

# Perception of occupational risk by the staff of an ice factory

## Percepción de los riesgos laborales por el personal de una fábrica de hielo

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### ABSTRACT

**Objective:** to describe the perception of occupational risks by the staff (supervisors and operators) of an ice factory in Aragua State, Venezuela.

**Methods:** this research was conducted using a quantitative, observational field study design, with a descriptive, cross-sectional, and correlational approach. The sample was represented by the entire working population, 15 workers, therefore it was a census. The Worker Perceived Risk Assessment Questionnaire (NTP578) was administered. Spearman's rank correlation coefficient was used to correlate the variables.

**Results:** regarding the social perception of risk, entrapment and impacts from machinery were perceived as high, with an average score of 5,56 points. The most significant risk was exposure to low temperatures, with an average score of 83 points. For operators, the main risks identified were exposure to low temperatures (5,72–96,82 points), while for supervisors, the main risk was entrapment and being struck by machinery (6,47–92,50 points). Statistically significant correlations ( $p < 0,05$ ) were found between age and education level and the risk of falls, noise exposure, and exposure to low temperatures.

**Conclusion:** workers' perceptions of risk are crucial when implementing prevention strategies and programs in organizations, leading to the minimization of workplace accidents and occupational illnesses.

**Keywords:** Impacts on Health; Preventive Health Services; Occupational Health.

### RESUMEN

**Objetivo:** describir la percepción de los riesgos laborales por el personal (supervisores y operarios) de una fábrica de hielo en el Estado Aragua – Venezuela.

**Métodos:** la investigación se realizó bajo un estudio cuantitativo, diseño de campo tipo observacional, nivel descriptivo, corte transversal, y correlacional. La muestra estuvo representada por el total la población trabajadora, 15 trabajadores, por tanto fue censal. Se aplicó el cuestionario de Evaluación de Riesgos Percibidos por los Trabajadores (NTP578). Para la correlación de las variables se aplicó el Coeficiente de Correlación de Rangos de Spearman.

**Resultados:** sobre la percepción social de riesgo, el atrapamiento y golpes por maquinaria se ubicó en un nivel alto dado a un promedio de 5,56 puntos. La magnitud del riesgo, fue la exposición a bajas temperaturas con un nivel alto de riesgo (promedio de 83 puntos). Para los operadores los principales riesgos identificados fueron la exposición a bajas temperaturas (5,72 – 96,82 puntos), mientras que para los supervisores el principal riesgo fue atrapamiento y golpeado por maquinaria (6,47–92,50 puntos). Se encontraron correlaciones estadísticamente significativas dado a una  $p < 0,05$  entre la edad y la escolaridad con el riesgo de caídas, la exposición al ruido y la exposición a bajas temperaturas.

**Conclusión:** la percepción que los trabajadores tengan sobre el riesgo es determinante al momento de implementar estrategias y programas de prevención en las organizaciones, conllevando a la minimización de los accidentes de trabajo y a las enfermedades ocupacionales.

**Palabras clave:** Impactos en la Salud; Servicios Preventivos de Salud; Salud Laboral.

## INTRODUCTION

A workplace accident or occupational disease, as noted by Velázquez-Narváez and Medellín-Moreno<sup>(1)</sup>, is not an inevitable event that must inevitably occur but rather the manifestation of an error in the execution of a task or the lack of sufficient preventive measures; therefore, a proper analysis of the various work processes allows for the identification and avoidance of risks. Therefore, in every work process, the risks present in each of the elements of that work process and in the process as a whole must be analyzed. Among the elements that must be considered are the object or subject, the means of work, the activity or task to be performed, the final objective, the environment and working conditions, and the organization and division of labor.<sup>(1)</sup>

Globally, the International Labor Organization<sup>(2)</sup> notes that “approximately 402 million people annually suffer nonfatal injuries as a result of work-related activities, and 2,9 million people die due to accidents or occupational diseases” (p. 6). Furthermore, as of that date, the Americas region recorded 11,1 fatal accidents per 100,000 workers in the industrial sector, 10,7 in the agricultural sector, and 6,9 in the services sector.<sup>(2)</sup>

Therefore, for occupational safety and health, it is important to assess risk perception in work environments; consequently, several studies have examined the relationship between risk perception and safe behavior, highlighting the impact of risk perception on occupational safety outcomes. According to Velázquez-Narváez and Medellín-Moreno<sup>(1)</sup>, risk perception is influenced by individual factors such as gender, age, educational level, and previous injuries, as well as psychological, cultural, and social aspects. Notably, From a subjective perspective, risk is influenced by the level of knowledge one has of the hazard and the degree of control the worker can exert over it; furthermore, it holds significant importance and becomes a key element in the field of occupational accident prevention.<sup>(1)</sup>

