

## **Pilot study on the impact of an environmental public health contingency (COVID-19) on the stress and general health of workers from different organizations in the industrial sector located in the metropolitan area of Nuevo León**

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### **Nora Isela Macías Núñez**

Doctora

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: nora.maciasnanz@uanl.edu.mx

### **Aurora Moyano González**

Ed.D

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: aurora.moyanogn@uanl.edu.mx

### **Víctor Hugo Ibarra González**

Doctor

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: victor.ibarragn@uanl.edu.mx

### **José Armando Peña Moreno**

Doctor

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: armando.penamn@uanl.edu.mx

### **Álvaro Antonio Ascary Aguillón Ramírez**

Doctor

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: alvaro.aguillonrm@uanl.edu.mx

### **Martha Esthela Calderón Parga**

Mestra

Institution: Universidad Autónoma de Nuevo León

Address: Dr. Carlos Canseco #110, Colonia Mitras Centro, Monterrey Nuevo Leon, México, CP 64460

E-mail: martha.calderonpr@uanl.edu.mx

### **ABSTRACT**

The different situations that arise in society, in relation to the health part, also affect workers to some extent, this is the case of the COVID -19 pandemic that has affected all organizations in some way, such as in its utilities, in reducing personnel, in adapting new forms of work, in case it requires it and in activating health protocols to prevent contagion in its workers, this health situation that is present

worldwide has had a great effect impact on people from the psychological aspect, it is for this reason of interest to carry out this research, with the general objective "to determine the impact of environmental contingency in terms of stress and general health of workers in different business sectors located in the state of Nuevo León, Mexico", for the beginning of this investigation, the analysis was carried out on the first 97 instruments answered, which were are the Perceived Stress Scale (10 items) and the Goldberg General Health Questionnaire, with the result that 57% of the sample perceive themselves as stressed and 43% state that they have perceived some symptom that has affected their general health, as far as At the hierarchical levels within the organization, it was found that 31% of the sample with an administrative position perceive themselves stressed by this pandemic situation, and 26% of the operational position perceive stress.

**Keywords:** workers, stress, fatigue, environmental contingency, organization, health.

## 1 INTRODUCTION

At present, organizations and society itself are constantly changing, since the new forms of work, the processes that have to be implemented in organizations, as well as the different ways of thinking of workers in relation to their chronological age, that is, to the different types of generations that interact in organizations, it encourages the generation of a basic psychosocial phenomenon in which every human being lives constantly with him, this phenomenon is Stress, it manifests itself in people through a stimulus and causes an alteration since the person perceives that the demands of this stimulus exceeds their coping capacity and as a response is tension and demonstrates it in various ways, which can be physical, psychological or emotional.

Another effect that stress produces is that people can perceive that it has affected their health, therefore it does not develop favorably either in their daily activities such as work, in addition to the constant changes that they are currently experiencing. society such as: the new ways of working, the processes that have to be implemented in organizations, as well as some others that are not very frequent, affect the organization in some way, in this case we can mention the pandemic situation generated by the SARS-CoV-2 virus that causes COVID-19, which has affected human beings and in some cases has caused death.

This health contingency, which the World Health Organization declared a pandemic (March 11, 2020), made organizations take preventive measures to avoid or minimize some type of contagion, this causes certain types of infection in workers. of perceptions that at a given moment their health may be affected. In this sense, the WHO (s.f.), defines Health as "a state of complete physical, mental and social well-being and not only the absence of conditions or diseases", said quote comes from the Preamble of the Constitution of the World Health Organization , which was adopted by the International Sanitary Conference, held in New York signed on July 22, 1946 and entered into force on April 7, 1948, said definition has not been modified since 1948.

On the other hand, Briceño-Leon (2000), mentions that “health is a synthesis; it is the synthesis of a multiplicity of processes, of what happens with the biology of the body, with the environment that surrounds us, with social relations, with politics and the international economy”.

