Psychosocial factors and symptoms of stress in workers of a tire manufacturing company, Jalisco, Mexico

Carolina, Aranda-Beltrán¹; Lourdes, González-Galindo²; Ricardo, Vázquez-García³

Abstract

The objective of this study was to increase the knowledge of social and labor stressors that make up one of the main causes of occupational hazards. A census was conducted on the 60 workers of a tire manufacturing company. The study was descriptive, transversal and analytical. The presence of psychosocial factors was expressed by 49.1% of operational workers, the prevalence of stress symptoms in 36.4%. In the results of the relationship between psychosocial factors with the symptoms of stress and being sick, the two highest significant correspondences are observed in “Labor requirements” and “Job role and career development” with being sick, both with a p = 0.007.

Keywords: Psychosocial factors, stress, tire manufacturing company.

Factores psicosociales y síntomas de estrés en los trabajadores de una empresa de fabricación de neumáticos, Jalisco, México

Resumen

El objetivo de este estudio fue abundar en el conocimiento de los estresores sociales y laborales que componen una de las principales causas de riesgos en el trabajo. Se realizó un censo en los 60 trabajadores de una compañía de fabricación de neumáticos. El estudio realizado fue de carácter descriptivo, transversal y analítico. La presencia de factores psicosociales la manifestó el 49.1% de los trabajadores operativos, la prevalencia de síntomas de estrés en un 36.4%. En los resultados de la relación entre los factores psicosociales con los síntomas de estrés y estar enfermo, se observa las dos correspondencias significativas más altas en “Exigencias laborales” y “Papel laboral y desarrollo de la carrera” con estar enfermo, ambas con una p=0.007.

Palabras clave: Factores psicosociales, estrés, empresa fabricante de neumáticos.

Recibido: 02 de abril de 2019
Aceptado: 23 de septiembre de 2019

¹ Doctor en Ciencias; Profesor Investigador. Investigador SNI (Sistema Nacional de Investigadores) nivel II; Centro universitario de Ciencias de la Salud, Guadalajara, Jalisco, México; caranda2000@yahoo.com.mx; https://orcid.org/0000-0003-1388-8849
² Licenciado en Salud Publica; Jefe de departamento grupo departamental, Guadalajara, Jalisco, México; lucinagalindoo@gmail.com
³ Egresado de la Universidad de Guadalajara, Jalisco, México
⁴ Autor para correspondencia: caranda2000@yahoo.com.mx
I. INTRODUCCIÓN

At some point, within the work environment, workers may suffer accidents or occupational diseases as a result of prolonged and constant exposure to risk factors such as psychosocial factors. Work related stress has manifested itself as one of the main consequences of this exposure, which can affect the health and integrity of the worker. The relationship between psychosocial factors and work stress has already been described, however, a vulnerable but little studied population, the workers in charge of tire manufacturing.

As Oramas (2013) says, psychosocial factors are analyzed because they are a variable related to "psychic life and the conditions under which activity takes place" and to work stress because it is a variable that "expresses a quality, is subjective and is related between the individual and his environment ".

From the proposed definitions for psychosocial risk factors such as the International Labor Organization (ILO) and the World Health Organization (1986), defines psychosocial factors as "the interactions between work, its environment, satisfaction at work and the conditions of their organization, on the one hand, and on the other, the worker's abilities, their needs, their culture and their personal situation outside of work, all of which, through perceptions and experiences, can influence health and performance and job satisfaction (ILO-WHO, 1984-1986). Diverse are the authors who in their studies have proposed this definition for the analysis of its variables.

Also the ILO (1986) assures that work-related stress is "the relationship that the individual may have to the demands, and work pressures that do not adjust to their knowledge and abilities and that test their ability to cope with the situation ", In a few words," the stress appears when this pressure becomes excessive or difficult to control, "authors such as Peiró and Rodríguez (2008) and Castañeda, Colunga, Preciado, Aldrete and Aranda accept (4). From this point of view and following the World Health Organization (1984) a healthy work environment "is not only where there is absence of harmful circumstances, but abundance of factors that promote health; is one in which health and the promotion of health are a priority for workers and are part of their work life ", so, the" dangerous "causes as called by Leka and Stavroula (2004) related to stress and that mostly come from the way in which work is defined and the way it is managed, are divided into: those related to the characteristics of the job (job characteristics, volume and pace of work, work schedules, participation and control ), and those related to the labor context (professional perspectives, status and salary, role in the entity, interpersonal relationships, institutional culture, relationship between work and family life).

Concepts similar to those proposed by the ILO-WHO can be found in the literature, such as the definition of the European Commission (2002) that requires it as "a pattern of emotional, cognitive, physiological and behavioral reactions to certain adverse or harmful aspects of the content of work, organization of work and the working environment. It is a state characterized by high levels of excitement and response and the frequent feeling of not being able to face them ", and in which their causes or risk factors are similar to those already mentioned (European Commission, 2002).

