

# Burnout syndrome in Mexican population: A systematic review

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Original article

## SUMMARY

The growing number of publications on the subject of burnout syndrome suggests this is the most widely researched psychological work-related condition in the last decades. It is important to review the state of the art in this phenomenon and to examine the challenging dimension that it has reached. Therefore, the general objective of this paper was to carry out a systematic review of the published scientific literature in order to characterize the burnout research in Mexico.

### Method

A search was performed in 12 databases, including Latin American journals. All the existing articles up to July 2012 were taken into account and five criteria were defined so as to assure the comparability among the studies. Meta-analyses were made on the averages of the burnout dimensions and on the Cronbach alpha coefficients reported.

### Results

Sixty-four studies were selected (n=13 801 employees); most of them were from health professionals and more than half were collected in Jalisco and Mexico City. The methodological analyses revealed that more than 90% of the studies were observational/cross-sectional designs, and most of them with data analyses that may be vulnerable to the effect of confounding variables. A remarkable finding was the huge heterogeneity in the criteria used to determine the prevalence of burnout. The meta-analyses in 14 selected studies showed average burnout symptoms values of "once a month or less" within the frequency scale.

### Discussion

The general balance of this review shows that the research on burnout in Mexico still has areas of opportunity. It is necessary to broaden the range of occupations and regions, to improve the methodological designs and the information analyses, and to ensure the used scales have good psychometric properties. Some recommendations for future research are offered.

**Key Words:** Burnout, MBI, Mexico, psychological stress, systematic review.

## RESUMEN

El creciente número de publicaciones que abordan el tema del síndrome de *burnout* sugieren que se trata de la afección psicológica-laboral más investigada en las últimas décadas. Resulta importante valorar el estado del arte de este fenómeno y ubicar en su justa medida la dimensión problemática que ha alcanzado. Por ello, el objetivo general de este trabajo fue realizar una revisión sistemática de la literatura científica para caracterizar la investigación sobre el síndrome de *burnout* en México.

### Método

Se realizó una búsqueda en 12 bases de datos considerando las que incluyen revistas latinoamericanas. Se examinaron todos los artículos existentes hasta el mes de julio de 2012 y se definieron cinco criterios que aseguraran la comparabilidad entre los estudios. Se realizaron metaanálisis en los promedios de las dimensiones de *burnout* y los alfas de Cronbach reportados.

### Resultados

Sesenta y cuatro estudios fueron seleccionados (n=13 801 empleados), los que en su mayoría se concentran en profesionales de la salud y poco más de la mitad en el Estado de Jalisco y el Distrito Federal. La revisión metodológica evidenció que más de 90% de dichos estudios son de diseño observacional-transversal y la mayoría con niveles de análisis que pueden ser vulnerables al efecto de variables confusoras. Destaca el hallazgo de la gran heterogeneidad existente en criterios para determinar la prevalencia. Los metaanálisis en 14 estudios seleccionados arrojaron valores promedio de "una vez al mes o menos" en la escala de frecuencia de síntomas de *burnout*.

### Discusión

El balance general de la presente revisión muestra que la investigación del *burnout* en nuestro país tiene aún áreas de oportunidad. Es necesario ampliar el abanico de ocupaciones y regiones, así como mejorar los diseños de investigación, de análisis de información y asegurarse de las propiedades psicométricas de escalas utilizadas en su evaluación. Se sugieren recomendaciones para investigación futura.

**Palabras clave:** *Burnout*, MBI, México, estrés psicológico, revisión sistemática.

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Received first version: October 3, 2012. Second version: November 29, 2013. Accepted: January 22, 2014.

## INTRODUCTION

Entering "job burnout" in the Google search engine shows 273 000 documents, revealing the great interest this topic has generated. In English, the term "burnout" is a metaphor that is commonly used to describe a process or a state of exhaustion, weakening or consumption of energy, analogous for putting out a fire or extinguishing a candle.<sup>1</sup> Translating this term into Spanish has been unsuccessful, as there have been found up to 19 different names for the same phenomenon.<sup>2</sup> To date there is no universal agreement on its translation, therefore, the original English word ("síndrome de burnout") is commonly used, trying to avoid confusion with other psychological phenomena.

The Word burnout is not new. Schaufeli and Buunk<sup>1</sup> quote the case of *The Passionate Pilgrim*, a book commonly attributed to Shakespeare, which, since 1599, refers to the "burned with love, as straw with fire flameth": *burned-out love*. As an occupational-psychological aspect, the origins may be traced back to the study of low morale and depersonalization of the psychiatric nurse *Miss Jones* published in 1950 by Schwartz and Will,<sup>3</sup> or Graham Greene's *A Burnt-Out Case* (1960) novel, which describes the story of a psychologically troubled and worn out architect.<sup>4</sup> Soon after, in 1969, Bradley<sup>5</sup> quotes the *staff burnout* concept as a risk in a community program staff to treat delinquent adolescents. Although in the 1970s Ginsburg<sup>6</sup> published *The problem of the Burned out executive*, to Freudenberger<sup>7</sup> is who is often attributed the "discovery", because he refers to a clinical syndrome affecting him and his colleagues who served victims of addictions; therefore, he defined it as a state of deterioration of energy, loss of motivation and commitment, accompanied by a wide range of physical and mental symptoms.

Since 1976, Maslach became the main reference of the subject, after bringing this concept from a medical-clinical model to a psychosocial model. Maslach provided an operational and multidimensional definition of the construct, created an instrument to measure it (the Maslach Burnout Inventory, MBI) and, in general, achieved a more empirical approach that allowed to demonstrate the association of this phenomenon with multiple indicators of health and functioning in everyday and working life.<sup>8,9</sup>

The definition of Maslach and Jackson<sup>10</sup> is perhaps the most cited one: "Burnout is a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur among individuals whose work object is other people".

Schaufeli, Leiter and Maslach in their last review, after 35 years of the issue,<sup>11</sup> conclude that the definition of burnout in scientific literature varies depending on the context, scope, accuracy, and even on the intentions of the user. However, they concluded that all agree on five aspects:

1. Dysphoric symptoms predominate, mainly the emotional exhaustion, although not the only one (a syndrome involving negative aspects).

2. The emphasis is on mental and behavioral symptoms rather than on physical ones (psychic).
3. It is a work-related phenomenon (occupational).
4. Its symptoms are observed in "normal" and not pathological individuals (it is a psychosocial disorder, but not necessarily a disease).
5. There is a decrease in the job effectiveness and performance due to negative attitudes and behaviors this implies (it affects productivity).

In this context, the detection and evaluation of this syndrome is a priority, so it is not surprising to find a wide variety of instruments for measuring it. It has been unanimously said that the Maslach Burnout Inventory (MBI) is the most widely used instrument, according to some people, up to 90% of the research generated in this subject.<sup>12</sup> However, it has had certain criticism.<sup>13,14</sup>

The MBI has three official versions: The MBI Human Services Survey (HSS), for human service professionals (22 questions), the MBI Educators Survey (ES) that simply replace the word *students* with the word *patients*, and the MBI General Survey (GS), a new version for use on any type of occupation (16 questions).<sup>15</sup> In Mexico there are only two MBI HSS studies of psychometric validity that point out, at least partially,\* a certain efficacy of the scale in Mexican population.<sup>16,17</sup>

In general, the interest expressed in publications, papers, theses and books on this subject has been increasing in the last decade both in the national and international level. It is therefore important to assess, from the scientific point of view, the state of the art of this phenomenon, but not only based on narrative reviews, but on deep analytical approaches, on objective statistical estimates and on clear methodological rules, such as systematic reviews and the so-called meta-analysis,<sup>18</sup> which have also been used to determine overall prevalence of psychological variables.<sup>19</sup>

On the international level, there are previous systematic reviews and meta-analyses regarding the burnout syndrome. They point out, among other things, that the emotional exhaustion and depersonalization are the core constructs of the syndrome and they respond better when associated to different working consequences,<sup>20</sup> that such constructs correlate consistently,<sup>21,22</sup> that there is a wide heterogeneity in the estimates of reliability,<sup>23</sup> and that there is also a great heterogeneity in how to operationalize the construct and in how "diagnostic criteria" are conducted, which prevented the realization of the meta-analytic statistical estimates.<sup>24-26</sup>

After almost 20 years of the first publications in Mexico on this theme,<sup>27,28</sup> it is necessary to make an objective assessment on the state of the art, as it should be located in perspective the problematic dimension of this phenomenon in Mexican workers.

