

Occupational Psychosocial Risk Factors in Academics of Higher Education Institutions in Latin America: a Systematic Review

Factores de riesgo psicosocial laboral en académicos de instituciones de educación superior en Latinoamérica: Una revisión sistemática

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Summary

The purpose of this systematic review was to characterize job psychosocial risk factors and their consequences on subjective indicators and health objectives in university professors from Spanish-speaking countries in Latin America. The web search included PubMed, EBSCO, PsycINFO, PSICODOC, LILACS, MEDIGRAPHIC, IMBIOMED, Redalyc, Dialnet, Scielo and Doyma. Three reviewers selected the articles for review independently and assessed their methodological quality according to the STROBE guideline. As a result, 8 articles met the inclusion and exclusion criteria. The results confirmed the presence of different psychosocial risk factors derived from working conditions linked to the higher education international policies. In the study, the relationships of these factors with different psychological and biological health effects are shown. The need for more and better quality studies and the importance of implementing health and welfare prevention programmes in the academic sector are also discussed.

Keywords: Stress; Health; Teachers; Universities, Latin America.

Resumen

La presente revisión sistemática tuvo la finalidad de caracterizar los factores de riesgo psicosocial laboral y sus consecuencias en indicadores subjetivos y objetivos de salud en profesores universitarios de países hispanoparlantes de América Latina. Las búsquedas electrónicas se realizaron en PubMed, EBSCO, PsycINFO, PSICODOC, LILACS, MEDIGRAPHIC, IMBIOMED, Redalyc, Dialnet, Scielo y Doyma. Tres evaluadores seleccionaron de forma independiente los artículos para su revisión y evaluaron la calidad metodológica conforme la guía STROBE. 8 artículos cumplieron con los criterios de inclusión y exclusión. Los resultados confirmaron la presencia de diversos factores de riesgo psicosocial derivados de condiciones de trabajo vinculadas a las políticas internacionales de educación superior, y se muestran relaciones de estos factores con diversos efectos psicológicos y biológicos en la salud. Se discute sobre la necesidad de más estudios y de mejor calidad y la importancia de implementar programas de prevención de salud y bienestar en el sector académico.

Palabras clave: Estrés; Salud; Docentes; Universidades; América Latina.

Introduction

In Latin America, Higher Education Institutions (HEIs) have evolved dynamically in recent decades; it is since the 1980s that reforms to public education policies issued by the World Bank (WB) and the Inter-American Development Bank (IDB) have targeted IES in particular, in order to increase their educational quality, their capacities in expanding student enrollment according to the needs of the region and the diversification of their academic offer, although at the same time, there is an inevitable tendency to economic contraction and the decrease of the academic staff (Millán, Calvanese and D'Aubeterre, 2017). All this has ended up in the creation of bureaucratic schemes that hinder the development of higher education, although apparently recognizing its autonomous laws and the support of the academic sector (Brunner, 2012).

The strategies implemented and the goals of the educational policies for the HEIs, promote the empowerment of teachers, the generation and increase of academic productivity, and accredited programs, which despite the guidelines of recognition and promotion of the teacher, have given them a condition of economic benefit (Comas-Rodríguez and Rivera (2011).

The HEIs have incorporated the guiding principles for the Universities of Latin America and the Caribbean, declared in the Regional Conference (CRES) and the World Conference

(WCHE) on Higher Education of UNESCO (2009; 2009), and the United Nations Organization for Education (1988), in which the following were praised highly: "social relevance", as well as the importance of reinforcing "innovation, interdisciplinarity and transdisciplinarity" in institutions, and "the recognition of teachers and students as the main actors (...)" (Tünnermann, 2010, p. 1), as well as the importance of reinforcing "innovation, interdisciplinarity and transdisciplinarity" in institutions, and "recognition of teachers and students as the main actors (...)" (Tünnermann, 2010, p. 1).32). All these are needed to guarantee the desirable teaching levels, extension, research and the CRES-UNESCO linkage (2009), and also to promote processes of internal evaluation and accreditation carried out by external bodies. Notwithstanding, these were linked to meritocratic logic, to financing and salary budgets, scholarships and institutional stimuli, programs and projects; originating the de-homologation of salaries (Izquierdo, 1998; López-Segrera, 2015), and converting economic compensations into income that does not impact retirement (Suárez & Muñoz, 2016).