Recently, in the 2016 World Day of Safety and Health at Work, the ILO (2016) has indicated that attention to psychosocial risk factors is a global problem that affects all workers in both developed and developing countries. In development, so the approach is to encourage employees and employers to generate commitments such as: improvement of social relations at work, mutual support, prevention of acts of harassment, harassment or mistreatment, generation of skills, and improvement of working conditions and productivity (Día Mundial de la Seguridad y Salud en el Trabajo, 2016).

For this, the objective of the study was to make known this relationship of variables between psychosocial factors and symptoms of work stress in the workers of a tire manufacturing company in Jalisco, Mexico.

II. MATERIAL AND METHODS

Type of study

A descriptive, transversal and analytical research was designed, the work context being a company dedicated to the manufacture and export of tires. Virtually began its activities in 2005, is currently a company with high global competitiveness as well as its distribution, produces between 18 to 25 thousand
tires daily. It consists of raw material warehouse, bambury (mixed pigments), eseelastic (cutter), high pad, tabulators and calenders, assembly, presses, final finishing and finished product warehouse. The people who work in the cooperative are 1600, the 3 shifts are worked, the days are 8 hours from Monday to Friday and shifts are rotated every 3 weeks.

Study population
The study population included for the analysis were the workers of only two of the areas of the company: final finishing and vulcanization, corresponding to 60 subjects (census) that participated voluntarily and under informed and signed consent, eliminating the workers who for some reason had to leave the study, or the surveys were not answered in full.

Despite being a company dedicated to the manufacture of tires and that would normally be expected to see only men working, it is observed that women do, so that of the 60 subjects who participated in the study, a higher percentage was observed for the men 83.6% against 16% women, the minimum age was 17 years with a maximum of 58, the most frequent marital status was that of married 50.9%, followed by singles 38.2%, the rest were free union, separated or divorced.

The highest seniority in the position varied from 4 years to one year, six months, with 9.1% at three years, 3.6% at two years and 1.8% at one and a half years. The seniority of the company was observed differently, it ranged from 10 to 7 years, with the highest percentages being 10 years (9.1%) followed by those of 9 years (5.5%) and those of seven years with a 3.6%.

Evaluation instruments
In the study, three questionnaires were applied: the first included socio-demographic and labor variables; the second was the symptomatic stress scale of Seppo Aro-ESE (9,10) and, as a third instrument, the adapted scale of psychosocial factors of Silva Gutiérrez (2006).

The scale of symptoms of Stress, Seppo Aro (ESE) (1980) contains 18 items associated with stress states, psychosomatic, emotional, or conative. Examples of these symptoms are: "palpitations or irregular heartbeats", "irritability", "anger", "fatigue or weakness". The answers are expressed in an ordinal scale of four frequencies, which are evaluated from 0 to 3, for which the possible annotations fluctuate between 0 and 54, so that a scale with scores of 0-8 is considered as "normal stress" , From 8 to 10 as "tendency to stress "and scores greater than 10 is considered as "pathological stress "( Roman, J., 2003). This instrument was validated by finding reliable validity data with a Cronbach's alpha of 0.88 (Colunga, C., Enríquez, C., González, M., & Domínguez, R., 2008).

The instrument or scale of Psychosocial Factors in the Work of Silva (2006) consists of a list of agents grouped in 7 areas: a) conditions of the workplace; b) workload; c) content and characteristics of the task; d) work demands; e) role of the academic and career development; f) social interaction and organizational aspects; and g) performance compensation. The instrument uses a 5-degree Likert-type frequency scale that goes from 0 (never) to 4 (always), the scores of each section are added and three categories are determined: low, medium and high which are categorized by each one of the subscales and globally. This instrument has also been validated by Colunga et al (2008) with Cronbach's alpha values of 0.83.

Statistic analysis:
Frequencies, percentages, averages and prevalences were obtained, as well as relationship values with a significant value of p equal to or less than 0.05.

Ethical aspects:
The present study is considered risk-free category one (Norma Oficial Mexicana, 2016). The participation of the respondents was voluntary signing with informed consent.

III. RESULTS
Considerable is the prevalence of stress symptoms (36.4%) that this working population presents (figure 1). According to Seppo Aro symptomatic stress scale, the prevalences for symptoms with higher percentages range from acidity or burning in the stomach, headaches, nervousness or anxiety, fatigue or weakness, irritability or anger, loss of appetite, diarrhea or frequent urination, lack of energy or depression and trembling or sweating in the hands.
The presence of psychosocial factors was shown by 49.1% of the operative workers. According to the instrument of psychosocial factors of Silva (2006) (figure 2), the highest prevalence was for the area of "workload" which assesses whether the worker has an excess of activities to carry out during his daily work, if the labor demands you receive do not correspond to your level of knowledge, if the days are longer than 9 hours of work, if they work on weekends and during vacations in your company's activities and if they have few tasks to perform during your daily work day.