\* Some items present ambiguity and the factor of depersonalization shows marginal internal consistency.

Thus, the overall objective of this systematic review was to characterize the research on burnout syndrome in Mexico through the demographic specification of locations, sectors, groups or occupations where it has been studied, the identification of levels or prevalences, the associated variables and the scope of the methodology used for its investigation.

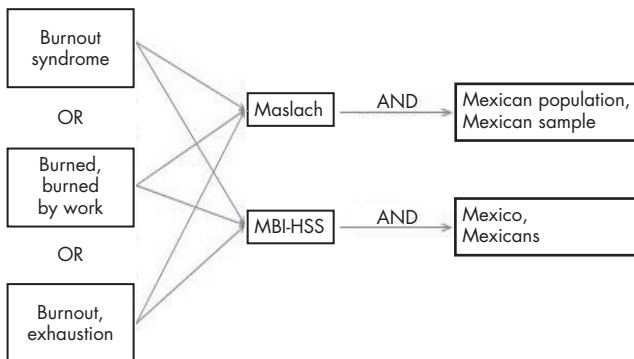
## MATERIAL AND METHODS

### Systematization of data search and collection

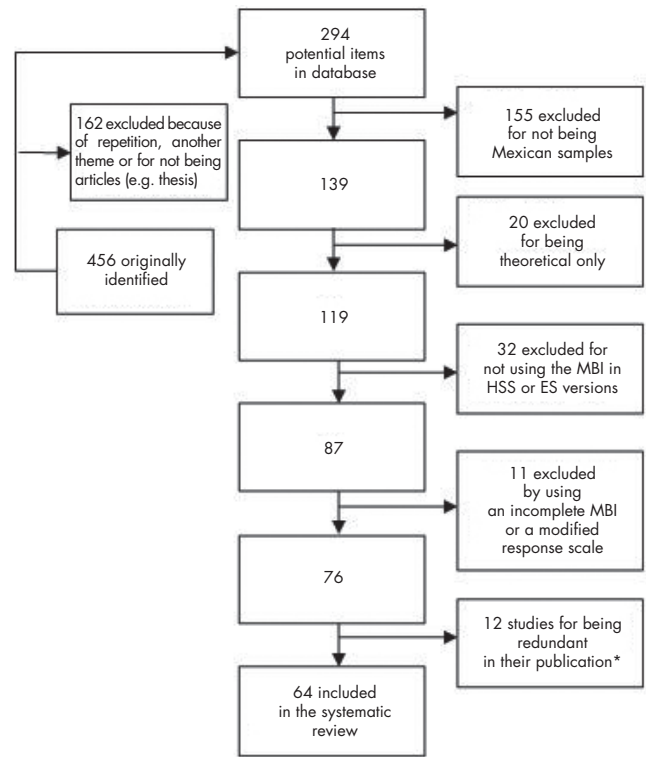
In a first step, to identify relevant studies for this analysis, the search included all existing publications as of July 18, 2012 in the following databases or indexes: PUBMED, EBSCO, PSYCOINFO, PSICODOC, LILACS, MEDICGRAPHIC, IMBIOMED, REDALYC, DIALNET, SCIELO, DOYMA and BIBLIOTECA VIRTUAL EN SALUD (IBECS) (VIRTUAL HEALTH LIBRARY). This search strategy was adopted because we knew *a priori* that many Mexican studies were published in journals included only in Spanish or Latin American databases and not just in the prestigious ones.

The initial search was conducted by three reviewers independently, using the title and multiple keywords and their combination, as shown in Figure 1.

In a second step, after the initial inquiry into the databases, a manual search or review of the previously identified articles (summary and full text) was performed by the same three reviewers, who verified the criteria specified. Instead of determining the interrater reliability, we chose to fully ensure the relevance of the articles, so that in every step meetings were held with the purpose of analyzing similarities and differences until fully validating the relevance of each article. The determined inclusion criteria were the following: 1. Full text research articles in journals including peer review and editorial committee approval (neither theoretical reviews, nor thesis, nor papers, nor memoirs). 2. Studies conducted strictly in Mexican samples tested in



**Figure 1.** Combination of boolean terms and keywords used in the search for information.



\* Note: They were considered redundant when samples coincided in occupational group, sample size and demographic factors.

**Figure 2.** Selection process of articles included in the review.

national territory. 3. Studies using the Maslach Burnout Inventory (MBI) HSS or ES version of 22 questions. 4. Studies keeping the original seven response options ranging from 0 (never) to six (every day). 5. In general, that the MBI had not been significantly modified, either regarding the number of questions or response codes. Such criteria sought to ensure comparability among studies.

As part of this manual search, all articles that were repeated in the different databases or selected indexes were excluded. Figure 2 shows the articles located throughout the process described above.

Finally, in a third step, from each of the articles information about authors was extracted as well as several characteristics of the sample studied such as: size, occupation, age, gender and geographical area, as well as prevalence and descriptive statistics of the scale, indicators of internal consistency (Cronbach's alpha), cutoff points used, origin of the Spanish translation of the scale used, study design and main variables associated with the burnout syndrome or its components (professional exhaustion, depersonalization and reduced personal accomplishment). With this information the analysis and characterization of the samples studied, the methodological approach, and the associated variables were applied and, where possible, meta-analyses were estimated to identify burnout levels and internal consistency indexes in the selected studies.

## RESULTS

With the procedure described above, 64 articles that met the inclusion criteria were identified to carry out the systematic review.

From the 64 selected studies, it bears mentioning that an increasing trend of publications since 2002 was found, and 2009 was the year with the highest number of articles (16) (Appendix A).

### Sample characterization

In all, the 64 studies totaled an assessed population of 13 801 employees from various work centers in several states of the country. In short, the most studied occupations are health professionals, particularly physicians and nurses, representing 19.3 and 17.9%, respectively. Nevertheless, if we also consider those studies where several health professionals working in hospitals were evaluated in combination, they amount to 7,102 persons in the selected studies.

Beyond expectations, the proportion of teachers was low (11.25%) compared to samples found of health professionals.

The geographical areas of the evaluated samples reveal that in much of the country the burnout syndrome has been investigated. However, no studies were found in states such as Campeche, Chiapas, Guerrero, Aguascalientes, Tlaxcala, Zacatecas and Tamaulipas. Samples of Jalisco (particularly

from Guadalajara) are the most studied (28.12%), followed by those of Mexico City (26.56%).

The populations studied show a balance in terms of gender, since, on average, 52% of the samples tested are women, although seven studies did not mention this. Regarding age, an average of 36.87 years was obtained in the 49 studies that described this factor.

### Methodological approach of the research

Table 1 breaks down accurately several aspects that may characterize burnout research in Mexico.

It is worth noting an important finding in this review that involves criteria specified in the articles for the cutoff points that determine the traditional categorization of low, medium or high burnout levels, or its dimensions. Regarding the criteria for cutoff points by component (emotional exhaustion, depersonalization and reduced accomplishment), the review found that from the 47 studies describing these prevalences, 12 does not specify the used criteria, and in the 35 studies that does specify such criteria, 10 different cutoff points were found to locate the degree of involvement in each dimension (Table 2). Regarding the criterion corresponding to the determination of the global burnout syndrome, from the 46 studies mentioning a total prevalence, only 33 report the used criterion, and there were up to eight different criteria to consider that one person had the burnout syndrome or that he/she was a "case of burnout".

