				<b>0.33 **</b>	<b>0.14 *</b>	<b>-0.23 **</b>
4. Underachievement					<b>0.35 **</b>	<b>-0.52 **</b>
5. Frequency of Symptoms						<b>-0.26 **</b>
6. Job Satisfaction						

\*  $p < 0.05$ , \*\*  $p < 0.001$

be considered: it could be chronic stress, in which no HPA axis reactive response would be seen, or acute stress, in which we would expect to find an increase in salivary cortisol levels.

Only a slight inverse relation is identified between emotional exhaustion and cortisol, and none between medical expense claims and cortisol levels; the results suggest that the phenomenon of engagement merits further exploration. From this perspective, it could be stated that there are participants in this study who instead of suffering from burnout, show job engagement. The slight relation between emotional exhaustion and cortisol gives limited support to the usefulness of objective measures of stress on the basis of salivary cortisol and its relation to professional burnout; further exploration of its methodological usefulness is called for.

The relation between the perception of symptom frequency and the three factors of professional burnout syndrome is positive. The relation for emotional exhaustion is the strongest. This indicates that as symptoms are experienced more frequently, the perception of emotional exhaustion increases, i.e., feelings of overload and exhaustion of emotional and physical resources. Next, the relation with underachievement or incompetency, which suggests that this factor increases the more the symptoms are perceived. Finally, the relation to depersonalization suggests that detachment from different aspects of the job increases as more symptoms are perceived, although moderately. The inverse relation of job satisfaction with professional burnout indicates that as satisfaction increases, the perception of burnout decreases. It is worth noting that the strongest inverse relation of job satisfaction is with regard to the sense of underachievement. This pattern – underachievement, exhaustion and depersonalization – is similar to the pattern found by Ortiz Valdés and Arias Galicia (2008) in a study of teachers from the western part of the country. This result suggests it should be important for the faculty of educational institutions to have a clear sense of their objectives and goals.

To conclude, it can be stated that only the partial negative relation of cortisol to one factor of Professional Burnout – Emotional Exhaustion – could be confirmed, which is consistent with other studies that have found that this factor is the most representative of professional burnout syndrome (Maslach, 2001). It would be important to explore this relation with different hormone responses, such as the circadian cortisol cycle, and to explore whether this cycle occurs regularly or whether a certain flattening is observed.

The relation between symptoms and the three factors of Professional Burnout suggests that, from the perspective of the management of higher education organizations, attention should be paid to factors that help personnel reach their goals: this would avoid the waste of personal energy (physical and emotional weariness due to administrative tasks that do not contribute to their substantive function and that are perceived as work overload). Attention should also be paid to fostering a positive relation between personnel and their job, so that staff members, especially from the teaching faculty, feel that they are instrumental to the educational mission of developing professional and life competencies (Durán, et al., 2005). This vision is reinforced by the inverse relation between job satisfaction and the three burnout factors. This perspective should be addressed specifically in other studies to generate a better understanding of how burnout occurs in populations like the one studied here, and to design preventive programs.

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