This information is supported by the "content and characteristics of the task" area, referring to whether their work is repetitive, routine or boring, if they face problems with their peers, that work does not allow them to develop new skills and knowledge, if they participate in projects that are not of your interest, if they make constant changes in activities or if you carry out activities that are not your specialty, as well as if they exercise coordination and supervision of personnel.

With the same importance of prevalence appears the area of "work demands" with variables as if their work is characterized as a complex task, requires a high degree of concentration, to remain for many hours in uncomfortable positions (standing or sitting), makes use of constant verbalization, requires prolonged visual effort, requires creativity and initiative, has demands to enter stimulus programs or productivity bonuses.

The "conditions of the workplace" and "work role and career development" are two areas that are also affected, it should be noted that they are evaluated from the presence of: noise, lighting, temperature, hygiene, dust, gases, solvents or vapors, microbes, fungi, insects or rodents, overcrowding, necessary equipment, activities not in accordance, difficulty in the use of new computer programs, incompatibility between their professional training and the demands, status of their corresponding position, limitations in the opportunities for promotion, lack of support in terms of training and / or training.

The alarming results of both the stress scale and the psychosocial factors allowed us to continue analyzing this problem.
<table>
<thead>
<tr>
<th>Areas of psychosocial factors</th>
<th>Low level</th>
<th>Medium high level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Conditions of work place</td>
<td>47.3%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Workload</td>
<td>30.9%</td>
<td>69.1%</td>
</tr>
<tr>
<td>Content and characteristics of the task</td>
<td>32.7%</td>
<td>67.3%</td>
</tr>
<tr>
<td>Labor demands</td>
<td>32.7%</td>
<td>67.3%</td>
</tr>
<tr>
<td>Job role and career development</td>
<td>47.3%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Social interaction and organizational aspects</td>
<td>78.2%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Performance compensation</td>
<td>72.7%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

Figure 2. Prevalences of the psychosocial factors in the work according to the scale of Silva (adapted, 2004)

Source: self made

In the relationship results, it is observed with some tranquility that there is only significant correspondence with some of the dimensions of the instrument such as: "workplace conditions" with the symptoms of stress and with the variable sex, the dimension "workload" "With the symptoms of stress, the" work demands "with the seniority in the institution and having some discomfort or illness in the last six months, as well as the" work role "also with the fact of being sick and the" total or of the scale of psychosocial factors "with seniority (figure 3).

<table>
<thead>
<tr>
<th>Areas of psychosocial factors</th>
<th>Stress symptoms</th>
<th>Sex</th>
<th>Antiquity in the institution</th>
<th>Be sick</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p&lt;0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions of work place</td>
<td>.028</td>
<td>.043</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>.012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor demands</td>
<td></td>
<td>.041</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>Job role and career development</td>
<td></td>
<td></td>
<td></td>
<td>.007</td>
</tr>
</tbody>
</table>

Figure 3. Significant variable singles between psychosocial factors, stress symptoms and sickness

Source: self made. Note: --- non-significant values

IV. DISCUSSION

As the literature has shown, the probable statistical relationships between psychosocial factors and stress symptoms are expected, this is mainly due to the high labor demands and inadequate working conditions to which the worker has and should be exposed when performing your work activities.

Just as Gómez et al (2000) report that the vulnerable population to suffer the consequences of exposure to psychosocial agents are female
executives, nurses, secretaries and workers. Benavides and cols (2002) refer to workers in the construction, automobile, electrical, electronics and multinational industries as a sensitive population, or as Ansoleaga y Toro (2010) sees it, in which he finds the vulnerable workers a mining company.

The large number of studies carried out by teachers and health professionals is striking, however, we agree with Moncada et al (2008) in which he states that any salaried population may be at risk and be sensitive to suffer its consequences.

However, the prevalence figures for the psychosocial risks reported are reflected in different ways according to the activity in question and the psychosocial risk that the worker perceives as negative for him. Comparing the percentage (50%) of the prevalence of psychosocial factors in the present study, we can observe that this is high compared to the 30% referred by the European Foundation (1996) with the presence of factors such as when the worker is exposed to work night, repetitive tasks, monotony, working under constant pressure, excessive workload and forced postures were the most frequent risks.

