

SYMPOSIUM
BURNOUT, STRESS AND CARDIOVASCULAR
AND CHRONIC DISEASES

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CARDIOVASCULAR RISK AND THE BURNOUT
SYNDROME IN MEXICAN WORKERS.

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Introduction. In Mexico, cardiovascular diseases (heart attacks, stroke and hypertension) cause in 2007, 36.6% of total deaths, 25,383 deaths in the 15 to 65 years old group. The morbidity of these diseases is also high, according to the 2006 National Health Surveys, the prevalence of hypertension has increased from 35% to 47.3% in women and 36% to 40.% in men from 2000 to 2006. This prevalence is greater than reported in Mexican Americans, a 15%. The prevalence of these diseases specifically for the working population is high and among the different factor and related conditions, the psychosocial risks factors would be important for their production and aggravation, and the study of this association is needed.

In the last decade, several studies of the Burnout syndrome (BO) in Mexican workers population had identified an important prevalence (2-4%) of this condition in different working populations. Different authors had reported many negative outcomes related to BO, like as low job performance, absenteeism, and related diseases such as; mental health problems (depression, etc.) and cardiovascular diseases (coronary heart disease and circulatory diseases).

In this study, we analyze the association between the presence of the BO syndrome with the prevalence of cardiovascular diseases and related risk factors in a group of Mexican workers.

Method. This is a cross sectional study of 1,368 workers, 842 women and 526 men, from 4 different occupations, middle school teachers, health services workers, legal services workers and firefighters. All the workers were informed about the study and those that were willing to collaborate, filled out and sign in an informed consent letter.

In the study, the following instruments were used: the Evaluation of Burnout Syndrome Questionnaire (CESQT) (Gil-Monte, 2005) to identify the presence of BO, the Job Content Questionnaire (Karasek, 1991) to study organizational stressors, and a Health Conditions questionnaire to obtain demographic and health history information. To assess the cardiovascular risk of these workers, their blood pressure, weight, height, hip and waist circumference were measured and from those that accepted a blood sample was drained to analyze their serum lipids levels.

The CESQT questionnaire defines four dimensions of BO, exhaustion, indolence-cynicism, job illusions and guilt. In this study the BO total score that includes the four dimensions scores was use, and workers were classified as severe-diseased (P90), high (P66), moderate (P33) and low burnout. As this study purpose is looking for the association among BO and some chronic conditions, a burnout exposure index was built using the BO total score and the seniority in the position. For this index we assume that working conditions have been stable throughout the time, the index allow correcting the BO score by the time expose to the occupational stressors.

The Framingham equation was use to estimate the workers' risk to develop a cardiovascular disease during the next 10 years.

The data was analyzed using the SPSS statistical package (Ver.15). The differences in prevalence of the different health conditions among BO subgroups were assessed using the Chi2 and Kruskal-Wallis test (KW) and the Odds Ratios of having a cardiovascular disease in the next 10 yr. if exposed to the BO was obtained using Binary Logistic Regression, the Hosmer-Lemeshow test (HL) was used to assess the model fit.

Results. The severe and high BO level subgroups had a significantly higher prevalence of perceived bad health (Chi2, $p \leq 0.000$), a high waist/hip index (Chi2, $p \leq 0.02$), elevated total cholesterol (Chi2, $p \leq 0.05$) and High LDL cholesterol (Chi2, $p \leq 0.07$).

A trend was also observed among the severe and high BO subgroups with higher levels of: High diastolic pressure (KW, $p \leq 0.000$), High systolic pressure (KW, $p \leq 0.000$), higher Body Mass Index (KW, $p \leq 0.002$) and Triglycerides (KW, $p \leq 0.002$).

The predicted risk of developing a cardiovascular disease in the next 10 years has a trend, higher for the severe-diseased BO group (7.52) than for the low-level group (4.55). (KW, $p \leq 0.000$). The systolic pressure and the BO exposure index had a significant association, Odds Ratio= 1.13 (CI95%, 1.04-1.24) (HL test, 0.97) after controlling by sex, age and education and other psychosocial factors. The diastolic

pressure and the BO exposure index also had a significant association, Odds Ratio= 1.13 (CI95%, 1.04-1.23) (HL test, 0.21), after controlling by sex, age, education and other psychosocial factors.

