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BURNOUT AMONG RESEARCH TEAMS: EVIDENCE FROM MEXICAN 'CUERPOS ACADÉMICOS'

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ABSTRACT

Several studies provide evidence on how burnout hinders academic performance in teaching, research and technologic development activities among Mexican professors. The aim of this work was to determine the extent of Burnout in teams of researchers, organized in newly created structures called "Cuerpos Académicos" (CAs), in public Universities in Mexico. We use a mixed approach to better understanding this phenomenon. In the first phase, a paper and pencil questionnaire was administered to 234 academics. Twenty one percent of teachers indicated signs of stress and burnout. Only women and single persons showed differences having higher scores in the instrument results. In the second phase, a qualitative analysis of professor perceptions was conducted by organizing nine focus groups, one for each academic division. Overall factors related to stress and eventual burnout could be associated to fatigue due to work overload, lack of time to fulfill assigned tasks, perceived pressure in the work environment and others. The homologation of multiple systems for teacher evaluation and a reduction of non-essential administrative demands and procedures may be efficient policies that may reduce stress and prevent burnout in these academics.

JEL: I23

KEYWORDS: Burnout, Research Teams, Mexico, Higher Education

INTRODUCTION

Several researchers in Mexico have done studies of Burnout in Mexican Higher Education Institutions. They provided ambiguous evidence, regarding negative effects in academic performance (Gil-Monte, Rojas & Sandoval, 2009; Guerrero, 2003, Magaña & Sánchez, 2008; Magaña, Aguilar & Surdez, 2010; Marrau, 2004). When burnout has been identified, its origins are often attributed to several organizational factors. Some could have origin in diversity of tasks and demands or ambiguity of the roles to be assumed in college life (Magaña, Surdez & Zetina, 2012; Salanova, Grau & Martínez, 2005), the organizational climate (Gil-Monte & Peiró, 2009), individual work satisfaction (Ben-Ari, Krole, & Har-Even, 2003), as well as personal and professional factors (Mazur & Lynch, 1989).

Stress and burnout have been linked to full-time Mexican professors due to increasingly demanding salary policies in Mexican universities that attach bonuses and incentives to a peer evaluation of their productivity and teaching performance. The amount of these bonuses is often higher than the established salary. Assessment and certification of teachers and colleges are also made by other institutions. These assessments offer economic incentives when the college remains within the federal and state policies.

For a better understanding of the context, we explain and discuss the effects of three influences affecting Mexican academics: 1) the federal program for implementing professor performance: "Programa de Mejoramiento al Profesorado" (PROMEP) sponsored by the Ministry of Education. 2) The National Researchers System (SNI) which is part of the National Council for Science and Technology (CONACYT); and, 3) A novel way to organize research groups, in new and emerging organizational structures called: "Cuerpos Académicos" (CAs).

It has been argued that these multiple and sometimes conflicting policies represent a source of stress among faculty, since these programs have different approaches and goals. While local systems of compensation for teaching performance operate with a criteria defined according to institutional priorities, such as collaborative research in "Cuerpos Academicos" (CAs), the federal programs pursue different objectives. PROMEP promotes a balance between teaching, research, tutoring and academic activities (Secretaría de Educación Pública [SEP] 2013). However, the SNI focuses on indicators of research performance: publishing and technological development such as patents (CONACYT, 2012).

Thus, triple-play evaluation generates demands at various levels and in different scenarios. Henceforth, professors doing research have to diversify their work activities to fulfill evaluation requirements dictated by several academic organizations. This balancing act generates physical and emotional stress.

The aim of this work is to provide evidence of the existence of stress and burnout in a sample of professors from a typical state university in Mexico. The organizational structure and policies sustaining evaluation systems provide a context for understanding the situation and thus for implementing appropriate measures to prevent and deal with stress and burnout. This research provides information regarding the perceptions of Mexican academics regarding burnout and explores their attribution of its origins and effects.