Consequently, Zimoling and Trimpop<sup>(3)</sup> consider risk perception to be the determination of the level of danger after assessing whether a situation is dangerous. This risk is related to the perception of objects, sounds, and both olfactory and tactile sensations; that is, it is linked to the understanding of perceptions and risk indicators. There are also situations or elements that involve a risk; these situations do not require interpretation and trigger automatic responses, such as jumping, grabbing hold, fleeing, or withdrawing one’s hand in the face of an unexpected situation.

In this sense, risk perception should be understood as the ability to identify a source of danger as soon as possible. It is a personal process, so the worker is the one who subjectively decides whether to confront or avoid the risky situation. This process influences actions, behaviors, assessments, and choices regarding a potentially dangerous entity or situation. The subjective perception of risk is not linear and is not directly proportional to the increase in risk; it is subject to influences and distortions and is linked to psychological, cultural, and social factors. Not all aspects of a risky situation are always perceived, and this can lead to an overestimation or underestimation of risk.<sup>(3)</sup>

Notably, in the case of workplace accidents, prevention is the primary strategy for minimizing risk; therefore, one of the key elements to assess is risk perception, as an underestimation can lead to health problems among workers. It is important for workers to be informed and aware of what they are exposed to and the potential health hazards that may arise if they do not take preventive measures.

Therefore, prevention is key to improving safety in the workplace, and the importance of strengthening social dialog has been emphasized as a means of preventing workplace accidents and occupational diseases. This must involve governments, organizations, and organized workers, resulting in strategic initiatives aimed at prevention as the fundamental basis of workplace practices at all levels.<sup>(2,3)</sup>

Therefore, when referring to prevention, risks must be recognized, and once hazardous work processes are identified, they must be quantified—generally to determine whether they fall within the range of tolerable or intolerable. Once identified, whether through qualitative or quantitative methods, they are classified as risks. Risk can be defined as “[...] the probability of an unfavorable outcome resulting from exposure to an event that may be accidental, fortuitous, or unsafe”.<sup>(1)</sup>

Consequently, an ideal situation would be one in which the worker, before undertaking the assigned tasks, conducts a subjective risk assessment. With respect to workers’ perceptions of occupational risks in their environment, formal training on occupational safety and health topics may not always be effective in preventing risks or in defining safe behaviors in the workplace. As stated by Pozo-Muñoz and Alonso-Morillejo<sup>(4)</sup>, “the assessment of a risk may be determined by psychosocial factors such as the worker’s social environment, their attitudes, and the norms” (p. 7).

In this sense, each person interprets reality from their own perspective, prioritizing a series of factors such as beliefs, values, memories, and knowledge, thereby constructing a subjective version of that reality or moment. In this regard, Torres-Valle, Carbonell-Siam, Suazo-Torres, Jauregui-Haza, Rivero-Oliva, and Perdomo-Ojeda<sup>(5)</sup> explain that “(...) people form their own perception based on sufficient knowledge of these risks, their experience during the course of their activities, and the degree of control they have over the risk” (p. 6).

However, not all workers are able to recognize a threatening situation that could endanger their safety; for some, that risk may be minor or nonexistent depending on their particular experience in performing their work, even though the company or organization may have rules and procedures related to occupational safety and health that demonstrate that such behaviors are not the most appropriate—a factor that increases the likelihood of a workplace accident or occupational illness occurring.

Notably, each production or service unit inherently involves varying degrees of risk when each work process is carried out; therefore, it is necessary to develop preventive strategies that involve both supervisors and the workers themselves. For this reason, “(...) One element to consider in preventive action is workers’ perception of risk in their work environment, as this could help explain their behavior and potential unsafe practices” (p. 25).<sup>(1)</sup>

Today, it is assumed that, among other aspects to consider in risk perception, are the psychosocial factors present in the worker.

Hence, when addressing occupational safety, risk prevention, and health protection, it is important to take into account the concept of risk that workers may perceive in their daily tasks; as cited by Pozo-Muñoz and Alonso-Morillejo<sup>(4)</sup>, “The idea one has of danger or the perception of the ‘nonexistence’ of a risk generates overconfidence and risky behavior among workers, which can lead to harm, injury, and even catastrophe” (p. 8).