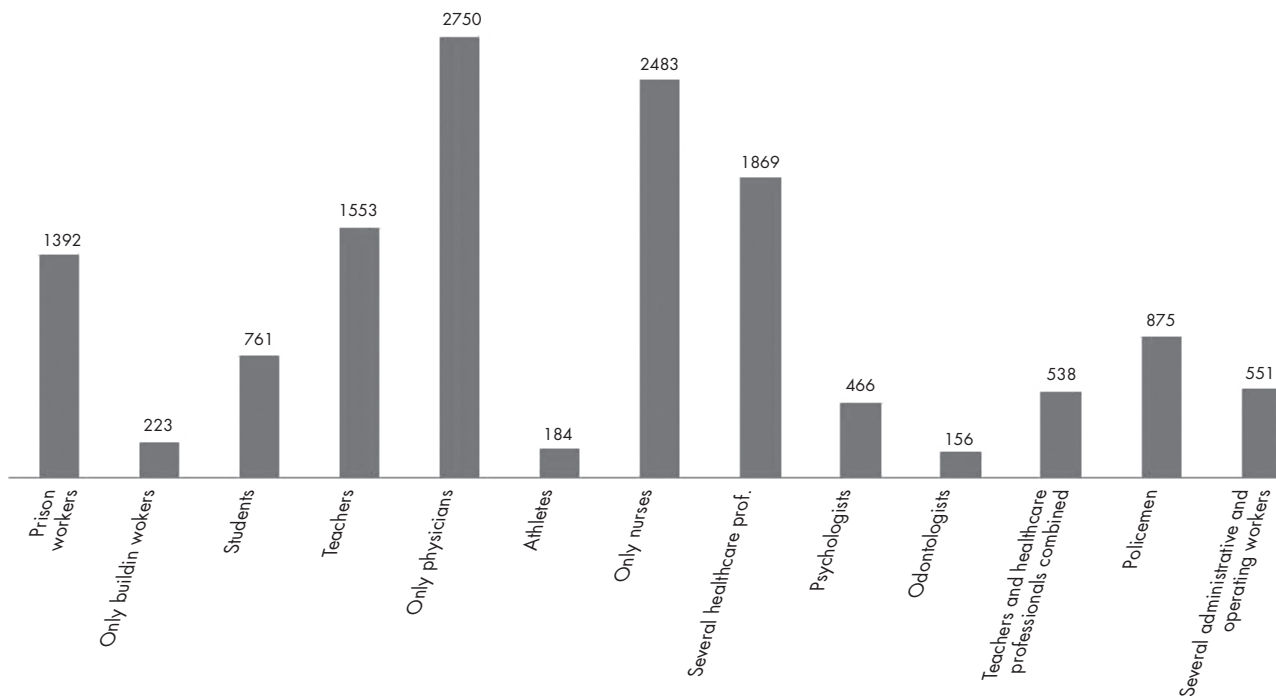


Figure 3. Number of employees by employment in selected studies.

**Table 1.** Methodological approaches of the selected studies

Criterion	Comments
Articles published in a high-impact journal (ISI)	Only 20.13% of the articles (13) were published in such journals. Only 3 were published in English.
Design and scope of research	93.75% are studies with observational, cross-sectional and analytical design. Only 4 (6.25%) are intervention or experimental studies. There was no follow-up or longitudinal study (0%).
Considerations for using the scale (validity, internal consistency, origin, adaptation or translation into Spanish)	60 studies (93.75%) assume the psychometric validity of the scale and only 4 studies perform some additional factor analyses. 57 studies (89.06%) assume the internal consistency or reliability of the scales of the inventory; only 7 calculate it. As for the origin of the Spanish scale used, 32.81% (21 studies) did not mention origin, 17.18% (11 studies) cited the English manual or studies conducted by Maslach <sup>10</sup> , 14.06% (9 studies) cited the validation of the General Survey (GS) version of Gil Monte in 2002 <sup>29</sup> ; 7.81% (5 studies) cited the Catalan version of Ferrando and Pérez in 1996 <sup>30</sup> , and in the same proportion versions of Gil Monte and Peiró were cited in 1997 <sup>31</sup> , and the one of Seisdedos in 1997 <sup>32</sup> . 2 studies cited the version of Mingote and Pérez in 1999 <sup>33</sup> and 1 study cited the version of Gil Monte and Peiró of 1999 <sup>34</sup> and another one cited the Moreno-Jiménez, Oliver-Hernández and Aragonés version in 1991 <sup>35</sup> . Only 4 studies (6.25%) cited a validation in a Mexican sample.
Multivariate analysis	Only 12.5% (8) of the studies used multivariate statistical analyses that allow considering or controlling the potential effect of confounding variables in the relationship of Burnout with health consequences.
Specification of average values, variability and prevalence	Only 21.87% (14) of the studies indicate the average values for the subscales of the MBI (emotional exhaustion, depersonalization and personal accomplishment) and only 10.93% (7) of the studies report their measures of variability or standard deviation. 73.43% (47) of the studies point out the prevalence obtained in each component of Burnout, and 71.87% (46) report the overall prevalence of the syndrome.

### Meta-analysis of burnout levels and internal consistency

Given the vast heterogeneity in the criteria described above, the only possibility to compare and make a meta-analytic estimate of the burnout levels is in the consideration of continuous and numeric values of the scores on each subscale, being in fact the original recommendation in the same MBI HSS manual: "It is strongly recommended that the original numerical scores are used rather than categorizations of low, medium and high..."<sup>10</sup> Thus, those studies that specified the average values in the burnout dimensions (n=14) were selected and levels were estimated according to the methodology described by Danesh, Appleby and Peto,<sup>36</sup> i.e., the prevalences of the different studies were combined by direct sum of the numerators and denominators. Also, heterogeneity indexes<sup>37</sup> were calculated getting the I<sup>2</sup> values 99.7, 98.3 and 99.9% for emotional exhaustion, depersonalization and personal accomplishment, respectively.

The overall average emotional exhaustion in the frequency scale based on the response options is 2.06, close to the value 2, which in the scale is equivalent to the fact that symptoms are perceived "Once a month or less"; in the case of depersonalization was 1.46, close to the value 1, which means "a few times a year or less"; and, finally, the personal accomplishment, which being a positive variable, it had an average value of 4.87 that is between the values 4 ("once a week") and 5 ("several times a week") (Figure 4).

Regarding the internal consistency or reliability, from the only seven studies specifying this, the weighted average value was 0.86 for emotional exhaustion, 0.60 for depersonalization and 0.75 for personal accomplishment.

### Variables associated with the burnout syndrome

Based on selected studies and as shown in Appendix A, the burnout syndrome is associated with many demographic, business, personal, health and performance variables in the Mexican working population; from which we include the most enunciated.

With regard to demographic variables associated with the syndrome, age can be mainly highlighted as one of the most commonly reported variables (20.31%), gender (20.31%), seniority (17.18%), marital status or couple stability (14.06%), and school education (12.50%). As for work or professional variables, those that stand out are medical specialty (9.37%), time or number of working hours (7.8%), work overload (6.25%), physical conditions under which the work is performed (6.25%), possibility of social interaction (6.25%), content or nature of work (4.68%), position (4.68%), work systems (4.68%) and number of patients being served (4.68%).

As regards extraorganizational variables, number of children (3.12%), relationship with couple (3.12%) or requirements of the household (3.12%) were mainly cited. The consequences of burnout—mental health or psychological well-being indicators were definitely the most marked (6.4%).

## DISCUSSION

In this review the growing trend of publications on the subject is confirmed not only because of the number of those initially found, but because of the increase observed over the