The remainder of the paper is organized as follows. The next section describes the relevant literature. Next, we discuss the data and methodology used in the study. The results are presented in the following section. The paper closes with some discussion and concluding comments.

LITERATURE REVIEW

Burnout and Stress

In spite of the consequences of stress and burnout for the organization and the mental health of academics, few studies exist about this phenomena in Mexican research groups. Furthermore, no attempts have been made to identify the organizational factors in Mexican public universities which generates this effect. Such information would be valuable to identify both corrective and preventive actions.

Burnout has not being catalogued within psychopathological international classifications such as the diagnostic and statistical manual of mental disorder (DSM-IV) of the American Psychiatric Association (López-Ibor & Valdés Miyar, 2002). Nevertheless, burnout has been the target of a number of studies. A vast amount of research suggest burnout could be a mental health syndrome. It is condiered in some countries, like Spain, a psychosocial type of work risk (Gil-Monte & Zuñiga, 2010).

Burnout was initially identified in individuals who work assisting people, like physicians and nurses (Maslach & Jackson, 1981). However, the study of this phenomenon has extended to include many other professions exposed to stress in the work environment, including higher education teachers.

The term burnout was originally coined by Freudenberger. But, its categorization and dissemination as a syndrome is mainly due to Maslach and Jackson (1981), who defined burnout as a response to chronic emotional stress featured by physical and psychological exhaustion, cold and impersonalized attitude toward others and a sense of inadequacy in regards to the performing tasks.

Burnout has been depicted as tridimensional. Emotional distress is the most representative component of burnout. Emotional distress refers to the feelings of overloading and emptiness of the individual's emotional and physical resources. Depersonalization is the second most common component, which represents the interpersonal dimension that refers to a negative response to work-related chores. Finally, the third component has been

characterized as low self-fulfillment and it refers to the feelings of incompetence and lack of achievement and productivity in work (Maslach, Schaufeli & Leiter, 2001).

Burnout and Academic Life

In Universities, as in other working environments, attitudes, practices and beliefs related to stress are influenced by factors of organizational structure such as hierarchies, operational rules, resources, work load and space distribution. Although College teaching is not regarded as a hazardous profession, research regarding the role of the work-environment has identified factors in the organization conducive to burnout such as overloading work and poor organizational climate (Brotheridge, 2003), absenteeism (Prieto & Bermejo, 2006), conflict and ambiguity of roles (Boardman & Bozeman, 2007) and conflicting assessing processes (Magaña & Sánchez, 2008; Magaña, et al., 2010).

Maslach, et al. (2001), asserted that burnout in working environments, such as universities, must be analyzed dually: on one hand considering the work situation and on the other the individual constituent factors which facilitate or protect its emergence. This study focuses on the first group that deals with aspects related to daily work. In this perspective, the most studied variable is work demand. Overloading work and pressures on time are strongly and continuously correlated to burnout, particularly exhaustion (Ben-Ari, et al., 2003). The second group includes such factors as type of work. In this individual perspective, research provides some hints. For instance, women are usually at a higher risk (Gil-Monte, 2002) of burnout, as well as workers with higher expectations in their jobs (Maslach et al., 2001).

Context of the Study - 'Cuerpos Académicos' (CAs) in Mexican Public Universities

Important for understanding the context of this research, it is the concept of "Cuerpo Academico" (CAs), a reorganization of the academic Mexican life around collaborative groups of research and teaching. These groups tend to mimic the departmental organizational structure of American Universities. This is a national attempt to change from a more vertical and rigid system of 'Facultades', derived from the French model of higher education, that in the XVIII century inspired the emergence of Mexican Universities.

CAs were defined as "groups of teachers who generate collegiate or team research to enhance the institutional capacity to generate or apply knowledge: to identify, integrate and coordinate the intellectual resources of the institutions in order to benefit the educational programs and embed this as a policy to enhance social development and science and technological advancements" (SEP, 2013, p.77).