For this reason, the present study describes occupational risks from the perspective of workers at an ice factory, considering factors such as the training received, the existing safety culture within the company, and specific working conditions, while also identifying those risks that may affect workers’ well-being. Through this exploration, the aim was to contribute to the improvement of working conditions and the development of strategies that promote a safer and healthier work environment.

## METHOD

The study was conducted using a quantitative approach, with an observational field design, at a descriptive level, and a cross-sectional and correlational methodology. The sample was a census sample consisting of 15 workers from the production department.

Data collection was performed using a survey technique, with a mixed-format questionnaire as the instrument: the NTP 578 Worker Perceived Risk Assessment (EDRP-T) questionnaire, developed by Portell-Vidal and Solé-Gómez<sup>(6)</sup>. It consists of two parts: a) a registration form to collect personal and occupational data from the workers; b) the second part, which consists of 10 questions that explore the following content: Questions 1 and 2: knowledge factor; Question 3: emotional response of fear; Question 4: “vulnerability” or “susceptibility” construct; Question 5: perception of the severity of consequences; Questions 6 and 7: perception of control/fatality of harm; Question 7: degree of perceived control related to the perception of vulnerability; Question 8: catastrophic potential attributed to the risk factor; Question 9: perception of the delay of consequences; and Question 10: measures the magnitude of perceived risk.

The response scheme is the same for all questions regarding risk attributes, using a seven-point rating scale numbered 1 through 7, while a scale from 0 to 100 is used for Question 10. The first nine questions pertain to the attributes, and Question 10 provides an overview of the questionnaire’s objectives and aims to estimate the magnitude of perceived risk.

Once the questionnaire was administered, the responses given by each worker for questions A1 through A9 were averaged, and the perception of health-related social risk was then classified; the classification developed by Jiménez Sánchez and Hernández<sup>7</sup> was used as a reference and was based on the following cutoff points: none (1 to 1,85), very low (1,86 to 2,75), low (2,76 to 3,57), medium (3,58 to 4,43), medium-high (4,44 to 5,29), high (5,30 to 6,15), and very high (6,16 to 7). For the interpretation of risk magnitude (G1), the intervals were as follows: none (0 to 14,28), very low (14,29 to 28,57), low (28,58 to 42,86), medium (42,87 to 57,15), medium-high (57,16 to 71,44), high (71,45 to 85,73), and very high (85,74 to 100).

To categorize risk factors based on supervisors’ opinions, a workshop was held, during which the study’s objectives were explained to participants. The aim was to identify risk factors that would later be assessed by workers. These health risks were established by the company’s occupational safety and health staff, who identified potential risks present in various job positions; subsequently, those involved in this categorization rated each risk factor/agent on a scale of one to ten, where one is the lowest score (lowest risk) and ten is the highest (highest risk).

To identify the perception of each risk, the questionnaire was administered to workers in the production area, who identified the sources of risk based on their perception; consequently, only the three most representative risk factors were selected to ensure that the process was as streamlined as possible for them. The identified risks were then classified according to certain occupational characteristics of the surveyed workers: age, education level, job title, and length of service.

Finally, for data analysis, the data were systematized and then presented in tables of absolute and relative frequency distributions and means (extreme values), in accordance with the specific objectives set forth. The variables of risk perception and magnitude were correlated with occupational characteristics from a quantitative perspective using Spearman’s rank correlation coefficient. A *p* value of <0,05 was adopted.

With regard to the ethical considerations of this research, it was conducted in accordance with the guidelines of the code of ethics for life, including social and scientific values and respect for the rights of study participants, as well as the use of data obtained from online environments and digital tools in health-related research (World Medical Association).<sup>(7)</sup>

## RESULTS

As detailed in Table 1, the sample consisted entirely of men (15 cases). The predominant educational level was high school (60 % = 9 cases). With respect to job position, 73 % were operators (11 cases), and 27 % were supervisors (4 cases). Supervisors had an average age of  $55,25 \pm 9,67$  years, while operators had an average age of  $42,45 \pm 10,48$  years, with no statistically significant differences between the two job categories ( $t = 2,13$ ;  $P = 0,0531 > 0,05$ ).

The average length of service was  $10,2 \text{ years} \pm 8,66$ , with a median of 11 years, a minimum of 1 year, and a maximum of 30 years. Workers with 1 to 10 years of tenure were the most common at 47 % (7 cases), followed by those with 11 to 20 years (40 % = 6 cases).