Likewise, Moreno takes up the definition of Oblitas (2010) which considers health as physical, psychological and social well-being that does not necessarily imply the absence of alterations and diseases, but rather includes different degrees of vitality and adaptive functioning, it is also considered a social phenomenon that can only be explained by taking into account structures of a high degree of complexity, such as human behavior, where variables with strong interaction between them will come into action (Moreno, 2008 p. 93, cited by Mebarak, M. & Suárez E. 2016).

With this it is clear to us that depending on the perspective and even academic training a person can be considered healthy or not, that is, if we speak from the medical point of view and they do not present any symptoms, the person is considered healthy, In the same way, from the psychological perspective at the time of its evaluation, it does not present any symptomatology or trait of mental illness, it will have a positive result, otherwise it can happen in the perspective of society, since if a person does not comply with the beliefs, values, custom of the culture in which he finds himself, he can be considered as an unhealthy person.

As mentioned (Alcantara Moreno 2008), the idea of health also responds to a historical condition, since at any given time, a certain society may have a particular vision of it. In fact, each era corresponds to a certain unrepeatable structure of power, techniques, ideas, values, customs, beliefs and norms. So the notion of what is meant by health is a product or social construction, or as Emile Durkheim would say (quoted by Ritzer, 2002), "a social fact that can be treated as a thing and is external and coercive to the individual" . (p.97).

Considering the importance of having knowledge of health in workers, it is necessary to talk about mental health since it cannot be separated due to the fact that it is immersed within this concept of health, therefore, taking up the definition of the WHO (s.f.) , which mentions that "Mental health encompasses a wide range of activities directly or indirectly related to the component of mental well-being included in the definition of health given by the WHO: «a state of complete physical, mental and social well-being, and not only the absence of affections or diseases”. It is for this reason that these different activities must be taken into account so that the subject finds himself in a favorable mental health.

Likewise, attention should be paid to the fact that when talking about mental health it refers to different mental disorders that can manifest in people and therefore it will be categorized as poor mental health, otherwise it does not present any symptoms of mental disorder. , can be categorized as mentally healthy, without taking into account that these symptoms may be latent in the subject. For this reason,

the function that mental health workers must perform is to promote better lifestyles where the balance is found in the different factors that are involved in mental health.

Therefore, talking about mental health should be taken into account in organizations where people develop a work function, since as mentioned (Hespanhol, et al. 2018) the new rules and organizational structures, such as globalization, interdependence, automation and technological evolution in the mental health of the worker, it is stated that, regardless of the causal factors, the work environment is a suitable space for education and maintenance of mental health (p. 1616), therefore This type of organizational change can affect the worker and commonly manifests as stress.

### 1.1 STRESS

The effect on health due to stress that has been generated in organizations, which is manifested in people through a stimulus and this causes an alteration since the person perceives that the demands of this stimulus exceed their coping capacity and as response manifests tension, in which there is a different symptomatology, which can be physical, psychological or emotional, this results in a deterioration in the perception of the health of workers. The World Health Organization (WHO) defines stress as the set of physiological reactions that prepare the body for action. For their part, Lazarus and Folkman (1991, in Gutiérrez, 2008), define stress as "a set of particular relationships between the person and the situation, when the situation is valued by the person as something that exceeds or exceeds their resources and that endanger their personal well-being.

Stress is necessary in people because it helps in the process of adaptation, self-regulation, as well as being a motivator to achieve goals. It is worth mentioning that this stressful situation is not necessarily the same for everyone, that is, each person based on their perception will determine if it is stressful or not, in this sense, as López Santana (2014) mentions, "it is a response of the organism to stimuli that tend to break their balance, of which these responses can be a psychosocial, physical or biological response, it can be a systemic response, in addition the stressful situation depends on the novelty of the situation, lack of information, predictability, uncertainty, duration of the stress situation".