CAs assume that collegial groups of scholars makes decisions regarding research and teaching, within a system which does not provide for a legal, normative or formal structures for their operation. At the end of the day, decisions and outcomes from these informal research groups are confronted or changed by Deans and other administrators who hold formal power and legal decision-making capacities.

CAs have been constituted as a central strategy for institutionalizing a public policy within Mexican higher education institutions. Since 2001, the federal government has focused on organizing these academic structures by gathering groups of full time teachers, who share the same research and teaching interests, around specific disciplinary or multidisciplinary subjects. These groups are also expected to support specific educational programs, both at undergraduate and graduate levels (SEP, 2006).

The creation of CAs was encouraged by grants provided by the federal program for implementing higher education teacher's abilities: "Programa de Mejoramiento al Profesorado" (PROMEP). This occurred as a result of the realization, within the ministry of education, of the need for more flexible and democratic forms of organization that enable college teachers to perform their duties more effectively (SEP, 2010, p.3).

Castañeda (2010) noted the policy of implementing and consolidating these academic structures has gone beyond traditional educational policies in Mexico generally attached to specific presidential terms. CAs has been a salient policy in higher education since 1989. To date it has evolved from a new institutional obligation to a style of life.

The novelty of the CA concept and habits within the rather traditional Mexican higher education system, created confusion in their early stages. Many groups were formed around syllabi of existing programs, but they failed to include research work. Team work is a key and conveys sometimes artificial demands on scholars. Publications to be credited to the degree of consolidation of the CA, need to include more than one member of the team to be considered a formal product of the team. Incentives and bonuses depend a lot about the degree of consolidation of the team, assessed in one of three levels from emerging to consolidated.

Consolidated groups, the ideal level to be reached, are characterized by groups of researchers that generate products recognized as good quality and with members that participate actively in educational programs and hold doctoral degrees. They are recognized by their research and teaching.

A second key issue in this policy is networking. CA are assessed by the number of projects, exchange and collaborative work with other research groups nationally and internationally. Academics experience double pressure, to continue their original lines of research and to create additional lines that include other team members.

Sistema Nacional de Investigadores (SNI)

The national researchers system (SNI) is a model policy for developing countries in generating, implementing and enhancing scientific research and technological development. The SNI was created by presidential decision on July 26th 1984, with the aim to recognize the work devoted to produce scientific knowledge and technological development in Mexico. This recognition is given through peer assessment before granting the nomination of national researcher (with 5 levels: candidate, I, II, III and emeritus).

This federal policy provides both recognition and financial support to distinguish academics, to prevent brain drain and to add to emerging efforts to consolidate a competitive system of higher education in Mexico. It also promotes links between academic and business and industrial sectors to increase funding for science, innovation and technological activities (CONACYT, 2012).

The SNI encompasses all scientific disciplines, and technological practices in the country. A majority of its members belong to the best higher education institutions and research centers operating in Mexico. In this sense it helps in developing scientific activity throughout the nation and installing research groups at high academic level in all states.

Belonging to the SNI is an important distinction for any Mexican scholar and symbolizes the quality and prestige of one's scientific contributions. In addition to this nomination, economic incentives are given through scholarships whose amount varies according to the assigned level (CONACYT, 2012). However, accessing this roster conveys achievement pressures for the person, its processes of evaluation are time consuming, and they convey an emotional toll.

METHODOLOGY

This work was carried out in two phases. Phase one was descriptive and attempted to determine the levels of stress and burnout in the population under study. A paper and pencil survey was administered to 462 full-time academics, from 66 CAs, in 11 academic divisions in a typical public university in Mexico: Universidad Juárez Autónoma de Tabasco. A census was attempted, however, only 234 (51%) academics returned the survey. A questionnaire, based on Maslach and Jackson's (1981) work was developed by translating and adapting items. A pilot administration with 5 academics from another public university clarified items. The finalized questionnaire

included 15 items in five point Lickert scale measuring three dimensions: depersonalization, emotional distress and self-fulfillment. A socio demographic section preceded the items (Magaña, et al., 2010).