All these transformations of HEIs in Latin America, characterized by the emphasis on government control through accreditations, privatization, the measurement of productive efficiency, institutional competitiveness and excessive links with private companies, have eroded the substantive principles of the university reform of Cordova Argentina 1918, referring to university autonomy, co-governance of all parties and free education, among others (Torres & Schugurensky, 2002); Díaz-Barriga, 2008; Taracena, 2011), which in turn has impacted on the working conditions and labor rights of university workers, even though they apparently have sufficient autonomy (Choi & Juárez-García, 2019).

It has frequently been pointed out that the policy of evaluating productive efficiency and academic performance in particular, has caused the current welfare crisis among university professors, as a consequence of the fact that these criteria are applied in the procedures both for their entrance and for their permanence in the HEIs, and by the fact that these evaluations are linked to their occupational hierarchy and their salary perception (Irigoyen & Martínez, 2015; Martínez, Martínez & Méndez, 2015; Martínez & Preciado, 2009).

Likewise, HEIs in the Latin American region have also been incorporated into the system of "scientific-academic indexes and rankings" organized by national and international accrediting bodies and whose central axis is "scientific productivity" (Muñoz, 2019 p. 438); which generates that academics become the backbone and sustenance of HEIs, increasing not only their demands and responsibilities, but also privileging individualism and competition among academics (Izquierdo, 1998).

Up to this moment, it is clear that all these policies aimed at HEIs have directly modified the work process of academics, affecting the diversification of roles and the increase of multiple academic activities and administrative burdens, the intensification of work and the prolongation of the daily workday they have to do to achieve productivity indicators and accreditation of educational programs, which in turn has impacted on the reduction of hours of rest and the time of family coexistence (Sánchez and Martínez, 2014); Gómez, Perilla and Hermosa, 2015) and also exposes them to a scheme of differentiating criteria, established by each evaluating body (Martínez, Tobón & Romero, 2017; Muñoz, 2019; Tünnermann, 2008).

According to Martínez, Vega, Nava and Anguiano (2010), being a university professor in Latin America, as an occupational activity, exerts a greater exposure to stress due to its function, social organization and demand, and according to Cladellas (2008), these below are among the common demands found:

"The volume of work hours, the pace at which work is carried out, the deadlines, the demands and time pressures imposed on the execution of tasks, the schedules that regulate work activity, the various time aspects related to attention, distraction and other factors that influence performance, or the organization and management of the time needed to carry out tasks (...)" (p. 239).

All these specific working conditions of the Latin American university professor are

translated into exposure to different psychosocial risk factors, characteristic of the position and of the organization (Gil-Monte, 2009; Millán et al., 2017); and it is indisputable that such circumstances generate detriment in the physical and emotional health, as well as in the quality of productivity and academic performance of university professors (Cisneros and Ramírez, 2009; Sánchez, 2017).

The effect of occupational psychosocial factors on illness depends largely on negative stress (Hernández, Ortega & Reidl, 2012; Juárez and Camacho, 2011), so it is important to define which psychosocial risk factors currently prevail as a result of the work of the university professor (D'Aubeterre, Álvarez & Ramírez, 2011) and how they are linked to functions and evaluation criteria, as well as to working conditions and quality of life in general (Olmedo, Delgado, López, Yañez, Mora, Velasco & Montero, 2013).

There are studies in Latin America that identify the presence and specific impact of psychosocial risk factors in the subjective reporting of distress, generalized anxiety, depression, and sleep disorders by academics (García & Muñoz, 2013; Sánchez & Martínez, 2014), however few still seem to have focused on the impact of more objective performance indicators or of medical illnesses that represent major public health problems, as is the case of the study by Heredia, Morales, Infante, Sánchez, Páez & Gabini (2018) in Ecuador, Balcázar-Rueda, Gerónimo, Vicente-Ruíz, Hernández-Chávez, (2017) in Mexico, or research by Wilches-Luna, Hernández, Chavarro and Bernal-Sánchez, (2016) in Colombia, to name a few, which demonstrate their relationship with cardiovascular diseases, diabetes, body mass index and inadequate lifestyles.

Notwithstanding, these scarce and isolated studies show the need to make a systematic and objective balance of the research available to date, which allows the identification of the magnitude and impact of psychosocial risk factors on the psychological (subjective indicators) and physical (objective indicators) health of university teachers, particularly in the Latin American region, where there is a marked use in the current literature.