**Table 2.** Cutoff points and criteria to define burnout "cases" in selected studies (64)

Criterion by dimension		Emotional exhaustion	Depersonalization	Personal accomplishment	f	Global criterion for assessing a burnout case*	f
Criterion 1. MBI HSS manual based on general population <sup>10</sup>	High	≥ 27	≥ 13	≤ 31	2	Criterion 1 People with "high" values in the 3 burnout dimensions	13
	Medium	17 - 26	7 - 12	38 - 32			
	Low	0 - 16	0 - 6	≥ 39			
Criterion 2. MBI HSS manual based on standards of health providers <sup>10</sup>	High	≥ 27	≥ 10	≤ 33	14	Criterion 2 People with "medium" or "high" values in 2 burnout dimensions	1
	Medium	19 - 26	6 - 9	39 - 34			
	Low	0 - 18	0 - 5	≥ 40			
Criterion 3. "Catalan" version <sup>30</sup>	High	≥ 27	≥ 14	≤ 30	10	Criterion 3 People with a "medium" or "high" value in at least 1 dimension, or also, who had no low values in the 3 dimensions	13
	Medium	17 - 26	9 - 13	36 - 31			
	Low	0 - 16	0 - 8	≥ 37			
Criterion 4. Spanish version of Seisdedos <sup>32</sup>	High	≥ 25	≥ 10	≤ 32	1	Criterion 4 67-100 high or deep burnout 34-66 average or moderate burnout 0-33 low burnout	1
	Medium	13 - 24	4 - 9	33 - 39			
	Low	0 - 14	0 - 3	≥ 40			
Criterion 5. Author's	High	>40	≥ 20	> 40	1	Criterion 5 People with "high" values in the dimension of exhaustion "or" depersonalization	2
	Medium	21 - 40	10 - 19	21 - 40			
	Low	0 - 20	0 - 9	0 - 20			
Criterion 6. Author's	High	≥ 16	≥ 7	≥ 53	1	Criterion 6 People located in the 4th quartile (75 percentile or more) of the sum of the total scale in the sample itself	1
	Medium	4 - 15	1 - 6	35 - 52			
	Bajo	0-3	0	0 - 34			
Criterion 7. With respect to the average of the sample itself	High	≥ ξ	≥ ξ	≥ ξ	1	Criterion 7 Average of the full scale: 21-30 burnout high 11-20 burnout medium 0-10 burnout low	1
	Low	< ξ	< ξ	< ξ			
Criterion 8. 33 and 66 percentiles of the sample itself	High	≥ 66°	≥ 66°	≥ 66°	3	Criterion 8 People with the lowest score on the scale of personal achievement compared with that obtained in the other 2 scales	1
	Medium	33° - 65°	33° - 65°	33° - 65°			
	Low	0 - 32°	0 - 32°	0 - 32°			
Criterion 9. 33 percentile of the sample itself	High	≥ 33°	≥ 33°	≥ 33°	1		
	Low	≥ 32°	≥ 32°	≥ 32°			
Criterion 10. Response scale (frequency)	High	5 - 7	5 - 7	5 - 7	1	*Note: It is considered that the variable has been recoded for personal accomplishment, so high values also imply a greater involvement.	
	Medium	2 - 4	2 - 4	2 - 4			
	Low	0 - 2	0 - 2	0 - 2			

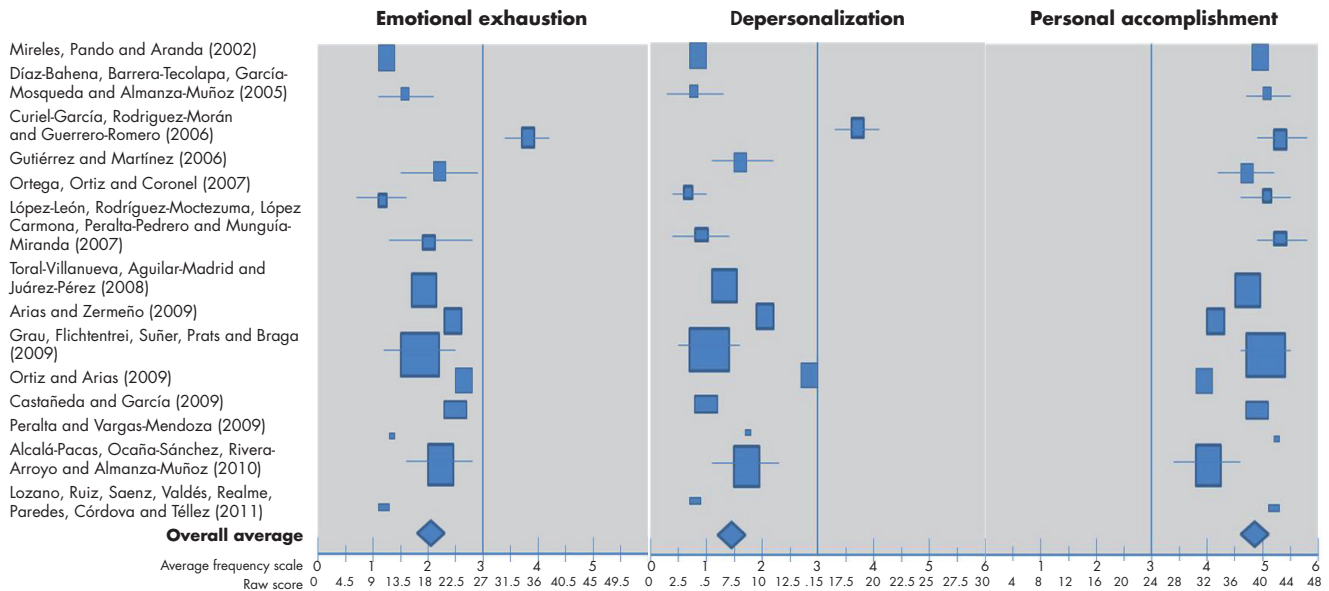
years. However, the review hereby performed is not only focused on the numerical balance, but also on the methodological scope and limitations in the study of burnout that can be identified in a self-critical manner, in order to determine areas of opportunity for future research.

In this regard, it may be noted that the procedure in the selection of articles reveals a good contribution of Mexican data to this issue in databases of selected Latin American journals, since they total 139 articles out of the 294 potential articles first-hand located (47.27%) (Figure 2). However, in the next step almost half of the Mexican articles are removed for several reasons, mainly those that limit comparability, a relevant aspect in terms of the measuring problems that the burnout construct seems to have.

Once the 64 selected articles were gathered, the characterization of the samples expresses that most of the research

focuses on health professionals (over 50%), mainly on nurses and physicians (Figure 3), leaving other populations – which also provide public services – with much less investigations carried out, even in the case of teachers who in other parts are of the most researched ones. It is interesting to find studies focused on occupations not strictly characterized as "public service" such as industrial workers, administrative employees, students or athletes. The question that arises is: How did the authors interpret the depersonalization phenomenon in these cases? Depersonalization – from the MBI HSS outlook – is a construct that involves negative attitudes *towards whom a service is provided*. Although the authors do not make it clear, obviously, there are methodological and theoretical limitations in this regard.

In general, the characterization of the samples herein analyzed allows to affirm that – if there was the possibility



**Figure 4.** Meta-Analysis of burnout dimensions in studies showing averages (n=14). ( $I^2 = 99.7, 98.3 \text{ y } 99.9\%$  respectively).

of some kind of generalization of the research made in the burnout construct with the MBI in its HSS or ES version in Mexico – it may be carried out with more confidence in the areas of Mexico City and Guadalajara (where over 50% of the samples are located) and only for health care professionals with the appropriate reserves of the case, because there would be major limitations to generalize this to other occupations. It is necessary to expand the range of occupations and regions in the study of burnout at a national level.

Moreover, the analysis regarding the methodological approach of the selected studies show that almost all are quantitative, observational or cross-sectional studies, and that, in most of them relationships with bivariate statistical analysis are estimated, what makes them vulnerable to the bias due to the effect of potential confounding variables. Thus, the limited presence of studies with statistical estimates of multivariate prediction, with longitudinal cohort designs and those intervention or pre-experimental studies suggests that the conclusions regarding the cause-and-effect hypotheses in these studies should be more conservative, at least in Mexican population. This may explain the scant presence of these studies in high impact journals. However, regardless of any interpretation in this regard, it is necessary to improve and enrich the variety in the methodological designs of future studies, also considering mixed designs (qualitative/quantitative).

Regarding the use of the MBI scale of 22 questions, about 90% of the selected studies assumes the scale reliability and its psychometric validity. However, besides the marginal average internal consistency in the depersonalization scale found here (.60), the meta-analytic review of Aguayo<sup>23</sup> concluded that the practice of the MBI reliability

induction is an error, given the high existing heterogeneity, and it stresses the need to calculate and include reliability in each sample studied in order to avoid this methodological bias. In the case of psychometric validity, assuming it based on studies in Spanish or North American populations is also a risk, as there are only two studies prepared in Mexican population with that purpose. It is worth commenting that the origin, adaptation or translation into Spanish of the MBI scale reported in most of the studies is cited with Spanish origin; in other cases they cite the inappropriate version (e.g. the GS version of 16 questions), and, in many other cases, such origin is not clear. In light of these results, we can say that the validity and reliability of the MBI is not proved on a consolidated basis and further analysis allowing a more firmly conclusion of the psychometric soundness and structure of the MBI in various Mexican scenarios and samples are still needed.