The Alpha Coefficient value was 0.862. Exploratory factorial analysis to determine its construct validity replicated the three original theoretical factors. Registering for its three factors charges over 0.40 and 35% variance. The reported reliability values and validity were considered acceptable (Milton, 2010, Morales, 2011).

Phase Two attempted to explore, in depth, perceptions and concerns of professors with regard to stress and burnout. For this purpose, a qualitative approach was adopted. Groups were organized in an open and free format to elicit ideas and concerns from the professors regarding stress and demands in the workplace. All sessions were facilitated by the main investigators. The purposes of the research were explained and teachers were invited to freely express their feelings, opinions and ideas about their perceptions of stress and its association to challenges in their daily work. Information was noted by two research assistants. Audio and video recording of sessions was not welcome by the participants.

Nine focus groups were organized, one from each division of the University. Teachers that responded to the questionnaire, were invited to attend these voluntary meetings. Those who expressed their desire to participate, wrote their contact information in the space provided in the questionnaire; and were invited to their respective focus group meeting. A total of 77 professors participated in this activity. Table 1, describes groups, number of participants and the number of CAs represented.

Table 1: Participants in Focus Groups

Name of academic Division	Professors	CAs
Biological Science	12	6
Agriculture and Farming	6	6
Fundamental Sciences	8	10
Economics and Business	8	5
Social Studies and Humanities	11	5
Education and Arts	8	5
Engineering and Architecture	11	12
Informatics and Computing Sciences	7	8
Health Sciences	5	9
Total	76	66

This table shows the number of participating professors and the number of research groups represented in the focus groups for each academic division

Notes from the two observers were transcribed into Microsoft Word files. Information was printed and analyzed by the investigators. Main ideas were classified into the three original dimensions of burnout that guided design of the first phase instrument. By examining contents in each category, secondary sub-dimensions were derived, considering the frequency of the main idea to understand better their perceptions regarding burnout and Stress.

RESULTS

Results- Phase I

Exploratory analysis were carried out to identify differences in burnout levels by age, seniority, gender and type of appointment. The mean age was 47 years old, with a standard deviation of 8.5. Seniority was on average 17.6 years (SD 8.3). Sixty three percent were men. Some 72% were married, 42% were certified by PROMEP, and 9% belonged to the SNI.

The burnout scale produced a range of 15 to 75 points. A frequency analysis was carried out, observing a normal distribution, with a minimum value of 15 and a maximum of 73, a kurtosis of 0.32, a mean of 28.6 and a standard deviation of 8.8. The third quartile (75 percentile), was pre-established as a criterion of suspected burnout or suffering work related stress. Twenty one percent of participants ranked in this range with scores ≥ 34 .

Furthermore, 57% of participants reported none or very low stress related to their jobs. Emotional distress scores ranked highest in every analysis.

Statistical tests were carried out to explore differences in demographic variables. There were no significant differences by age, seniority, administrative positive and type of appointment. However, there were higher levels of emotional distress in women ($t = -3.03$; $p = 0.003$) and in single professors ($t = 3.53$; $p = 0.001$). As expected, it was observed that teachers not recognized by PROMEP reported higher scores in the low self-fulfillment dimension ($t = 3.00$; $p = 0.004$). Table 2 shows the results of an ANOVA to evaluate differences of population means among the several Academic Divisions in relation to the dimensions of burnout.