Based on the abovementioned, the objective of this article was to conduct a systematic review of research to characterize occupational psychosocial risk factors and their consequences on subjective indicators and health objectives in university professors from Latin American Spanish-speaking countries.

Method

According to the process of conducting a systematic review (Riley, et al., 2019; Torres-Fonseca and López-Hernández, 2014), publications were searched under the following predetermined steps: 1) initially establish the search objective, 2) define reproducible inquiry criteria (keywords), 3) identify original studies, 4) choose articles describing the methodological design, and 5) present data analysis and interpretation.

The procedure was conducted by three reviewers independently, in the period from January 2014 to May 2019 in: PubMed, EBSCO, PsycINFO, PSICODOC, LILACS, MEDIGRAPHIC, IMBIOMED, Redalyc, Dialnet, Scielo and Doyma; which are databases of the most common scientific contents in Spanish that index journals with publications from the Latin American region.

The terms "occupational psychosocial risk factors", "occupational psychosocial factors", "evaluation", "health", "university teachers" and "university professors" were used, which were introduced directly or in combination for the identification of relevant publications, as well as to differentiate studies that were not the object of the present review (Figure 1).

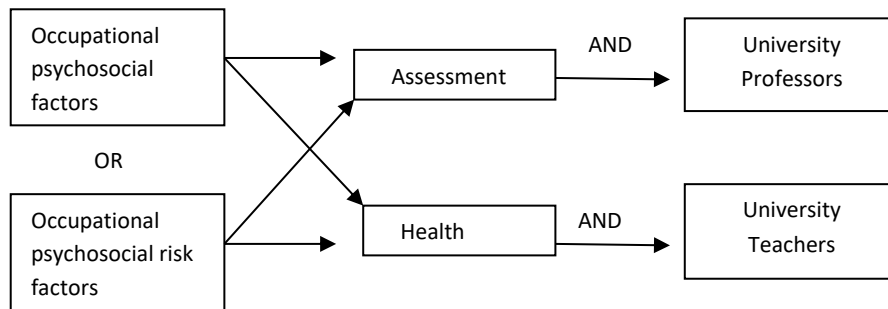


Figure 1. Key words and boolean operators used in the search for publications.

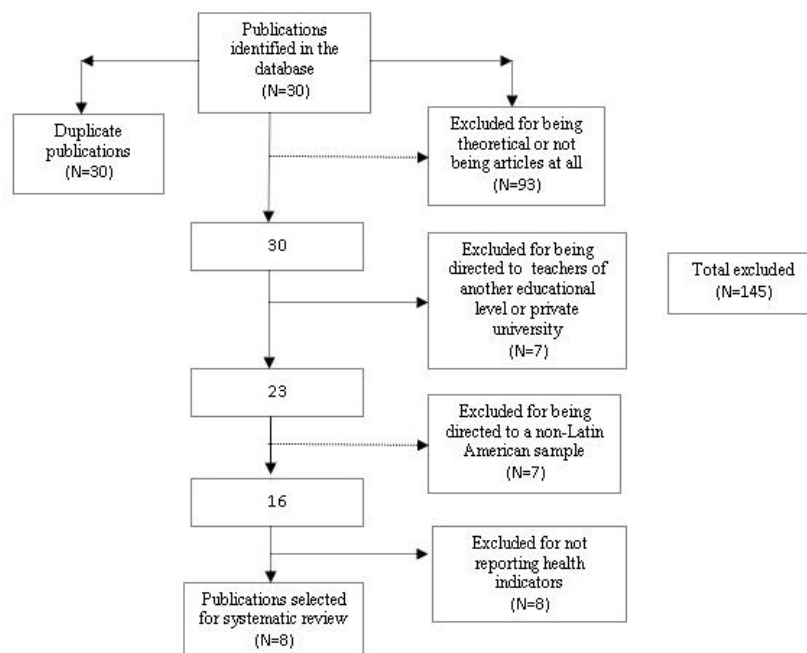
Selection of documents

The articles were selected using a first filter that corresponded to the fulfillment of the following inclusion criteria:

- Original empirical articles published in scientific journals and arbitrated five years earlier at the start of the review (2014-2019).
- Publications showing that the studies were carried out with samples from Latin American Spanish-speaking countries.
- Full texts presenting the results of studies aimed at higher education professors from public institutions in some Latin American countries.
- Articles that included in their data collection method, health evaluations by self-report (subjective) and biological markers or objective indicators to identify the health status of university professors.
- Articles published in Spanish.