This phenomenon must be properly addressed since the effects on people are very varied, it can range from effects on the body (Leal, 2006) such as sweating, palpitations, headaches, back pain, chronic fatigue syndrome, hypertension, colitis, ulcers, loss of appetite, respiratory diseases, among others. Psychologically it can cause depression, anxiety, etc. (Gutierrez, 2008). Second, the effect in relation to your work can manifest itself in loss of creativity, loss of motivation, decreased effectiveness, decreased quality of life.

On the other hand, if an organization neglects attention to this phenomenon, it will be affected by low productivity of workers, interpersonal conflicts, high turnover, as well as a deterioration in communication and therefore the work environment will be poor. In this sense, it is important that special attention be paid to this phenomenon in organizations so that their personnel work with the appropriate levels of stress and do not affect the health of any of them, since as defined by the WHO 'health is a state of complete physical, mental and social well-being and not only the absence of conditions or illnesses' (Alcántara, 2008).

As taken up by Gutiérrez (2004, in Fernández, 1999), who mentions that good health allows the proper development of work activity and constitutes the basis for achieving the necessary well-being at work that allows the development of physical and intellectual capacities, since that favors the person to remain satisfied, healthy and full'. It is in this sense that the purpose of this project is to know the impact on stress levels that an environmental public health contingency exerts on people who perform a job and how their health is reflected in this, as well as to capture a proposal for intervention to reduce the levels of stress that workers may experience in the face of said environmental contingency, which is specifically the SARS-CoV-2 virus that causes COVID-19.

Stress is a psychophysiological reaction that is triggered by a feeling of physical or emotional tension that can be triggered by a thought or action of annoyance, anger, frustration or anxiety. This reaction of demand or challenge that is expressed is positive whenever it is warned of a risk or danger situation or is supported by a deadline that must be met, in other words: mild stress can help as a motivator. The response to being adaptive is known as eustress. However, it can arise from exhausting and fatiguing or pathological (distress) demands.

There are three different types of stress.

- Routine stress.
- Provoked stress.
- Traumatic stress leading to PTSD.

Routine stress, also known as eustress, is related to everyday situations that normally favor carrying out activities properly and on time, which is the cause of psychophysiological problems. It is when, for example, it is necessary to deliver a job and it is on a deadline, it can also be due to an excess of traffic to get to a place, even as a motivator to achieve higher goals in a company. It is usually placed on others to perform tasks in a relatively short time, it can even be applied to oneself. It is usually used on a temporary basis as evaluation or pressure at work.

Provoked stress is the most exhausting type as it occurs due to a sudden and negative change in the way of living. Within normality, it is caused by a job change or loss, or by a divorce, or by an accident or illness. As for Post Traumatic Stress Disorder (PTSD), there are very specific criteria for acute stress

disorder or PTSD. The DSM-5 refers that people with this problem have been exposed to situations of real death, or really significant threats, serious injuries or rape. According to NOM 0035, the first three are our responsibility, either in the same individual or with colleagues. When three or more symptoms are present, they tend to show emotional numbness (Ozer, 2003).

When talking about PTSD it is important to consider that the worker requires psychological support. Traumatic situations lead to amnesia that can be partial, that is, about a certain part of the event, or total, which occurs very rarely. They may appear to be in shock. Workers with PTSD have witnessed the event in coworkers' deaths. When it comes to work accidents, they may have been part of it or be present at the event. The consequences that they can report have to do with the compulsive need to talk about the event, recurrent memories with anguish, distressing dreams of the event that present disorders of the event.

A persistent negative state of mind unable to notice anything positive around you. Also, flashbacks or in other words: dissociative reactions, concentration problems or startle behaviors, physiological responses to memory. These alterations cause immediate discomfort to the event and a persistence of three days to a month to meet the criteria of the disorder. As a last piece of information to mention it is important to emphasize that they had to remain in person, with the exception of workers who work through video cameras and who can be affected in the same way by the presence of these acts (Navinés, 2010).