Conclusion. This study shows a relationship among the level of exposure to BO and different cardiovascular diseases and risk factors. The increased health risk of developing a cardiovascular disease due to the presence of BO is relevant, a 13% increased risk of having high blood pressure in those with a severe level of BO. The presence of BO in the workers brings not only effects on their performance, care attention or satisfaction; it also has important cardiovascular effects in the affected workers.

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PSYCHOSOCIAL JOB CONDITIONS ASSOCIATED TO CARDIOVASCULAR RISKS FACTORS IN MANUFACTURE INDUSTRY EMPLOYEES IN MEXICO

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In Mexico, few studies have been carried out to test the relationship between psychosocial factors at work and cardiovascular health outcomes even though it is demonstrated that stressful features of job organization are related to several cardiovascular diseases such as hypertension (Schnall, et.al. 2000). Particularly, the Demand/Control (DC) (or Job Strain) Model and Effort-Reward Imbalance (ERI) Model have wide appeal to the occupational health community worldwide for their parsimony and good empirical research results (Karasek & Theorell, 1991; Belkic, et.al, 2004; Siegrist et, al, 2000). Nevertheless, the research using these models still scarce in developing countries. Also there is need to expand these models to include other psychosocial variables, which has been suggested widely (Kristenssen,1995; Söderfeldt,1996). It is necessary to consider contextual, socioeconomical and cultural aspects that underline specific psychosocial work conditions in Latin-America and their potential impact in health. For example in México, Social support, Job insecurity and lack of resources for doing the job (tools, materials) seem to be good predictors of mental health (direct effects) as job strain is according with some studies in Mexico (Cedillo, 1999; Gutiérrez, 2003; Juárez-García, 2004, 2007). Although social support and job insecurity are included in DC and ERI scales, lack of resources should be incorporated in studies of cardiovascular work related risks factors since it reflects an important stressful and common condition in Mexican work context. Some studies in Mexico have shown that manufacture workers are special vulnerable to psychosocial factors (Cedillo, 1999; Medellín, et.al, 2007). Thus, the goal of this study was to analyze the association among job strain, effort reward imbalance, social support, job insecurity and lack of resources with cardiovascular risks indicators such as: systolic and diastolic blood pressure, total serum cholesterol, Low and high density cholesterol, glucose, triglycerides, uric acid and cardiovascular symptoms in manufacture employees in Mexico.

Methods. A cross-sectional study was carried out to test the association among the selected variables in manufacture Mexican employees in México, mostly blue collar workers (N=97). Blood samples were collected according the National Program of Education in Cholesterol (2003) (ATP III – Adult Treatment Panel III). Clinical Blood pressure measures were obtained according the Official Mexican Standards (NOM-030-SSA2-1999). Cardiovascular symptoms scale was used to obtained the frequency of subjective self report symptoms (*e.g* *Dou you feel chest pain?*). The Spanish version of JCQ and ERI scales were used. Lack of resources scale (Juárez-García was used) (*e.g* *the lack of materials for doing my job affects my performance*). Potential confounders were considered: age, BMI, exercise (sedentary), smoke and alcohol consumption, diet and hostility trait (Spilberger, 1999).

Results. After controlling for traditional risk factors and potential confounders by partial correlation, the results showed that: 1) glucose was significantly and positively associated with job strain and also with the unique job demands dimension, 2) total serum cholesterol was positively associated with job demands, lack of resources and effort reward imbalance, 3) triglycerides levels was associated with social support and 4) Low density cholesterol was associated with job strain, job demands, lack of resources, job insecurity, effort reward imbalance and extrinsic effort. All the associations had the expected directions.