Exclusion criteria that were established:

- Theoretical articles
- Teachers other than high school or private school teachers
- Duplicate publications
- Summaries of congresses, theses or papers.



Selection process of the articles included in the review

Methodological quality of the publications

First, the content of the publications was coded according to the information descriptors proposed by Jensen et al. (2011) which are: title, abstract, author, year of publication, study design, sample characteristics, country, prevalence and descriptive of health variables (e.g. anxiety, blood pressure, among others), and relevant findings.

With the data encoded in a database, and to ensure the quality of the publications, the content of the articles was examined, using the standard 22-point guide comprising the Strengthening the Reporting of Observational studies in Epidemiology Declaration (STROBE) (Von Elm et al., 2008).

Each of the topics in the guide was assigned a dichotomous answer (yes or no) to record whether or not the revised article included that criterion. The maximum score for assessing methodological quality was 22 points.

In a third moment, a fourth reviewer verified the information contained in the database. Discrepancies were solved by holding different meetings with the evaluators in order to collate the information and ensure 100% agreement.

Results

The data for each publication are summarized in Tables 1 and 2. Eight publications were selected and included in their sample university professors from public HEIs in Spanish-speaking countries in Latin America. The number of research participants ranged from 30 to 248 and included a total of 765 university professors. In relation to socio-demographic data, only in three of the investigations the age of the participants was reported (studies: 4, 6 and 8). The percentage of men (44.6%) and women (55.4%) is described in seven of the eight studies (studies: 1, 2, 3, 4, 5, 6 and 8). Most of the research that was chosen was conducted in Mexico (87.5%), followed by one from Colombia (12.5%).

Scope of the investigations

The publications selected for the present review responded to the eligibility criteria; however, there is variability in the methodological aspects for evaluating the health of university professors as a consequence of the working conditions of public HEIs (Table 1). 100% of the studies are quantitative, observational design and cross-sectional. The description of the content of the procedures and instruments for data collection (self-reports or biological markers) varied according to the objective and size of the sample.

Table 1.
Description of demographic data, design and sample of studies

No of study	Type of sampling	Total sample size	Type of study (design)	Instruments	Age range	Average age	Women %	Men %	STROBE Score
1	By invitation	46	*	Beck's Anxiety Inventory Digital Exam "Selective Palpitation of a Muscle"	*	43.7	37 (80.43%)	9 (19.56%)	16
2	Convenience	30	Cross-sectional and descriptive study	Biomarkers of Risk Factors for Hypertension and Diabetes Mellitus type II	*	47.43	24 (80%)	6 (20%)	17
3	Stratified random	68	Cross-sectional descriptive	Non-transmissible chronic disease risk survey Metabolic biomarkers	*	36.15	42.6%	57.4%	19
4	Convenience	109	Cross-sectional descriptive	Descriptive scale of perceived stress (CSI) and the instrument of psychosocial factors in academic work (FPSIS)	25 to 65+	*	*	*	20
5	Convenience	95	Cross-sectional observational	Epidemiological type survey to collect Demographics information, working conditions, demands, implications of participating in economic stimulus programs and health damage	*	53.2	54%	46%	17
6	*	68	Cross-sectional explanatory	Socio-demographic and labor Questionnaire Questionnaire of psychosocial factors in Academic Work (FPSIS ACADÈMICOS). Inventory of Violence and Psychological Harassment in the Workplace (IVAPT). Health General Questionnaire.	32 to 66	50	47.1%	52.9%	22
7	Non-probabilistic	101	Correlational range	Cohen's perceived stress scale Teacher Burnout Questionnaire Magisterial Performance Evaluation	*	45.8	67.8%	32.2%	18
8	Probabilistic	248	Cross-sectional	Demand control of Karasek.-Theorell	40 to 60+		130 (52.4%)	118 (47.6%)	18

The table shows the description of the data included in the publications and how the authors describe them.

*Not reported by the authors,

Most of the evaluations explored the psychosocial risk factors of the academic work environment, while three of the investigations had a primarily medical focus (studies: 1, 2 and 3); in two of the investigations the evaluations of biological markers were reported to identify physiological symptoms in university professors (e.g. myofascial pain and blood pressure) and in another, the prevalence of Chronic Non-Transmissible Diseases (CNTD) was described, determined by self-report and metabolic indicators. Research involving psychological evaluations included measurements of stress (studies: 4 and 7), anxiety (study: 1), burnout (study: 7), among others (e.g. Karasek demand/control, study: 8). At the same time, instruments were applied to identify psychosocial factors in the particular working conditions of university professors (studies: 4, 5, 6 and 7) and violence and psychological harassment (study: 6).