Stress is made up of a variety of symptoms which can be confused with various diseases, the symptoms are mainly related to psychological and psychosomatic problems, it is closely related to problems such as anxiety and depression. The main symptoms that can be found in this health problem are memories of the trauma (flashbacks), hallucinations, extreme anxiety when coming into contact with people, places or any circumstance that reminds the event.

Palpitations, shortness of breath, and increased sweat secretion each time the triggering event is recalled. Inability to remember details, feeling psychically distant, numb and paralyzed from any normal emotional experience, losing interest in hobbies and entertainment, eventually showing signs of hyperactivity.

Work stress should be considered as the relationship between the company and the worker. It is the result of a series of transactions that the employee establishes with his work environment. When the worker perceives excessive work demands on his ability to adapt or competitiveness, his health and productivity may be diminished, the consequence is a complex adaptation process determined by the work environment of the department or company. Here it is important to have a transformational leadership that allows the approach of the problem that may be presenting.

The stress caused by COVID 19 is not only work related, but has affected people's lives by having to take sanitary measures that they were not used to, in addition to losing a series of privileges that were not even contemplated, such as assistance to cinemas, stadiums, theaters even weddings, gatherings with friends, family gatherings. Creating a feeling of isolation that leads to a crisis of anxiety, depression, domestic violence, exhaustion and fear, the feeling of confinement or blockage of daily activities must be perceived as a problem to be taken into account within organizations, since the Teleworking can bring a series of harms or benefits in the workplace.

## 1.2 GOAL

The objectives of this research work were raised to understand the perception of workers from different organizations located in the state of Nuevo León, Mexico, with the general objective of determining the impact of environmental contingency in terms of stress and general health of workers. workers from different business sectors located in the state of Nuevo León, Mexico that allows establishing an intervention strategy for the affected organizations.

In that same sense, 6 specific objectives were developed, which are described below.

Specific objective 1, to identify the perception of stress in men and women from different organizations located in the state of Nuevo León, in the face of the COVID-19 contingency.

Specific objective 2, to identify the perception of general health in men and women from different organizations located in the state of Nuevo León in the face of the COVID-19 contingency.

Specific objective 3, determine the perception of stress in jobs with administrative functions (middle and senior management) compared to workers with an operational position, derived from the COVID-19 contingency.

Specific objective 4, determine the perception of general health in workers with administrative functions (middle and senior management) compared to workers with an operational position, derived from the COVID-19 contingency. Specific objective 5, to know the perception of workers regarding the measures implemented by their organization to safeguard their integrity in the face of the COVID-19 contingency.

It is important to clarify that as this work is a pilot, the database continues to be fed from which the instruments continue to be applied to obtain more information on this research topic, for this reason initial results of the general objective and the objectives have been obtained. one two three four and five.



## **2 METHOD**

### **2.1 PARTICIPANTS**

In this sample, the instruments were applied to 97 participants, of which 62 are female, and 35 male, with an average age of 27 years and the different lines of the organizations are: automotive, construction, information technology. information and maquiladora.

### **2.2 INSTRUMENTS**

For this research, the following instruments were applied, Perceived Stress Scale, which is one of the most used and measures people's perception of life situations as stressful, this scale has been adapted to Mexican culture by González and Landero , its approximate application time is 8 -10 minutes, it is made up of 14 items, of which they are questions about the levels of stress experienced in the last month, its type of answers is five Likert-type options, where 0 is (never ), up to 4 (very often, items 4, 5, 6, 7, 9, 10 and 13 have an inverse score.

The second instrument used is the General Health Questionnaire whose author is David Goldberg, which helps us to evaluate self-perceived health, that is, the evaluation made by the individual of their general state of well-being, especially with regard to the presence of certain emotional states, is answered using a Likert-type scale from 0 to 3 points, in which the total score was calculated by adding the scores obtained in all the statements of the scale (as the scores increase, the level of health decreases mental). (Garcia, 1999, p. 89).