One of the most important findings of this review, due to its important methodological implications, is the great heterogeneity in the criteria to calculate and/or determine the “levels” or “prevalences” of the burnout syndrome. With 10 different cutoff points found to establish whether any of the syndrome dimensions is “high” or “low” and with eight different criteria in the combination of these dimensions to determine if it is a burnout “case” or not, the existence of prevalence overestimation or underestimation biases is evident, not to mention that a lot of research does not even mention the used criteria. This explains the prevalences published by some authors above 80% and of 0% in other cases in similar samples, and also defines the impossibility for establishing an actual population prevalence or any overall estimate, confirming, also, the problem of hetero-

geneity of other previous meta-analysis.<sup>24-26</sup> Other authors have already pointed out the substantial differences that may exist in the prevalence, in the same sample, using two different criteria or cutoff points.<sup>38,39</sup> In addition, it must be considered that traditionally regulatory criteria – nonclinical and from other countries –, which underlines the urgent need for placing cutoff points based on cohort epidemiological criteria with health damage and analyzed more effectively in Mexican population.

The meta-analysis performed on the 14 studies that reported the means obtained for each dimension shows average frequency values of approximately two (for exhaustion and depersonalization that are the core constructs), which indicates that negative symptoms occur “once a month or less” (Figure 4). These values would be far to confirm that it is a “serious” public health problem. However, these averages are neither very different from the results obtained in the samples of human service organizations of the MBI<sup>10</sup> manual nor from other reviews that include samples of countries in different continents.<sup>40</sup> This contrasts considerably with the interest generated by the subject. However, the balance of international research and the research observed in this study for the Mexican case shows that it is still incipient. The most important thing is to recover the psychosocial approach of the burnout syndrome, which means considering it not as an illness but as an early alteration to mental health, which emphasizes the importance of its preventive measure.

With respect to the variables associated with the syndrome, we show some variables of psychosocial nature from the working environment and others from the non-working environment, as well as various sociodemographic aspects that are required to keep being studied in order to define more clearly the risks that need to be controlled to prevent this problem (Appendix A).

A limitation of this analysis could be that it did not consider other scales that have been used in Mexican workers, such as the Working Burnout Syndrome Assessment Questionnaire (CESQT, in Spanish),<sup>41</sup> the Brief Burnout Questionnaire,<sup>42</sup> or the Occupational Weakening Mexican Scale.<sup>43</sup> Nevertheless, the homogeneity of instruments was necessary for this review and the results showed that the MBI is also the most frequently used instrument in Mexican samples (90% of potential found articles), so that the findings obtained here are representative of the subject even without considering other instruments. It is necessary to ascertain more fully the effectiveness of all scales measuring burnout in Mexican population.

Finally, some recommendations for future research and a better development on this subject in Mexico are derived from this review:

- 1) It is always important to socio-demographically characterize the study sample, considering gender, age, education, etc., as well as working issues such as seniority, position, specialty and shift, and all aspects that scien-

tific literature has proved to be consistent concerning the syndrome. Likewise, its effect must be controlled in multivariate analyses.

- 2) If the MBI is used, clearly determine and define the version used and the origin of its adaptation/translation. Once its validity is confirmed, we suggest neither modifying the original version of the scale nor altering its response options, as this jeopardizes the theoretical validity of the construct being measured and it limits an adequate future comparability, thereby impacting the development of the subject. Regardless of how controversial may be the issue, the MBI has rights of use and it is important to verify this in the case of any scale. Consider that the MBI in its GS (General Survey) version of 16 questions has the advantage of measuring the construct in any occupation (even those who are not of human service) and, according to its authors, is more robust in its development.\*
- 3) To tackle the problem of categorization by inappropriate cutoff points, instead of dichotomizing we suggest performing a calculation and reporting of means and standard deviations. The mean of the frequency scale provides an appropriate measure not only to identify the average values but to significantly increase the power of statistical analyses when using continuous values.
- 4) We suggest the calculation and reporting internal of internal consistency or reliability in each sample, and estimate –at the extent possible– factor analyses of construct validity, since more evidence of psychometric effectiveness of the scales is necessary to measure this syndrome in Mexico.
- 5) It should be defined timely and clearly if the recoding of the personal accomplishment scale has been performed, since, as it is the only variable with a “positive” meaning (a lower accomplishment implies a greater burnout), its interpretations are often confusing.

In general, the data presented in this analysis are themselves information that allows identifying the opportunity areas that still exist in the investigation of this issue in our country opportunity, and possible recommendations, with a view to contribute to the development and quality of life of the Latin American work force.

## ACKNOWLEDGEMENTS

We would like to thank Mr. Javier García Rivas, and all students of the Autonomous University of the State of Morelos who contributed to the revision of the databases in order to conduct this paper. We also thank CONACyT for the financial support through the project 106068 of Basic Science.

\* Unpublished personal interview performed by the senior author to Christina Maslach, Ixtapa Zihuatanejo (2010).



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Declaration of conflict interest: None

**APPENDIX A.** Breakdown of selected studies in the systematic review

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average Age	Type of study (design)	N	Burnout prevalence	AEE	AD	APA	Variables that correlate significantly
1	Mireles, A., Pando, M. and Aranda, C. (2002). Psychosocial factors and burnout in a company of the textile industry of Guadalajara, Mexico. <i>Investigación en salud (Health research journal)</i> , 4 (002).	Guadalajara	Assembly plants	30%	27	Analytic, observational, cross-sectional	223	26%	-----	-----	-----	School education, marital status, disability and have quit, exhaustive task, dangerous, overload, boss, verbal aggression, ambiguity, insecurity, reward, being able to rest, displacement, invasion of personal space, changes in work systems, presence, accidents.
2	Aranza, C., Pando, M., Velázquez, I., Acosta, M., and Pérez, M. (2003). Síndrome de burnout y factores psicosociales en el trabajo, en estudiantes de postgrado del Departamento de Salud Pública de la Universidad de Guadalajara, México. <i>Rev Psiquiatría Fac Med Barc</i> , 30(4), 193-199.	Guadalajara	Postgraduate students	46,3%	35.9	Cross-sectional	54	56.9%	-----	-----	-----	Work system.
3	Aldrete, M., Pando, M., Aranda, C., and Balcázar, N. (2003). Síndrome de Burnout en Maestros de Educación Básica, Nivel Primaria de Guadalajara. <i>Investigación en salud</i> , 5 (1).	Guadalajara	Elementary school teachers	80%	46	Observational, descriptive and cross-sectional	301	80%	0.9	0.76	0.76	Seniority, education, public system and household activities.
4	Aranza, C., Pando, M., Salazar, J., Torres, T., Aldrete, M. and Pérez, B. (2004). Factores psicosociales laborales y síndrome de burnout en médicos del primer nivel de atención. <i>Investigación en salud</i> , 6(1), 28-34.	Guadalajara	IMSS physicians	36%	47	Cross-sectional, retrospective and analytic	163	42.3%	-----	-----	-----	Age, education, continuous training, task dependent factors, work system, social interaction and organization.
5	Aranza, C., Pando, M., Torres, T., Salazar, J., and Franco, S. (2005) Factores Psicosociales y Síndrome de Burnout en médicos de familia. México. <i>Anales de la Facultad de Medicina</i> , 66(3), 225-231.	Guadalajara	Family physicians	37,1%	46.29	Descriptive and cross-sectional	197	41.8%	-----	-----	-----	Institution, marital status, education and seniority.
6	Reynaga, P. and Pando, M. (2005). Relación del Síndrome de Agotamiento Crónico (Burnout) con el Trastorno Potencial en Jóvenes deportistas. <i>Investigación en Salud</i> , 7(3), 153-160.	Guadalajara	High performance athletes	38%	-----	Not experimental, cross-sectional and correlational	159	37.1%	-----	-----	-----	Seniority, gender and non-sport employment.
7	Palmer, Y.; Gómez, A.; Cabrera, C.; Prince, R.; and Searcy, R. (2005). Prevalencia del Síndrome de Agotamiento Profesional en médicos anestesiólogos de la ciudad de Mexicali. <i>Gac Méd Méx</i> , 141(3), 181-183.	Mexicali	Medical anesthesiologists	27%	-----	Population, transversal and descriptive	92	44%	-----	-----	-----	Gender, but was not significant.