Also, with the STROBE Initiative Statement verification guide (Von Elm, et al, 2008) of 22 points for observational studies; each study was assigned a score for the methodological description reported in the publications, which ranged from 16 to 22 points (Table 1); three of the eight publications did not detail the methodology for sample selection (studies: 6, 7 and 8); others did not sufficiently describe the socio-demographic data of the sample (p., p., p., p.). e.g. sample age, studies: 1, 2, 3, 5 and 7). Four of the eight publications do not report sample size calculation (studies: 1, 5, 7 and 8); however, six of the studies reported that the type of sampling they conducted was non-probability (studies: 1, 2, 4, 5, 7 and 8).

The context/foundation score varies depending on whether the effects are explained on the basis of psychosocial factors at work (e.g. study 5); or whether only indicators of the health of university professors (like any sector of workers) are evaluated within the framework of medicine/public health (e.g. study: 2).

Four of the eight studies (4, 5, 6 and 7) provided precise details on psychosocial factors at work that are related to health problems such as long working hours, in which they reported that university teachers work more than 40 hours per week, and that they work on their days off or holidays, factors that were associated with musculoskeletal disorders.

Likewise, the presence of stress due to working conditions was related to the type of career, work demands, organizational aspects, lack of social support (between peers and bosses), dissatisfaction with rewards (salary) and lack of recognition to activities derived from scholarship programs they belong to and/or work stimulus. In addition, when stress was at high levels for prolonged periods, it was associated with sleep disturbance, anxiety, dysphonia, fatigue and cardio-metabolic indicators.

Finally, it is important to point out that although there is not enough information on the negative effects on the physical and emotional health of academics generated by reforms to public education policies, the present publications show evidence on the impact of changes in working conditions at public HEIs in Latin America; therefore, it is necessary to continue studying psychosocial risk factors in the work of the university professors.

Characterization of risk and health factors.

The purpose of this study was to investigate the state of the art of research on the effect of psychosocial factors in the work of teachers of Public Universities in Latin America (Table 2). According to the results of the review, the factors that contribute to the development of the disease are: age, sex, lifestyle, hereditary diseases, in addition to the interaction with a precarious work environment. In this sense, some authors point out that working conditions, as well as the rhythm of life and, at the same time, a chronic negative emotional state, play an important role because they are risk factors for health (Fernández et al., 2018; Martínez-Hernández, Enríquez, Moreno-Moreno and Martí, 2007).

With respect to variables determined by occupational psychosocial factors, publications highlighted that university professors perceive workload, participation in stimulus programs (study: 4 and 8), type of contract with the institution (labor relationship) (studies: 1 and 6), long working hours (study: 4), performance of administrative and technical activities (study: 4 and 5), difference by area of knowledge (e.g. type of career) (study: 1) as risk variables.

In relation to the prevalence of health variables they are: anxiety (studies: 1 and 5), myofascial pain (study: 1), stress (studies: 4, 7 and 8) and hypertension (studies: 2 and 3), among others. Among the conclusions of most of the publications, they pointed out the limitations for the size of the sample to be conclusive in the results.