### **2.3 ANALYSIS OF DATA**

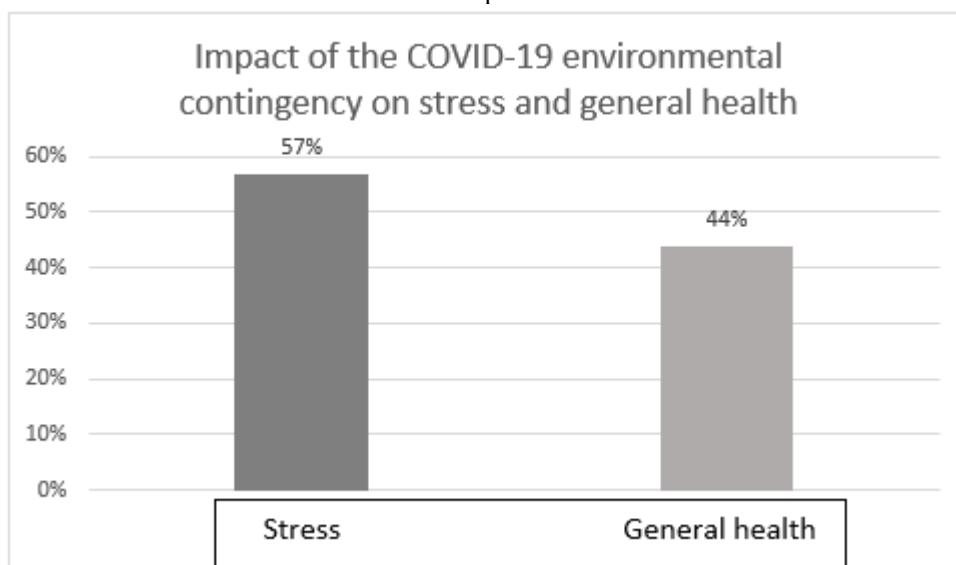
A database was created with the responses provided by the workers, said database was subjected to analysis using the statistical package SPSS Statistics 25, this to obtain the internal consistency  $\alpha = .85$ , descriptive analysis and cross tables to determine relationships between variables.



### 3 RESULTS

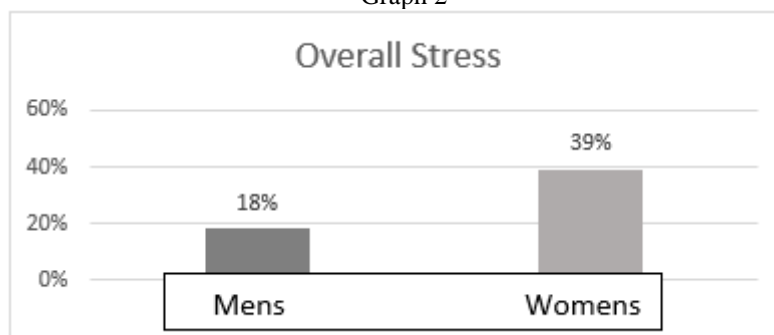
The results found in this first part of the investigation were the following.

Graph 1



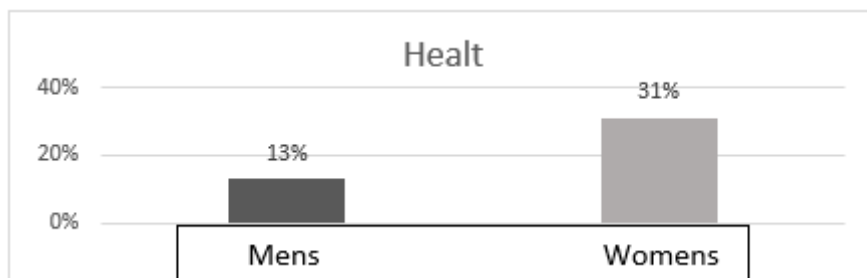
General objective, Determine the impact of the environmental contingency in terms of stress and general health of workers in different business sectors located in the state of Nuevo León, Mexico that allows establishing an intervention strategy for the affected organizations. As can be seen in graph 1, of the total population, at least 57% of the general population report having felt stress. On the other hand, of the total population, at least 44% have perceived factors or symptoms that affect their general health to some degree.