Table 2: Comparison of population means for each dimension of the SDE variable for Academic Division

Dimension	Academic Division	N	Mean	Standard Deviation	F	Sig.
Depersonalization	Agriculture and Farming Studies Academic Division	28	9.18	4.287	2.504	0.013*
	Health Science Academic Division	28	7.50	4.299		
	Economics and Business Academic Division	19	10.37	4.609		
	Social Studies and Humanities Academic Division	18	8.00	2.401		
	Education and Arts Academic Division	27	7.59	2.454		
	Engineering and Architecture Academic Division	27	8.37	3.743		
	Informatics and Computing Systems Academic Division	31	7.00	2.408		
	Biological Science Academic Division	27	7.30	2.493		
	Fundamental Science Academic Division	29	7.07	2.951		
Emotional Burnout	Agriculture and Farming Studies Academic Division	28	12.68	5.034	1.237	0.281
	Health Science Academic Division	19	12.37	5.408		
	Economics and Business Academic Division	27	11.89	4.318		
	Social Studies and Humanities Academic Division	27	11.52	4.182		
	Education and Arts Academic Division	31	11.35	3.980		
	Engineering and Architecture Academic Division	27	10.48	5.374		
	Informatics and Computing Systems Academic Division	29	10.45	3.897		
	Biological Science Academic Division	18	10.22	3.116		
	Fundamental Science Academic Division	28	9.86	4.836		
Low Self-fulfillment	Agriculture and Farming Studies Academic Division	28	9.43	2.044	1.627	0.118
	Health Science Academic Division	28	10.07	5.242		
	Economics and Business Academic Division	19	11.53	4.155		
	Social Studies and Humanities Academic Division	18	9.72	4.688		
	Education and Arts Academic Division	27	8.52	2.173		
	Engineering and Architecture Academic Division	27	9.19	3.000		
	Informatics and Computing Systems Academic Division	31	8.61	2.459		
	Biological Science Academic Division	27	9.37	2.151		
	Fundamental Science Academic Division	29	9.62	3.029		

This table presents the values reported from the ANOVA test for every academic division in the study are compared. Additionally the descriptive values are reported for each dimension of Burnout. Note: * $p \leq 0.05$

Table 2 shows that only depersonalization appears to be significantly difference among the academic divisions in the study. Economics and Business Academic Division registered the highest level. The results, might be explained in relation to the number of students they deal with. The Economics and Business Division accommodates among the largest number of students per professor within the university (UJAT, 2013).

Results- Phase II

Table 3, summarizes the main ideas associated with each of the three original dimensions of the construct of burnout. It can be observed that major concerns pertaining to work overload are fatigue and lack of time to fulfill required duties. Various comments and key ideas related to evaluation policies, specific job demands and problems in decision making were noted and will serve as basis for discussion in the following section.

Table 3: Dimensions, Key Ideas and Number of Phrases Associated

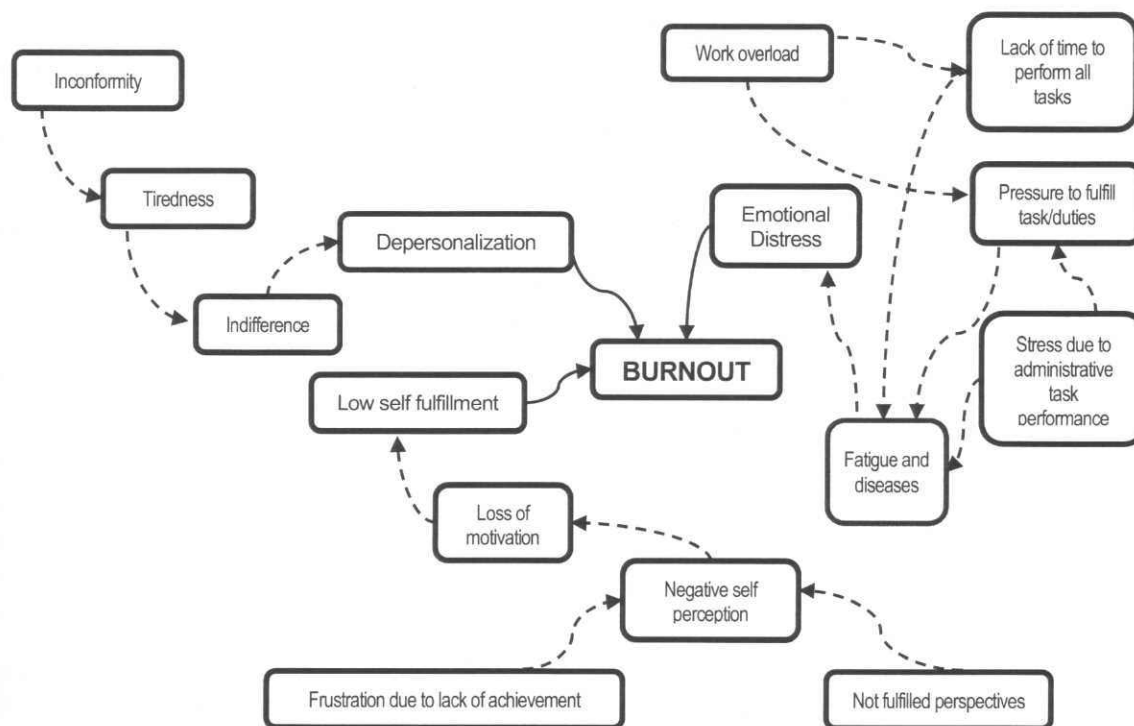
Dimension	Key Idea – Sub-dimension	N
Emotional Distress	Fatigue and diseases	14
	Work overload	19
	Lack of time to perform all tasks	13
	Pressure to fulfill tasks/duties	9
	Stress due to administrative tasks performance	6
Depersonalization	Tiredness	1
	Indifference	9
	Inconformity	3
Low Self-fulfillment	Loss of Motivation	9
	Negative self-perception	6
	Not fulfilled perspectives	2
	Frustration due to lack of achievement	5