AEE = Alfa agotamiento emocional. AD = Alfa despersonalización. ARP = Alfa realización personal.

APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence			Variables that correlate significantly	
								AEE	AD	APA		
8	Díaz, J., Barrera, V., García, C., y Almanza, J. (2005). Frecuencia de quejas durante los cuidados de enfermería en el Hospital Central Militar: un estudio comparativo. <i>Rev Sa- nidad Milit Mex</i> , 59(1), 19-31.	Mexico City	Military nurses	93%	28.6	Descriptive- retrospective, comparative and correlational	110	-----	-----	-----	Frequency of complaints.	
9	Martínez, C. y López, G. (2005) Características del síndrome de Burnout en un grupo de enfermeras mexicanas. <i>Archivos en Medicina Familiar</i> , 7(1), 6-9.	Mexico City	Nurses	89%	25.35	Exploratory, comparative, cross-sectional and retrospective	622	46.6%	0.43	0.77	Age, have a steady partner and relationship with partner.	
10	Aranda, C., Pando, M., Torres, T., Salazar, J., y Aldrete, M. (2006). Síndrome de burnout y manifestaciones clínicas en los médicos familiares que laboran en una institución de salud para los trabajadores del estado. <i>Psicología y salud</i> , 16(1), 15-21.	Guadalajara	ISSSTE family physicians	33%	44.1	Descriptive and cross-sectional	42	36.60%	-----	-----	Items of the MBI with several diseases.	
11	Castellanos, J. y Hernández, G. (2006). Síndrome de desgaste profesional en personal médico (adscrito y residentes de la especialidad de urgencias) de un servicio de urgencias de la ciudad de México. <i>Rev Cub Med Int Emerg</i> , 5(3), 432-433.	Mexico City	IMSS medical emergency physicians	20%	41.1	Cross-sectional, comparative and observational	90	1.11%	-----	-----	Seniority, specialty and work in another emergency department.	
12	Curiel, A., Rodríguez, M. y Guerrero, F. (2005). Síndrome de agotamiento profesional en el personal de atención a la salud. <i>Rev Med Inst Mex Seg Soc</i> , 44(3), 221-226.	Durango	Physicians and nurses	15%	36.2	Cross-sectional and comparative	173	-----	-----	-----		
13	Moreno, B., Meda, R., Rodríguez, R., Palomera, A., Morales, M. (2006). El síndrome de burnout en una muestra de psicólogos mexicanos: prevalencia y factores sociodemográficos asociados. <i>Psicología y Salud</i> , 16(1), 5-13.	Jalisco, San Luis P., Yucatán, Chihuahua, Veracruz	Psychologists	66%	37.97	-----	454	-----	0.87	0.53	0.81	Hours of work, specialty, gender and education.
14	Pérez, E. (2006). Síndrome de burnout como factor de riesgo de depresión en médicos residentes. <i>Medicina Interna del Trabajo</i> , 22(4), 282-286.	Mexico City	Resident physicians	34%	27.61	Exploratory, observational and analytical	80	35%	-----	-----	Gender.	
15	Gutérrez, T. y Martínez, S. (2006). Burnout en enfermeras oncológicas Mexicanas. <i>Salud Trab</i> , 14(1), 19-30.	Mexico City	Nurses	100%	-----	Descriptive, analytical, cross-sectional	153	8%	-----	-----	Age, work area, position, facilities, extensive hours, hazardous work and confusing orders.	

AEE = Alfa agotamiento emocional. AD = Alfa despersonalización. ARP = Alfa realización personal.

Translation of the original version published in spanish in: *Salud Mental* 2014, Vol. 37 Issue No. 2.

APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	AEE	AD	APA	Variables that correlate significantly
16	Díaz, R., Pérez, R., y Larrigue, T. (2006). <i>Desgaste Profesional en un Grupo de Odontólogos</i> . Revista ADM, 58(6), 220-224.	Mexico City	Odontologists	67%	---	---	156	24.36%	---	---	---	Gender and occupational hierarchy.
17	Ruiz, N., Gomes, C., Rosas, B., Beltrán, L., Vásquez, C., y Munguía, L. (2006). Prevalencia del síndrome de Burnout en médicos de atención primaria de las clínicas de medicina familiar de la zona norte del ISSSTE. <i>Revista de Especialidades Médico-Quirúrgicas</i> , 11(1), 27-40.	Mexico City	Physicians	43%	48	Not experimental, cross-sectional	148	20.90%	---	---	---	Gender, more than 24 patients per day, seniority, number of children and marital status.
18	Cetina, R., Chan, A., y Sandoval, L. (2006). Nivel de satisfacción laboral y síndrome de desgaste profesional en médicos familiares. <i>Rev Med Inst Mex Seguro Soc</i> , 44(6), 535-540.	Cancún	Family physicians	46%	44	Cross-sectional, analytical	93	20.50%	---	---	---	Satisfaction.
19	Dikinson, M., González, C., Fernández, M., Palomque, R., González, E. y Hernández, I. (2007). Burnout Syndrome among Mexican primary Care Physicians. <i>Archivos en Medicina Familiar</i> , 9(2), 75-79.	Mexico City	Physicians	48%	40	Descriptive, observational, cross-sectional	431	12.80%	---	---	---	Work-family balance and living as a couple.
20	Palmer, Y., Prince, R., Searcy, R., y Compean, B. (2007). Prevalencia del síndrome de "burnout" en el personal de enfermería de 2 hospitales mexicanos. <i>Enfermería clínica</i> , 17 (5), 256-260.	Mexicali	Nurses	93.75%	41.21	Cross-sectional	368	6.79%	---	---	---	---
21	Borbolla, M. y Domínguez, M. (2007). Síndrome de burnout en personal médico familiar y no familiar del Instituto Mexicano del Seguro Social en Tabasco. <i>Salud en Tabasco</i> , 13(001), 577-583.	Tabasco	Family physicians	19%	45	Observational, selective, cross-sectional and descriptive	184	---	---	---	---	Specialty (Family Physician).
22	Barraza, A., Carrasco, R. y Arreola, M. (2007). Síndrome de Burnout: un estudio comparativo entre profesores y médicos de la ciudad de Durango. <i>INED</i> , 63-73.	Durango	Teachers and physicians	---	---	Comparative, correlational, cross-sectional and non-experimental	193	23%	0.79	0.59	0.78	There was no significant found from the sociodemographic explored ones.
23	Ortega, E., Ortiz, G. y Coronel, P. (2007). Burnout en médicos y enfermeras y su relación con el constructo de personalidad resistente. <i>Psicología y salud</i> , 17(1), 5-16.	Veracruz	Physicians and nurses	56%	40	Descriptive, cross-sectional and correlational	119	36%	---	---	---	Hardy personality, occupation, gender, age, education and type of contract.

AEE = Alfa agotamiento emocional. AD = Alfa despersonalización. ARP = Alfa realización personal.

## APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% de Mujeres	Average age	Type of study (design)	N	Burnout overall prevalence	AEE	AD	APA	Variables that correlate significantly
24	López, A., González, F., Morales, M., y Espinoza, C. (2007). Síndrome de Burnout en residentes con jornadas laborales prolongadas. Revista Médica del Instituto Mexicano del Seguro Social, 45(3) 233-242.	Veracruz	Resident physicians	35%	29.35	Analytic cross-sectional, observational, prospective and comparative	143	51.04%	-----	-----	-----	Working hours, number of guards and specialty.
25	Palmer, Y., Prince, R., y Searcy, R. (2007). Factores relacionados con el Síndrome de Burnout en Ginecólogos. Ginecología y Obstetricia de México, 75(7), 379-383.	Mexicali	OB-GYN physicians	26%	43.67	Cross-sectional design	27	59.26%	-----	-----	-----	Overload, cordiality, appreciation, injustice, values and control.
26	López, E., Rodríguez, J., López, J., Peralta, M., y Munguía, C. (2007). Desgaste profesional en médicos familiares y su asociación con factores sociodemográficos y laborales. Rev Med Inst Mex Seguro Soc, 45(1), 13-19.	State of Mexico	Family physicians	42%	46.4	Cross-sectional	131	1.50%	-----	-----	-----	Workload, lack of incentives, inadequate physical area.
27	Esquivel, C., Buendía, F., Martínez, O., Martínez, J., Marfínez, V., y Velasco, V. (2007). Síndrome de agotamiento profesional en el personal médico de un hospital de tercer nivel. Rev Med Inst Mex Seguro Soc, 45(5), 427-436.	Torreón Coahuila	Physicians	25%	41.9	Prospective, analytical and cross-sectional	145	26.20%	-----	-----	-----	Living with a steady partner, shift, have children and depression.
28	Rangel, V., Barraquán, C., Flores, I., Ramírez, L., Rivas, M., Martínez, C., Pérez, M. (2008). Relación entre el ausentismo del personal de enfermería y el síndrome de Burnout. Psiquis, 17 (2), 48-56.	Mexico City	Nurses	100%	40.5	Exploratory, descriptive, cross-sectional and correlational	36	-----	-----	-----	-----	Age, education, seniority and absenteeism.
29	Aldrete, M., González, J. y Preciado, M. (2008) Factores psicosociales laborales y el síndrome de burnout en docentes de enseñanza media básica (secundaria) de la zona metropolitana de Guadalajara, México. Rev Chil Salud Pública, 12(1), 18-25.	Guadalajara	Secondary teachers	54%	43	Quantitative descriptive, cross-sectional	360	80.80%	0.9	0.76	0.76	Workplace conditions, job content and social interaction.
30	Toral, R., Aguilar, G., y Juárez, A. (2008). Burnout and patient care in junior doctors in Mexico City. Occupational Medicine, 59, 8-13.	Mexico City	Resident physicians	42%	28	Cross-sectional study	312	40%	-----	-----	-----	Inadequate medical practices, depression, work more than 12 hrs and seniority, gender and marital status.
31	Aranda, C., Pando, M., Salazar, J., Torres, T. y Aldrete, M. (2009). Social Support, Burnout Syndrome and Occupational Exhaustion among Mexican Traffic Police Agents. The Spanish Journal of Psychology, 12(2), 585 -592.	-----	Traffic police agents	8%	42	Descriptive and cross-sectional	875	54.9%	-----	-----	-----	Family (objective and subjective) and labor (subjective and objective) support network.

AAE = Alfa agotamiento emocional. AD = Alfa despersonalización. ARP = Alfa realización personal.

APPENDIX. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	AEE	AD	APA	Variables that correlate significantly
32	Ballinas, A., Alarcón, M., y Balseiro, A. (2009). Síndrome de Burnout en Enfermeras de un Centro Médico. <i>Rev Enf IMSS</i> , 17(1), 23-29.	Mexico City	Nurses	100%	---	---	278	28.3%	0.81	0.6	---	Shift and several job stressors explored qualitatively.
33	Barraza, S., Romero, P., Flores, P., Trejo, F., López, A., Pando, M., y Enciso, S. (2009). Indicadores de salud mental y Síndrome de Burnout en Internos rotatorios en SSN en Tepic, Nayarit. <i>Waxapa</i> , 1(1), 47-50.	Nayarit	Interns	77%	22	Cross-sectional	17	29.4%	---	---	---	---
34	Cabrera, C., Ruiz, L., González, G., Vega, M., y Valadez, I. (2009). Efecto de una intervención psicoeducativa para disminuir el Síndrome de Burnout en el personal de confianza de la CFE. <i>Salud Mental</i> , 32(3) 215-221.	Guadalajara	CFE Directors	52%	31.5	Quasi-experimental	29	---	---	---	---	Non-significant intervention.
35	Arias, F. y Zemeño, M. (2009). Estrés, agotamiento profesional (burnout) y salud en profesores de acuerdo a su tipo de contrato. <i>Ciencia y Trabajo</i> , 11(33), 72-76.	Morelos	Teachers of all levels	62%	---	Not experimental, cross-sectional and correlation	258	---	---	---	---	Perceived health and working full-time.
36	Pereda, L., Márquez, F., Hoyos, M., y Yáñez, M. (2009). Síndrome de Burnout en médicos y personal paramédico. <i>Salud Mental</i> , 32(5), 399-404.	Veracruz	Physicians and paramedics (nurses)	---	43.2	Cross-sectional, comparative	146	19.6%	---	---	---	Education, marital status, shift, outpatient, age and seniority.
37	Grau, A., Flichentrei, D., Suñer, R., Prats, M., y Braga, F. (2009). Influencia de factores psicosociales, profesionales y transnacionales en el síndrome de burnout en personal sanitario hispanoamericano y español. <i>Rev Esp Salud Pública</i> , 83(2), 215-230.	México	Health care providers	---	41.74	Cross-sectional	1125	4.2%	---	---	---	Country and specialty.
38	Rodríguez, C., Oviedo, A., Vargas, M., Hernández, V., y Pérez, M. (2009). Prevalencia del Síndrome de Burnout en personal de enfermería de dos hospitales del Estado de México. <i>Fundamentos en Humanidades</i> , 19(1), 179-193.	State of Mexico	Nurses	94%	36.7	Cross-sectional, prospective and comparative	122	25.50%	---	---	---	Gender, age, marital status, shift, seniority and number of patients.
39	Ortiz, J. y Arias, F. (2009). El Desgaste Profesional (Burnout) y Calidad de Vida Laboral Como Predictores de la Búsqueda de Otro Trabajo en Profesionales de la Salud y de la Educación en el Occidente de México. <i>Ciencia y Trabajo</i> , 11(34), 222-226.	Guadalajara and Michoacán	Health care providers and teachers	55%	---	Descriptive, cross-sectional	285	---	---	---	---	Job satisfaction, age, stress and looking for another job.

AEE = Alfa agotamiento emocional. AD = Alfa despersonalización. ARP = Alfa realización personal.

## APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	AAE	AD	APA	Variables that correlate significantly
40	Castañeda, E. y García, J. (2009). Prevalencia del síndrome de agotamiento profesional (burnout) en médicos familiares mexicanos: análisis de factores de riesgo. <i>Rev Colomb Psiquiatría</i> , 39(1) 67-84.	Guadalajara	Family physicians	40%	44.4	Observational, descriptive and cross-sectional	233	41.6%	----	----	----	Gender, age, having children, seniority, hiring and number of patients.
41	Peralta, E. y Vargas, J. (2009). Agotamiento emocional en el personal de enfermería del hospital de la niñez oaxaqueña: la prevención del burnout. <i>Centro Regional de Investigación en psicología</i> , 3(1), 5-10.	Oaxaca	Nurses	100%	----	----	20	0%	----	----	----	
42	Tápia, T., Ávalos, M., César, R., Franco, R., Gómez, C., y Rodríguez, A. (2009). Síndrome de Burnout en enfermeras de un hospital regional. <i>Rev Enferm Inst Mex Seg Soc</i> , 17(1), 31-38.	Morelia	Nurses	100%	39	Descriptive	106	8.50%	----	----	----	Specialty service.
43	Santes, M., Meléndez, S., Martínez, N., Ramos, I., Preciado, M., y Pando, M. (2009). La salud mental y predisposición a síndrome de burnout en estudiantes de enfermería. <i>Revista chilena de Salud Pública</i> , 13(1), 23-29.	Veracruz	Undergraduate nursing students	84%	21.1	Cross-sectional, analytic	183	----	----	----	----	GGHQ (somatic symptoms, sleep disorders, depression and behavioral disorders).
44	Valdez, H. (2009). Detección y tratamiento del síndrome de Burnout en el sistema penitenciario de Jalisco. <i>Waxapa</i> , 1(1), 24-34.	Jalisco	Prison workers	----	38	Intervention	1392	4.10%	----	----	----	Comprehensive psychological intervention program that had a significant effect.
45	Gallegos, M., Parra, M., Castillo, R., y Muriello, E. (2009). Síndrome de Burnout y factores psicosociales del personal de enfermería al cuidado del paciente oncológico. <i>CONAMED</i> 14(1), 28-33.	Durango	Nurses	84%	30.6	Quantitative, cross-sectional and descriptive	35	----	----	----	----	
46	Hernández, C., Juárez, A., Arias, F., y Dickinson, E. (2009). Factores psicosociales predictores de burnout en trabajadores del sector salud en atención primaria. <i>Ciencia y trabajo</i> , 11(34), 227-231.	Mexico City	Health workers	----	----	Cross-sectional, descriptive, correlational and observational	276	----	----	----	----	Job insecurity, self-efficacy and lack of emotional control.
47	Preciado, L. y Vázquez, J. (2010). Perfil de estrés y síndrome de burnout en estudiantes mexicanos de odontología de una universidad pública. <i>Rev Chilena Neuro-psiquiatr</i> , 48(1), 11-19.	Guadalajara	Dentistry students	46%	20.65	Cross-sectional, and analytic	60	----	----	----	----	Stress, cognitive strength, negative feedback, support network, psychological well-being and type A personality.