Table 2 identifies the risk factors that received the highest scores on the basis of the averages assigned by supervisors to the identified hazards.

The main hazard was cargo handling, which recorded an average of 10 with no variability, followed by entrapment and impacts from machinery, with an average of 9,5. Third was the risk of falls, with an average of 7,5; fourth was exposure to ammonia (average of 7 points); and fifth was exposure to noise (6,5 points). The risk factor with the lowest score was exposure to low temperatures, with an average of 4,5. This last risk factor was included because discrepancies were observed in the assessment, making it a suitable

candidate for inclusion in the sample. Notably, the variability of the risk factors was ensured, as they were representative of the different groups described.

**Table 1.** Characteristics of the study sample (n=15)

| Characteristics Sociodemographic      | No. | %  |
|---------------------------------------|-----|----|
| Age (years)                           |     |    |
| 18–30                                 | 1   | 7  |
| 31–43                                 | 3   | 20 |
| 44–56                                 | 9   | 60 |
| 57–69                                 | 2   | 13 |
| Average: 46 years. Range: 18–64 years |     |    |
| Education                             |     |    |
| Elementary                            | 3   | 20 |
| High school                           | 9   | 60 |
| Advanced Technician                   | 3   | 20 |
| Position                              |     |    |
| Supervisor                            | 4   | 27 |
| Operator                              | 11  | 73 |
| Seniority (years)                     |     |    |
| 1–10                                  | 7   | 47 |
| 11–20                                 | 6   | 40 |
| 21–30                                 | 2   | 13 |
| Mean: 10 years. Range: 1–30 years     |     |    |

**Table 2.** Identified risk factors

| Factors    | Risk factor                           | Median (range) |
|------------|---------------------------------------|----------------|
| Ergonomic  | Load handling                         | 10 (10)        |
|            | Prolonged standing                    | 5,6 (3–7)      |
|            | Prolonged sitting                     | 4,6 (3–6)      |
| Mechanical | Pinch injuries and blows by machinery | 9,5 (8–10)     |
|            | Risk of falling                       | 7,5 (6–8)      |
| Chemicals  | Exposure to ammonia                   | 7 (6–10)       |
|            | Exposure to solvents                  | 0              |
| Physical   | Noise                                 | 6,5 (5–8)      |
|            | Exposure to low temperatures          | 4,5 (3–6)      |
|            | Exposure to dust                      | 0              |
|            | Nonionizing radiation                 | 0              |

On the basis of the social perception of risk (A1–A9), as assessed by the surveyed workers, as shown in Table 3, the first risk identified was entrapment and impact from machinery, with a high risk level (average of 5,56 points), followed by exposure to low temperatures, with a medium-high risk level (average of 5,26), and the third risk is the risk of exposure to noise, with a medium-high risk level (average of 5,16 points). With respect to risk magnitude (G1), the highest average was for exposure to low temperatures, with a high risk level (average of 83 points), followed by entrapment and impact from machinery, both with a high risk level (average of 77,67 points), and the third place was identified as load handling with a medium-high risk level (average of 68 points), and in fourth place, exposure to noise with a medium-high risk level (average of 63,67 points).

**Table 3.** Risk patterns according to workers (n = 15)

| Risks      | Type of risk                          | Social perception of risk | Risk level   | Magnitude      | Risk level   |
|------------|---------------------------------------|---------------------------|--------------|----------------|--------------|
| Ergonomic  | Load handling                         | 4,61 (1,9–6)              | Medium-high  | 68 (55–100)    | Upper-middle |
| Mechanical | Entanglement and strikes by machinery | 5,56 (4,7–6,9)            | High         | 77,67 (65–100) | High         |
|            | Risk of falling                       | 4,31 (3,7–5,8)            | Medium       | 57,13 (40–80)  | Medium       |
| Chemicals  | Exposure to ammonia                   | 4,41 (4,1–6,9)            | Medium       | 56,33 (50–100) | Medium       |
| Physical   | Noise Exposure                        | 5,16 (3,1–60)             | Upper-middle | 63,67 (50–80)  | Upper-middle |
|            | Exposure to low temperatures          | 5,26 (4,2–6,3)            | Medium-high  | 83 (30–100)    | High         |

For operators, the main risks identified were exposure to low temperatures (5,72–96,82 points), exposure to noise (5,45–78,75 points), and the risk of being caught in or struck by machinery (5,22–72,27 points), whereas for production supervisors, the main risks were being caught or struck by machinery (6,47–92,5), handling loads (6,32–95 points), and the risk of falls (5,65–75 points).