Graph 2



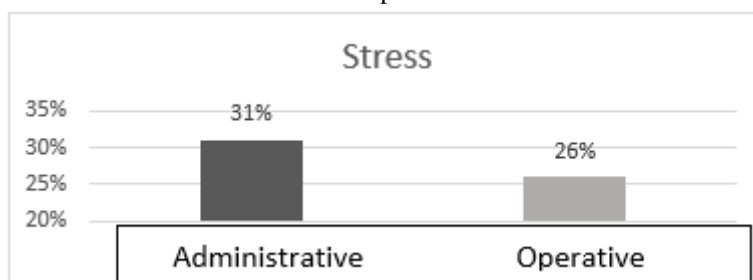
Specific objective1. To identify the perception of stress in men and women from different organizations located in the state of Nuevo León, in the face of the COVID-19 contingency. As can be seen in the graph, of the total population, 18% of men report having felt stress. On the other hand, of the total population, 39% of women report having felt stress.

Graph 3.



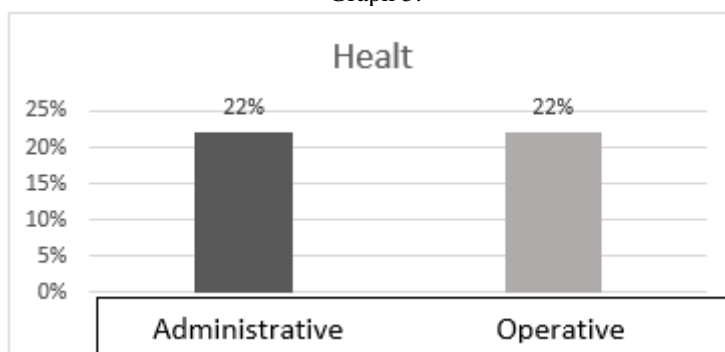
Graph 3. Specific objective 2. Identify the perception of general health in men and women from different organizations located in the state of Nuevo León in the face of the COVID-19 contingency. As can be seen in the graph, of the total population, 13% of men have perceived factors or symptoms that affect their mental health to some degree. On the other hand, of the total population, 31% of women report the same case.

Graph 4.



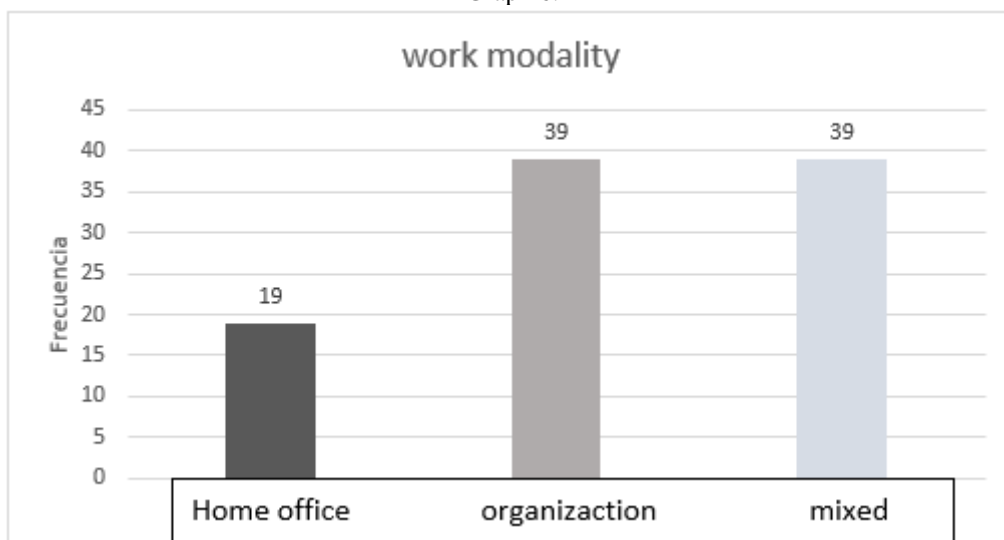
Specific Objective 3. Determine the perception of stress in workers with administrative functions (middle and senior management) compared to workers with an operational position, derived from the COVID-19 contingency. As can be seen in the graph, of the total population, 31% of people with an administrative position report having felt stress. On the other hand, of the total population, 26% of people with an operational position report having felt stress.