This table shows the dimensions (categories) and the number of phrases associated to an idea (subcategory) defined as main cause associated to it.

Discussion

As observed from the two phases of the study, the original dimensions proposed by Maslach are empirically sustained by both quantitative and qualitative results. Furthermore, the combination of those two approaches help us understand the phenomenon of stress and burnout in universities. We have identified more specific elements in each dimensions worth future consideration. A conceptual map was developed considering the results. Figure 1, shows the relationship of some key concepts to the processes and understanding of burnout.

Figure 1: Relationships between Identified Factors and Burnout



This figure shows the conceptual map for the relationship of concepts, subcategories and processes regarding stress and burnout.

In general the main causes related to the Emotional Burnout dimension are: fatigue and diseases, which is more related to an effect than a cause; work overload; lack of time to fulfill assigned tasks, perceived pressure to fulfill

all duties and burnout due to administrative task performance. In regard to Low Self-fulfillment, the loss of motivation is originated, as expressed in the testimonial phrases, by a lack of recognition of the performed tasks. Lastly, Depersonalization is attributed to fatigue and inconformity about the loads of work assigned.

It could be observed that work overload and time pressures are strongly and consistently correlated with stress and burnout in the literature (Gil-Monte, 2005; Gil-Monte & Peiró, 1999, Gil-Monte & Peiró, 2009; Maslach & Jackson, 1981; Moriana & Herruzo, 2004; Schwab, Jackson & Schuler, 1986; Whitaker, 1996).

CONCLUSIONS

The aim of this work was to determine the extent of burnout in teams of researchers. We conclude that levels of Burnout are rather low so far among researcher professors. The mean, with an answer scale from 15 to 75, was 28.61, and only 21% of the population under study reported a level considered high. However, the percentage may be considered a "warning" as several studies about this problem point out (Gil-Monte, Rojas & Sandoval, 2009; Guerrero, 2003; Moshe & Horenczynk, 2003; Salanova, Llorens & García-Renedo, 2003). In general, one fifth of academics in the University under study report signs of burnout and stress. Although being an academic is not a risky or over demanding profession, such as a paramedic, police officer or firefighter; the presence of burnout and risks to the individual mental health in college teaching cannot be under stated.