| Table 4. Risk Perception               |                           |                             |                            |                            |
|----------------------------------------|---------------------------|-----------------------------|----------------------------|----------------------------|
|                                        | Social perception of risk |                             | Magnitude of risk          |                            |
|                                        | Supervisor (n=4)          | Operator (n=11)             | Supervisor (n=4)           | Operator (n=11)            |
| Load handling                          | 6,32 (5,9–6,3) High       | 4,94 (4,2–5,4) Medium-high  | 95 (90–100) Very high      | 70 (55–80) Upper-middle    |
| Entanglement and Striking by Machinery | 6,47 (6,1–6,9) High       | 5,22 (4,7–5,7) Medium-high  | 92,5 (80–100) Very high    | 72,27 (65–85) High         |
| Risk of Fall                           | 5,65 (5,6–5,8) High       | 3,96 (3,7–4,3) Medium       | 75 (60–80) High            | 51,82 (40–60) Medium       |
| Ammonia exposure                       | 5,52 (4,3–6,9) High       | 4,54 (4,1–5,3) Upper-middle | 72,5 (60–100) High         | 63,18 (50–75) Upper-middle |
| Noise Exposure                         | 3,62 (3,1–4,0) Medium     | 5,45 (5,3–6,0) High         | 61,82 (50–75) Upper-middle | 78,75 (60–80) High         |
| Low Temperatures                       | 2,3 (1,9–2,7) Very low    | 5,72 (4,6–6,0) Tall         | 45 (30–60) Medium          | 96,82 (90–100) Very high   |

Table 5 shows the rank correlation matrix, which indicates that in terms of the social perception of risk (A1–A9), statistically significant correlations were found between age and education level and the risk of falls ( $p<0,05$ ). With respect to risk magnitude (G1), statistically significant correlations were found only between education level and the risk of falls, noise exposure, and exposure to low temperatures ( $p<0,05$ ).

| Table 5. Relationships between the perception of occupational risk according to age, education level, and length of service |                  |                |                   |
|-----------------------------------------------------------------------------------------------------------------------------|------------------|----------------|-------------------|
| Social Perception of Risk                                                                                                   | Age              | Education      | Length of Service |
| Handling of Loads                                                                                                           | 0,43 (0,1073)    | 0,44 (0,1026)  | 0,08 (0,7727)     |
| Entanglement and Striking by Machinery                                                                                      | 0,36 (0,1811)    | 0,25 (0,3417)  | 0,33 (0,2194)     |
| Falls                                                                                                                       | 0,56 (0,0376)    | 0,65 (0,0157)  | 0,25 (0,3522)     |
| Ammonia Exposure                                                                                                            | 0,28 (0,2912)    | -0,01 (0,9741) | -0,31 (0,2461)    |
| Noise                                                                                                                       | -0,25 (0,34, 31) | -0,29 (0,2794) | -0,50 (0,5086)    |
| Low Temperatures                                                                                                            | -0,21 (0,4178)   | -0,48 (0,0705) | -0,07 (0,7907)    |
| <i>Risk Magnitude</i>                                                                                                       |                  |                |                   |
| Load Handling                                                                                                               | 0,41 (0,1224)    | 0,48 (0,0709)  | 0,09 (0,7276)     |
| Entanglement and Striking by Machinery                                                                                      | 0,17 (0,5143)    | 0,01 (0,9610)  | 0,36 (0,1757)     |
| Falls                                                                                                                       | 0,40 (0,1355)    | 0,58 (0,0306)  | 0,30 (0,2597)     |
| Exposure to Ammonia                                                                                                         | -0,12 (0,6479)   | 0,37 (0,1650)  | -0,19 (0,4650)    |
| Noise                                                                                                                       | 0,42 (0,1147)    | 0,58 (0,0298)  | 0,18 (0,4893)     |
| Low Temperatures                                                                                                            | -0,31 (0,2323)   | -0,25 (0,0253) | -0,03 (0,9058)    |

## DISCUSSION

The sociodemographic and occupational characteristics of the surveyed workers differ from those reported in the reviewed literature; in this regard, Espinosa-Aguilar <sup>(8)</sup> notes a higher proportion of male workers (76,67 %), operators (51,67 %), and administrative staff (48,33 %). In the study conducted by Cerda-Granados <sup>(9)</sup>, a predominance of men (96 %) was found, with 65,4% lacking a college degree; however, the average age was 35,6 years (30–39 years: 41 %), with 0–4 years of experience in the position (44 %), much lower than that reported in the present study.