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APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	AEE	AD	APA	Variables that correlate significantly
48	Preciado, M., Salas, E., Franco, S., y Vázquez, J. (2010). Riesgos psicosociales, burnout y agotamiento emocional laboral en médicos de una institución de beneficencia. <i>Revista de Cubana de Salud y Trabajo</i> , 11(3), 3-8.	Guadalajara	Physicians	17%	45	Cross-sectional, and analytic	100	---	0.84	0.53	0.64	Job dissatisfaction, relationship with coworkers, physical stress and confrontation.
49	Dickinson, B., Fernández, O., González, S., Palomeque, R., Hernández, V., Ramírez, G., Juárez, G. (2010). Burnout en enfermeras y su asociación con algunas características del rol de género. <i>Aten Fam</i> , 17 (3), 66-69.	National	Nurses	95%	42	Observational, cross-sectional	500	14.40%	---	---	---	Loneliness, overwork at home, little autonomy in the management of money, bad partner relationships and alcohol consumption.
50	Alcalá, A., Ocaña, M., Rivera, G., y Almanza, J. (2010). Síndrome de Burnout y rendimiento académico en una escuela de medicina. <i>Revista Neurología, Neurocirugía, y Neuropsiquiatría</i> , 43(1-4), 13-25.	Mexico City	Students of military medicine	38%	21.13	Exploratory, descriptive, observational and cross-sectional	380	19.50%	---	---	---	Age, gender, academic year and GPA.
51	Álvarez, G., e Ibarra, C. (2010). Prevalencia del Síndrome de desgaste profesional en médicos residentes de un hospital pediátrico en el Estado de Sonora. <i>Bol Med Hosp Infant Mex</i> , 67, 44-51.	Sonora	Resident physicians	64%	28.7	Cross-sectional	58	27.50%	---	---	---	Degree of medical internship.
52	Ortiz, L. y Beltrán, B. (2011). Inteligencia emocional percibida y desgaste laboral en médicos internos de pregrado. <i>Educ méd</i> , 14(1), 49-55.	Sonora	Undergraduate medical interns	57%	23	Cross-sectional, descriptive and correlational	44	---	---	---	---	Emotional intelligence (attention, clarity and repairing).
53	Gonzalez, N., Suárez, K., Loreda, A. (2011). Síndrome de desgaste laboral (Burnout): ¿Un riesgo para profesionales que atienden el problema de maltrato infantil? <i>Acta Pediatr Mex</i> 32(1), 33-37.	Mexico City	Professionals in the study of child abuse	75%	---	Exploratory	12	0%	---	---	---	
54	Basset, I., Estévez, R., Leal, M., Guerrero, M., y López, J. (2011). Síndrome de Burnout en el personal de enfermería de una Unidad de Psiquiatría. <i>Medigraphic</i> , 10(2), 81-85.	State of Mexico	Psychiatric nurses	---	---	Quantitative, descriptive, cross-sectional and humanistic	60	0%	---	---	---	
55	Trejo, H., Torres, J., y Valdivia, M. (2011). Asociación entre síndrome de burnout y depresión en personal de enfermería que labora en un Hospital de Alta Especialidad del Estado de México. <i>Medigraphic</i> , 3(1), 44-47.	State of Mexico	Nurses	100%	33	Transversal, protective descriptive	73	---	---	---	---	Depresión.

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## APPENDIX A. Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	AEE	AD	APA	Variables that correlate significantly
56	Méndez, A. (2011). Síndrome de Burnout en Residentes. Ejercicio como estrategia para su disminución. <i>An Med Asoc Med Hosp ABC</i> , 56(2), 79-84.	Mexico City	Resident physicians	55%	26.85	Comparative, experimental (Intervention)	20	65%	---	---	---	Intervention program (exercise).
57	Sánchez, A., Urbina, R., Fernández, N., Flores, R., y Muñoz, J. (2011). El síndrome de Burnout en internos de pregrado y pasantes en servicio social de la Universidad Autónoma Metropolitana-Xochimilco. <i>Rev Cienc taro Clin</i> , 12(2), 47-54.	State of Mexico, Mexico City and Querétaro	Medical students	---	---	Not experimental, cross-sectional	84	---	---	---	---	Age, gender, hours of work, hours of sleep, patients seen per day and relationship with superiors.
58	Aranda, C., Rendón, E., y Ramos, J. (2011). Síndrome de Burnout y Salud en Trabajadores del Sistema de Tren Eléctrico, México. <i>Waxapa</i> , 2(5), 89-93.	Guadalajara	Administrative and operational workers of electric train	17%	39	Descriptive, cross-sectional and analytical	466	39.40%	---	---	---	Being ill.
59	Salgado, R., Rivas, C., y García, A. (2011). Aparición del burnout en jugadores de fútbol de primera división profesional en México: estrategias de intervención. <i>Cuadernos de Psicología del Deporte</i> , 11(2), 57-62.	---	Soccer players	0%	---	Intervention (not defined)	25	---	---	---	---	Psychosocial intervention.
60	Rodríguez, R., Aguilera, V., Rodríguez, G., López, P., y García C. (2011). Efectividad del programa de intervención cognitivoconductual para disminuir los síntomas de estrés y el síndrome de burnout en personal de mantenimiento y vigilancia de una universidad pública. <i>Waxapa</i> , 3(5), 95-101.	Guadalajara	Operational and administrative staff of a public university	58%	35.6	Quasi-experimental with pre and post measurement, with control and experimental group	56	---	---	---	---	Cognitive behavioral intervention.
61	Lozano, T., Ruíz, C., Sáenz, J., Valdés, L., Realme, A., Paredes, A., Córdova, L., y Téllez, O. (2011). Prevalencia y factores asociados a síndrome de Burnout. <i>Ciencias de la salud de la UA de Coahuila</i> , 1, 18-22.	Coahuila	General physicians, nurses and graduates in education	63%	---	Cross-sectional and descriptive	60	10%	---	---	---	Gender, age and marital status.
62	Mendoza, G., y Aguilar, R. (2012). Desgaste profesional y calidad de vida en trabajadores de promoción a la salud. <i>Rev Sal Quintana Roo</i> , 5(20), 3-11.	Veracruz	Health workers	57%	40.5	Not experimental, cross-sectional	30	36.70%	---	---	---	Gender, age, education, job satisfaction, seniority, definitiveness and workload.

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**APPENDIX A.** Continued

Folio	APA complete quotation (authors, year, etc)	City or region of evaluated sample	Occupation	% of Women	Average age	Type of study (design)	N	Burnout overall prevalence	Variables that correlate significantly
63	Rionda, A. y Hernández, R. (2012). Burnout en Profesores de Primaria y su desempeño laboral. Revista Latinoamericana de Medicina Conductual, 2(1), 43-50.	Mexico City	Primary teachers	82%	40	Not experimental and correlational	304	13%	Participation in school activities and performance of their group in the enlace test.
64	Aldrete, R., Vázquez, B., Aranda, B., Contreras, E., Oramas, V. (2012). Factores psicosociales laborales y síndrome de burnout en profesores de preparatoria de Guadalajara, Jalisco, México. Revista Cubana de Salud y Trabajo, 13(1), 19-26.	Guadalajara	High school teachers	39%	46.9	Observational and analytical	330	50.40%	Workplace conditions, job content and social interaction.

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