As in previous studies (Magaña & Sánchez, 2008; Magaña, et al., 2010), the most representative dimension of burnout is emotional distress. This dimension was considered most important in both quantitative and qualitative analyses. Here, perceived stress was associated to duties seen as over demanding by both internal and external evaluation policies. Ideas expressed by participant academics, indeed re enforce the notion that multiple schemes of evaluation generate work pressure and therefore lead to physical and emotional distress.

Regarding socio-demographic variables, gender differences are reported from the levels of emotional burnout where women appear to have a greater level. These results confirm previous studies (Gil-Monte, 2002; Maslach, et al., 2001) which prove greater levels of burnout. Gil-Monte and Peiró (2009) point out this result is mainly due to the social role of each gender, where the Mexican culture involves female roles in the function of family care in addition to the new professional role. This situation that generates a work overload factor related significantly to burnout.

Another phenomenon observed is that emotional distress shows statistically more significant differences by marital status. Single individuals register greater burnout levels. The arguments from the literature to explain this relation show that marital status does not necessarily influence the process but socio-emotional support from family members and the quality of matrimonial relationships, since these complement emotional aspects that may lead to Burnout (Gil-Monte & Peiró, 2009).

The duties to be performed as a professor are assessed by PROMEP qualifications. There exists a statistically significant difference in levels of low self-fulfillment among those who have achieved PROMEP qualifications and those who have not. PROMEP generates a set of economic incentives indirectly for the professor that allows them to satisfy certain expectations of achievement, decreasing personal inconformity that may appear in professors who do not have such qualifications.

An examination of academic divisions in this study shows that only Depersonalization displays a significant difference among academic divisions. Economics and Business Division registers the highest level and the Informatics and Computing Systems Division the lowest level. During the qualitative stage, the Depersonalization dimension evidences the problem associated with divisions with the largest enrollment. It is perceived that a general tiredness is generated as well as indifference to students. Without justifying this, it is necessary to point out the amount of students to assist is reported in some studies about SDE as a determining factor over the levels

of depersonalization (Guerrero, 2003). In this sense, the Economics and Business Division, is the one with a higher level of enrollment in the University (UJAT, 2013).

The correlation between dimensions of Burnout, age and number of years of work in the institution shows only age registered a very low negative correlation to emotional burnout. This situation may indicate that youngest professors perceive a greater level of burnout. However, the results are not sufficient to confirm this relation. Rosas, Magaña and Fernández (2008), point out that senior professors and those about to retire do not consider it profitable to invest time on obtaining accreditations and certifications required by evaluating procedures in order to reach economic incentives added to salary. The younger are configuring this multiple profile to their teaching work to get better opportunities for development. Recéndez, Campuzano and Muñoz (2010). Although professors may be near retirement, there are always individual and economic factors that encourage permanence in this group of professors

No doubt, the main asset of a University is the quality of the job performed by its academics. Results from this research, evidence the need to pay attention to stress and burnout that eventually may lead to negative outcomes from academics. From lack of efficiency to eventual mental and physical diseases.

The many demands currently imposed on academics need to be revised. For example, there is an excessive demand of red tape in many administrative processes, petty tasks are perceived as time consuming and distractors of other academic duties. There are many evaluation systems that assess the same chores, but demand different administrative processes which are rather repetitive.

Results from this research should convey a reflection upon evaluation policies toward Mexican academics and must promote more efficient administrative procedures that decrease demands on non-essential tasks. For example homologating evaluation systems, and reducing paperwork for administrative procedures. As mentioned before, stress and burnout even in college professors cannot be underestimated as a factor instrumented to measure quality teaching and research.

This paper leaves many aspects open to new research. In spite of the low problem incidence, there are several related factors with greater emphasis on organizational environment. Moreover, these are mostly related to matters of evaluation and teaching certification activities within a profile of multiple roles. This is to be pondered in a different way for every aspect. Further research is needed to identify ways to decrease stress and burnout of Mexican academics. Longitudinal studies should provide evidence on long-term effects of stress in the health of professors. A systematic review of administrative procedures is needed to reduce red tape.

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