On the basis of the social perception of risk, as assessed by the workers, entrapment and being struck by machinery, exposure to low temperatures, and exposure to noise were the most frequently identified risks by the study sample. In terms of the magnitude of risk, exposure to low temperatures, entrapment and being struck by machinery, load handling, and the risk of noise exposure were identified. In this regard, in his research, Cerda-Granados <sup>(9)</sup> reported that all workers had a medium-to-high perception of the risks to which they were exposed, similar to the findings of the present study; most of the identified risks corresponded to a risk level ranging from high to very high.

With respect to the nature of the assessed risks, workers' perceptions focused on mechanical risks (entrapment and impacts), physical risks (temperature and noise), and ergonomic risks (load handling). These findings are partially consistent with those described by Jiménez, Sánchez-Tovar, and Hernández-Runque <sup>(10)</sup>, who report that the risks perceived by the study group were chemical, physical, and ergonomic. In this regard, in his results, Cerda-Granados <sup>(9)</sup> notes that the least perceived risks were ergonomic risks, similar to the findings of the present study. In the case of the study by Espinosa-Aguilar <sup>(8)</sup>, the most frequently cited risk was postural strain (ergonomic), with a risk level ranging from moderate to very high and a mean magnitude of 63,1 %; the perceived risk from noise ranged from moderate to high, with a mean magnitude of 57,6 %.

Depending on the workers' job roles, for operators, the main risks identified were exposure to low temperatures, exposure to noise, and the risk of being caught or struck by machinery, whereas for production supervisors, the main risks were being caught or struck by machinery, followed by load handling and the risk of falls. In this regard, Jiménez, Sánchez-Tovar, and Hernández-

Runque<sup>(10)</sup> provide evidence that risk perception varies according to the nature of workers' job roles, as there were agreements between workers and safety supervisors regarding the risk of handling agrochemicals; however, there are discrepancies regarding noise as a physical agent and load handling, with the latter having the highest average percentage among operators, which implies a higher probability of impact, considering that it can lead to musculoskeletal disorders.

Significant correlations were found ( $p<0,05$ ) between age and education level and the risk of falls, as measured by social perception of risk. Similarly, the correlations between education level and the risk of falls, as well as between exposure to noise and exposure to low temperatures ( $p<0,05$ ) in terms of risk magnitude, demonstrate that age, education level, and sometimes tenure are variables that influence risk perception, sometimes leading to greater awareness of the risks posed by certain risk factors. There are risks that are better assimilated with age (temperature—younger age), but there are others that, over time, become more significant risks for each person; for example, handling loads or falls—older age. In this regard, the explanation provided by Torres-Valle et al.<sup>(5)</sup> is significant where individuals form their own perceptions on the basis of sufficient knowledge of these risks, experience gained during the performance of their activities, and the degree of control they have over the risk.

## CONCLUSIONS

On the basis of the social perception of risk, according to workers' assessments, the risks in order of average scores were entrapment and being struck by machinery, exposure to low temperatures, and exposure to noise. In terms of risk magnitude, the order was exposure to low temperatures, entrapment and impact by machinery, load handling, and noise exposure. With respect to the nature of the assessed risks, perceptions focused on mechanical risks (entrapment and impact), physical risks (temperature and noise), and ergonomic risks (load handling).

In terms of workers' job roles, differences were found between the perceptions of operators and production supervisors. For operators, the main risks identified were exposure to low temperatures, exposure to noise, and the risk of entrapment and being struck by machinery, whereas for production supervisors, the main risks were entrapment and being struck by machinery, followed by load handling.

There are risks that are better managed with age (temperature—younger age), but there are others that over time become more significant risks for each person, such as load handling or falls for older individuals; similarly, this depends on the worker's level of education, as risk perception is necessarily related to the knowledge of the environment that the operators' educational level can provide.<sup>(3)</sup>

Assessing workers' perceptions of risk can be an influential factor when implementing preventive strategies and programs, as workers' perceptions reveal their view of risk, thereby generating new insights that contribute to the creation and refinement of occupational safety and health prevention policies within the company. Since risk perception is considered a key component of occupational safety and health objectives, understanding how workers interpret workplace risks can serve as a strength for the future optimal implementation of occupational risk management, with the worker's perspective as the starting point.

## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

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