Similar data is expressed by the ILO (2001) where it can be seen that since the 1980s workers were orienting their work to be mentally very fatigued, to having no opportunity to rest or to learn new things, to the rhythms of work and the workloads were very high, because they had no possibility of promotion, because the relationship between their studies with the job was not adequate.

On the other hand, Mireles, Pando and Aranda (2003) using the scale of identification of psychosocial factors of Legaspi, Martínez and Morales (1986) scale similar to that of Silva, find that, the areas of the work system and social interaction were the most affected (46% and 43%).

More recent research reports that the psychosocial risks range from those who report being in third place of importance approaching up to 80% of its prevalence (Hernández, J.R, 2006) as those who appreciate 37% (Enriquez et.al., 2010) or those who report low capacity to make decisions and to deploy their skills at work 48%, high psychological demands 47%, under social support of peers and superiors 41% and 67% imbalance between the efforts they invest in work and the rewards they receive in return (Ansoleaga, E., 2015).

The little significant relationship seen in this work can be compared with the study by Gómez, Hernández and Méndez (2014), especially in regard to the dimensions of "workplace conditions" and "workload" since it mentions, initially, that the active work dimension and development possibilities are in a high range of exposure, that the training they require to perform the occupation are not adequate, that there are high psychological demands and under task control, that they feel that their work is not a source of opportunities to develop their skills and knowledge, that they feel unhappy with the physical environment and space in the workplace, cleanliness, hygiene and sanitation, temperature, ventilation and lighting; and that the results of association reveal that there is a significant and negative relationship between risk factors, job satisfaction and psychological demands.

The literature shows, in some cases, that there is significance between psychosocial factors and mental health indicators, explaining that "the more perception of work stress greater perception of depression, anxiety, social dysfunction and psychosomatic symptoms", but that this significant relationship it does not occur in all cases in terms of indicators of working conditions refers to health aspects (Gómez-Ortiz & Moreno, 2009), which can not be compared with the results of this study since here there was a significant relationship between being sick and dimensions of "work demands" and "work role and career development". But, significant correlations between dissatisfaction with the work role, work stress, negative relationships and little social support with colleagues and superiors, negative change in work pressure and workloads, with health measures, are demonstrated by Matud, García and Matud (2002).

As already stated, the presence of psychosocial factors perceived as inadequate by the worker and for him, constitute a risk of his own, and can even become serious problems for his health. The manifestation most known for exposure to psychosocial risks is stress or, rather, distress (Aranda et.al., 2005), that is, "the mechanism by which these risk factors are associated with the emergence of diseases" (Ansoleaga, Vezina, & Montano, 2014).

According to the Official Gazette of the Federation in its Draft Official Mexican Standard 035 of the
Ministry of Labor and Social Welfare Federal Labor Law (Norma Oficial Mexicana, 2016) the problem of psychosocial risk factors in the workplace is addressed (project oriented to the prevention) and indicates, among other things, that they are aspects to be considered within the psychosocial risk factors, those that derive from the nature of the functions of the job: the dangerous conditions inherent in it; when performed under unsafe conditions; which carries high responsibility, or requires intense concentration and attention for long periods. This project provides for the identification of psychosocial risk factors and the evaluation of the organizational environment. For this purpose, it has implemented two identification-oriented tools that allow us to define actions to prevent the effects and consequences of psychosocial risk factors, in order to determine the strategies to be followed. It is suggested, in addition to the researcher’s own evaluations, to follow the indications that the rules govern.

V. CONCLUSION
In this study, a prevalence of stress symptoms was found in 36.4%. The presence of psychosocial factors was shown by 49.1% of the operative workers. According to the instrument of psychosocial factors of Silva, the highest prevalence was for the area of "workload" is seconded the area of "content and characteristics of the task" referring to whether his work is repetitive, routine or boring, that if he faces problems with his peers, that work does not allow him to develop new skills and knowledge. The "conditions of the workplace" and "work role and career development" are two areas that are also affected.

In the relationship results, it is observed that there is only significant correspondence with some of the dimensions of the instrument such as: "workplace conditions" with the symptoms of stress and with the sex variable, the "workload" dimension with the symptoms of stress, "work demands" with seniority in the institution and having some discomfort or illness in the last six months, as well as the "work role" also with the fact of being sick and the "total or global scale of psychosocial factors "with seniority.

VI. REFERENCES


Comisión Europea (2002). Guía sobre el estrés relacionado con el trabajo. ¿La sal de la vida o el beso de la muerte? Dirección general de empleo y asuntos sociales: Bruselas

Ultimo acceso 14-09-2017


Recuperado de http://www.redalyc.org/articulo. oa?id=33720305


II Encuesta Europea sobre condiciones de trabajo de la Fundación Europea para la Mejora de las Condiciones de Vida y de Trabajo. Dublín: Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT); 1996.