Conclusion. These findings may suggest that job psychosocial factors-cardiovascular risk relationship is valid in Mexican manufacture employees. Particularly, job strain and ERI models (and sub-dimensions) confirm their important role in cardiovascular aspects as it's been shown in different developed countries contexts. Lack of resources, social support and job insecurity again showed significant associations with health outcomes. Considering the limitations of this bivariate and cross-

sectional study, future longitudinal and multivariate analyses should confirm the role of these variables in cardiovascular disease.

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THE BURNOUT SYNDROME AND ITS RELATIONSHIP TO DISEASES PREVALENCE IN SCHOOLS PERSONNEL FROM MEXICO CITY.

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A wide variety of health damage in the teaching population has been identified. The burnout syndrome is recognized primarily as a psychological disease, the syndrome is also associated with several physical ailments, among them the cardiovascular disorders, musculoskeletal, respiratory and gastrointestinal diseases.

Objective. To report the burnout prevalence, according to Gil-Monte's model (2005), in middle level education staff of the City of Mexico is reported and its relationship with diseases diagnosed by a physician in the past 12 months.

Method. This is a cross sectional study. A non-random sample of 939 participants from 66 schools in all areas in Mexico City was studied. From them, 285 (30.4%) men and 654 (69.6%) women; with an mean age of 42.6 (21-71); 550 (62.3%); 333 (37.7%) living with a regular partner; a mean seniority of 15.1 years; 587 (64%) in the day shift and 294 (32.1%) in mixed shift; 298 (33.1%) with temporary contact and 601 (66.9%) with tenure; 259 (29.7%) belong to a productivity program and 614 (70.3%) did not. The sample was not random, participation was voluntarily and signing a consent form was needed, the questionnaire was administered within the school director permission.

Instruments: the Questionnaire for the Evaluation of Burnout Syndrome Work for Staff Education (CESQT-PE) (Gil-Monte, 2005) and a health conditions questionnaire were applied. From the health questionnaire, a list of diseases diagnosed in the last twelve months by a physician was obtained and grouped: Cardiovascular diseases, Mental, Respiratory, Stomach, muscle-skeletal, Headaches, Liver, and others including, cancer, diabetes mellitus, and conjunctivitis. Finally, the category of accidents, transit, at work and or have suffered violence or aggression was included.

Results. The burnout prevalence of severe burnout symptoms was of Illusion (10%), Exhaustion (11.4%), Indolence (10.2%), and Guilt (7.8%).

Eight cases with pathological profile were observed, four with a "severe" profile (pathological levels of low Illusion, exhaustion, and indolence) and four with a "very serious" profile (the mentioned emotions plus a pathological level of guilt). From the eight cases, seven were women and one man. The ones with profile 2 ("very severe") had 42 diagnosed diseases, more than 10 diseases per subject; the ones with Profile 1 ("severe") had 39 diseases, 9 diseases per subject.

From the diseases, 587 were Cardiovascular, 1542 mental, 647 respiratory, 594 gastric, 1637-Muscle-Skeletal, 13 Liver, 60 Diabetes Mellitus, 11 Cancer, 118 conjunctivitis, 106 Various, 42 traffic accidents, 38 work accidents and 96 suffered violence, assault and / or aggression. In 5908 total diseases diagnosed, each teacher has an averaged of more than six diseases and illnesses.

In terms of gender, women were found to have greater exhaustion (1.8 vs. 1.5), mental illnesses (1.7 vs. 1.2), respiratory (76 vs. 51), digestive (72 vs. 44) musculoskeletal (1.98 vs. 1.27) and headache (.54 vs. .22) while men have higher cardiovascular diseases (.82 vs. .53) all with a significance level < .001.

In relation to marital status, those who do not have steady partners have more Indolence (1.09 vs. .88) and more guilt (0.98 vs. 0.86). Those with a stable partner tend to suffer cardiovascular disease (0.67 vs. 0.53). Teachers with tenure were more affected by exhaustion (1.75 vs. 1.6) and cardiovascular diseases (0.68 vs. 0.50). Finally, the participants in incentives program have major presence exhaustion (1.9 vs. 1.6), Guilt (1 vs. 0.87), Cardiovascular Diseases (0.7 vs. 0.5) and gastric (.7 vs. .6). All with significance level ≤ 0.005.