Table 2.*Description of the results described in the publications*

Database of the Article	Authors, Country	Title	Main prevalence
(1) Psyinfo	García, C., Félix, R.O, Mercado, S.M., Sabag E., García, R, Mejía, D. y Casanova, A.P. (2018). México	Association between the myofascial pain syndrome and the anxiety symptoms in higher education professors.	Anxiety and myofascial pain showed a significant low correlation between variables ($r = 0.51$, $p < 0.000$). In relation to subgroups by type of contract, the correlation was significantly low between the two variables ($r = 0.53$, $p = 0.04$) with teachers on annual contracts ($r = 0.37$, $p = 0.059$) with floor teachers, ($r = 0.84$, $p = 0.069$) with assistant teachers. In the career type subgroups (Psychology, Administration, Education and Accounting and Finance) a high significant correlation between the two variables ($r = 0.70$, $p = 0.03$) was indicated in teachers of the Accounting area, a moderate significant correlation between both variables ($r = 0.62$, $p = 0.008$) in teachers of the Psychology area, but not in the other careers.
(2) Mediagraphic	Macías-Hernández, J. C. , Alcantar-Carrillo , O. E., M. G., Kasten-Monges M. J., y Cambero-González, E. G. (2018) México.	Risk factors for Systemic Arterial Hypertension, Diabetes Mellitus Type 2 in the teaching staff from one of the departments of University center for Health Sciences in Guadalajara. February-May, 2016.	The study reported that most of the 30 teachers are overweight; among the findings it was determined that 73% do not exercise, 36.7% of them have a diet with low nutritional value and high caloric content. 73.3% have indicators of risk factors for DM2. 63.3% expressed feeling stressed, a variable that correlates with systolic and diastolic AT. Finally, as high correlation was observed between metabolic indicators, sedentary or hereditary family antecedents and lifestyles, increasing the risk to develop DM2 and HAS.
(3) Mediagraphic	López, J. A., Tenahua, I. Xicali, N. , Morales, F. A., Torres, A. y Posadas, G. (2017) México.	Prevalence of cardiovascular risk factors in university academics from a public institution in CUCS. University of Guadalajara, Mexico	In the prevalence of personal cardiovascular risk factors, a prevalence for overweight of 42.6%, obesity 17.6%, hypercholesterolemia 35.3%, smoking 11.7% and diabetes mellitus 8.8% was evidenced. In relation to the lifestyle of academics, 64.7% of participants did not engage in physical activities and remained seated on a working day up to an average of 5.09 hours per day.
4 Mediagraphic	Rodríguez-Vega, M.C., Preciado, M. L., Aguilar-Alderete, M. E., Aranda-Beltrán, C., León-Cortés, S., y Franco, S. A. (2018) México.	Causes and situations that have an incidence on work stress of the professor from Oaxaca.	In relation to working conditions, it was identified that teachers have a working day of 11 to 20 hours dedicated to teaching and administrative activities and 21 to 30 hours per week to research. The prevalence of stress in teachers is 82.6%. The psychosocial factors that favor stress are workplace conditions (95.4%), social interaction and organizational aspects (72.5%) and workload (66.1%).
5 Redalyc	Sánchez, C., y Martínez, S. (2014). México.	Working conditions of university professors, satisfaction, work demands and health damages	The analysis showed 54% of academics work more than 40 hours a week. 66% participate in stimulus programs and 52% acknowledge that administrative procedures challenge teaching time. According to labor requirements, they must cover a certain number of courses, workshops, classes, articles and conferences (77%), perform pending work during hours and days of rest or vacations (71%), remain seated most of the time (69%). There were some disorders, distress (38%), sleep disorder (33%), anxiety (34%), dysphonia (28%) and a quarter showed musculoskeletal disorder, fatigue and low back pain. Those who work longer than 40 hours a week may have musculoskeletal disorders ($p < 0.008$) such as low back pain ($p < 0.008$) and fatigue ($p < 0.02$); while sitting most of the time may trigger distress ($p < 0.008$) or anxiety ($p < 0.008$).
6 Redalyc	Acosta-Fernández, M., Parra-Osorio, L., Restrepo-García, J., Pozos-Radillo, B., Aguilera-Velasco, M., Torres-López, T. (2017). Colombia.	Psychosocial conditions, violence and mental health in medical and nursing teachers	The presence of negative psychosocial conditions (medium level, 66%) was associated for both nursing and medical careers, with a high probability of presence of violent situations and behaviors ($p < 0.000$). With respect to the Academic FPSIS, labor requirements (44.1%) and remuneration for performance (20.6%), in addition to dissatisfaction and dissatisfaction with salary, stand out. Psychosocial factors such as psychological harassment are among the conditions with the greatest negative effect.
7 Redalyc	Cárdenas, M., Méndez, L., y González Ramírez, M. (2014) México.	Remuneration for performance, stress and burnout in university professors.	A significant negative correlation was found between lack of achievement and change in teacher performance ($r = -0.446$; $p = 0.003$). The correlation between the two aspects of institutional organization, supervision, and organizational conditions, with change in teacher performance, indicated that, as more institutional disorganization is perceived, teacher performance worsens ($r = -0.361$, $p = 0.019$, and $r = -0.308$, $p = 0.047$), respectively.
(8) SciELO	Palacios, M. E, y Montes de Oca, V. (2017). México.	Working conditions and stress in University Academics	Of the total sample, 76% participate in the Academic Performance Bonus Program (PRIDE) and 34% belong to the National System of Researchers (SIN). The score showed that 62% considered that they had some control over their work. Similarly, 65% reported high demands or demands and 55% had the support of bosses and colleagues. 19.4% of the total number of academics had high tension or stress at work, as a result of the combination under control and high demand. Regarding biological markers, 40% reported that they had high cholesterol and 32% triglycerides above normal limits.