Graph 5.

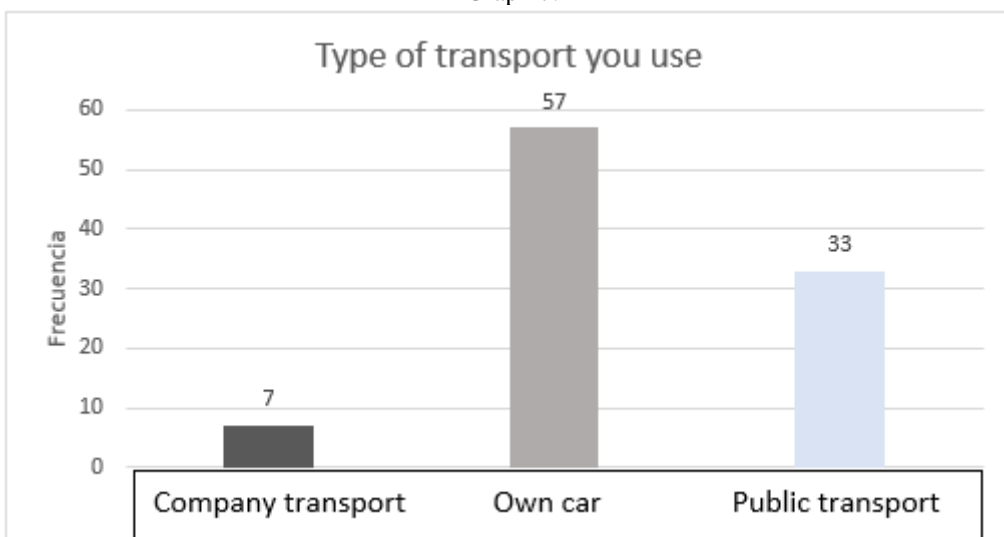


Specific objective 4, Determine the perception of general health in workers with administrative functions (middle and senior management) compared to workers with an operational position, derived from the COVID-19 contingency. As can be seen in graph 5, of the total population, 22% of people with an administrative position have perceived factors or symptoms that affect their mental health to some degree. Similarly, of the total population, 22% of people with an operational position report the same case.

Graph 6.



Graph 7.



Specific objective 5. Identify the measures implemented to safeguard the integrity of workers in the face of the COVID-19 contingency. As can be seen in graph 6, of the total population, 39% of people work with a mixed modality (home and company), another 39% attend the organization, and 19% of people only work from home. On the other hand, graph 7 shows that 57% of people travel in their own

car, 33% of people prefer to travel by public transport and only 7% of the population travels by company transport. .

#### **4 CONCLUSIONS**

The study shows the importance of identifying and knowing what is the perception that the worker has in the face of the current situation in the pandemic. That said, various factors, including company decisions, affect the person in various ways, from aspects such as the way in which the work modality will be carried out depending on the position, to the most extreme such as dismissal. Therefore, it is necessary for organizations to implement certain types of measures for the well-being of the worker. In general terms, it can be concluded that in the face of the contingency of the pandemic, women perceive themselves to be more affected in their general health and stress, unlike men. Likewise, there are no significant differences due to the type of work performed, that is, administrative and operational personnel perceive their effect on general health and stress in a very similar way.

In conclusion, this study responds to numerous current needs in the labor field by making the following contributions: a) Identification of factors that impact the well-being of the worker within organizations in the Mexican population; b) Prevalence data on the perception of stress and health in workers; c) Greater involvement of working women in the face of stress symptoms.

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