Those who have more hours in front of the group (from 31 to 50 hours per week) had the highest exhaustion (1.9 vs. 1.5) and cardiovascular diseases (.69 vs. .67). The age group of 48 to 70 years is more prone to cardiovascular disease, cancer and diabetes mellitus, (.88 vs. .32) while the group of 39 to 47 years gastric diseases (.76 vs. .58).

In relation to work seniority, the group between 21 and 43 years showed increased susceptibility to cardiovascular diseases, Mental, Respiratory, Stomach, Cancer, Diabetes, Mellitus and others.

Conclusions: Middle school Education staff in Mexico City show serious conditions in both physical and mental health, it is important to establish an intervention program, which would improve

working conditions that lead to prevention, care and promotion of health of both teachers and management staff and support.

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BURNOUT SYNDROME AND MENTAL DISORDERS IN MIDDLE SCHOOL TEACHERS FROM MEXICO CITY

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Introduction. In the literature about the burnout syndrome are recognized its impacts in the psychological well-being of people with the syndrome and its association with mental disorders such as anxiety, depression and low self esteem (Maslach, 2009). Several studies show that teachers' work is related to the presence of mental disorders (Rodríguez, Díaz, Kepowicz & Hirsch, 2005).

Objective. To identify the correlation between the burnout dimensions and the symptoms of mental disorders in middle school teachers in Mexico City.

Method. This was a cross sectional study. The study's sample were 144 high school teachers from schools in five areas from Mexico City, 38% of males and 61% of women; 22 to 63 years old (Mean=43.77); with a job seniority from 1 to 36 years (Mean= 18.15 years); 59.2% in the morning shift and 40.8% mixed; 33.3% had interim contract and 66.7% tenure. A non-random sample was obtained with informed consent of the volunteers.

The Evaluation of Burnout Syndrome for Staff Education Questionnaire (CESQT-PE) (Gil-Monte, 2005) and the General Health Questionnaire (CGS-28) designed by Goldberg (1972), and a Demographic and Health Conditions Questionnaire were used. Trained professionals applied the instruments at the workplaces with the permission of the school director.

Results. A 69% of the teachers showed signs of mental impairment, no significant differences between men and women were observed, and only one case of serious burnout was identified.

There were significant middle correlation among the CESQT dimensions and Goldberg areas: Illusion and Hypochondria (-.233), Anxiety (-.197); Exhaustion and Hypochondria(0.271), Anxiety (0.315); Indolence and Hypochondria (0.200), Anxiety (0.269), Depression (0.249); Guilt and Hypochondria (0.291), Anxiety (0.350), ($p < .001$).

Indolence symptom was higher in singles than who live with a partner (1.1 vs. 0.80). Tenure workers had a higher indolence 0.63 vs. 0.39 of the interim. By teaching hours those teaching 2-19 hrs a week have 3.5 vs. 3.1 for those with 31-50 hours. Who teach 31-50 hr. had a high exhaustion, 2.0 vs.1.5 for those of 20-30 hrs, the same for the presence of hypochondria 9.3 vs. 6.8, anxiety 7.3 vs. 4.5 and anxiety, 10.2 vs. 6.4.

About social dysfunction those with 48 to 70 yr. had 11.4 vs.9.6 for younger teachers, and by shift were 11.5 for mixed shift vs. 10 for morning shift.

Conclusions. A 50% of the studied teachers had symptoms of mental disorders; there is also a high prevalence of burnout syndrome in the workplace. There are significant correlations between burnout dimensions and mental disorders assessed by the Goldberg and those diagnosed by a specialist, particularly anxiety and hypochondria. There are also significant correlations with certain working conditions and significant differences between teachers' subgroups that should be confirmed with a larger sample size.

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