Discussion

The objective of this article was to conduct a systematic review of research in order to characterize occupational psychosocial risk factors and their consequences on subjective indicators and health objectives for university professors from Spanish-speaking countries in Latin America. A first interesting finding to discuss is the limited presence of previous studies, as the review only reached eight investigations. This confirms the need for more empirical research in this respect, since most of the articles were excluded because of their merely theoretical approach, which prove to be important, but need to be balanced with empirical evidence.

Likewise, the inter or trans-disciplinary vision also seems limited, since studies that include objective health indicators or bio-markers are still few, and these latter serve to understand in a more integral way the complex processes of stress and the effects on the health and illness process of university professors. This is a contribution to the present review, which overcomes previous reviews that only address the psychological-subjective approach to stress or burnout (Diehl & Marin, 2016; Gardner, 2010; Watts & Robertson, 2011).

The results also make it possible to identify the future need to improve the quality of research, since even the selected studies that passed through filters had non-experimental (observational)-cross-sectional designs, and with samples selected for convenience that did not exceed 110 participants (in 7 of 8 studies), which distances us from conclusions or causal interpretations about the relationships found and their generalization to the population.

However, the present review of the selected studies confirms the presence of occupational psychosocial factors of university professors and their relationship with damage to their health at both subjective and objective levels.

Above all, the review shows the presence of psychosocial stressors such as type of career, type of contract, workload, long hours, aspects of organization, lack of social support (between peers and bosses), dissatisfaction with rewards (salary), lack of recognition and demands derived from being enrolled in a scholarship program, and/or work stimulus. These stressors are clearly linked to the working conditions created by the recent institutional policies aforementioned, where priority is given to individual scientific productivity based on competitiveness indicators, accreditation and other bureaucratic initiatives. In addition, in the selected studies, when stress is at high levels for prolonged periods in university teachers, this is associated with sleep disorders, anxiety, dysphonia, fatigue, myofascial pain, high blood pressure and cardio-metabolic indicators.

The sum of this type of evidence contributes to promote the need to favorably transform existing processes in order to lessen the negative effects of the work environment of university teachers; therefore, promoting strategies to develop public policies and programs for generating conditions that improve the structure of the Public University - University Professor, a relationship that has shown particularly in Latin America the lag in progress in compliance with the rules and recommendations regulating Occupational Safety and Health issued by international organizations. Hence, the need to implement prevention and welfare promotion programs of university teachers, regardless of the progress in research.

It is necessary to generate policies that do not interfere with the autonomy of HEIs, but at the same time prevent them from reducing or eliminating the shared responsibility for such effects, with accrediting bodies and evaluators of indicators who base their policies on administrative-financial schemes besides "the participation of different social actors in the definition of educational priorities and policies, as well as in their assessment" (Regional Conference on Higher Education in Latin America and the Caribbean, [CRES] 2009 p.96). The review confirms that there is little information on research directed at university professors in Latin America that addresses occupational psychosocial risk factors and their effects on the university academic sector, which according to Cisneros and Ramírez (2009) constitutes a priority, i.e.: to further investigate the interactions of working conditions and particular

psychological demands to which the university professors respond, since this will make it possible to identify the mechanism of occupational diseases, their costs and implications for the fulfillment of their educational mission. It is also necessary to identify more specific psychosocial risk factors of this sector, and to incorporate some variables that correspond to the particular functions of the academics of Latin American Public Universities, with the purpose of creating a precedent on the mechanisms that provoke the deterioration of the health of this educational sector.

The interest of public Higher Education Institutions has been maintained in the continuous creation and verification of compliance with indicators (Carot, 2012), which do not consider the specific conditions of each country and the current reality faced by academics. The eight selected publications contribute to the issue of the effects of the permanent exposure of the occupational psychosocial risk factors of academics at the higher education level; however, the scope and methodological limitations of the research still do not answer a fundamental question: what is the cost of institutional academic excellence and compliance with productivity indicators putting at risk the psychosocial integrity of university professors? For this reason, more future research is suggested to include prospective designs, as well as the evaluation of biological and psychological markers, to explain which risk factors affect physical and emotional health.

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