



Enfermedades metabólicas que ocasionan riesgos laborales en el personal de la empresa INDURAMA, año 2023

Metabolic diseases that cause occupational risks in the personnel of the INDURAMA company, year 2023

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Scientific and Technological Research Article

Sent: 12/15/2023

Revised: 18/01/2024

Accepted: 02/07/2024

Published: 05/03/2024

DOI: <https://doi.org/10.33262/concienciadigital.v7i1.3.2935>

Please
quote:

Garzón Muñoz, MS, & Gárate Aguirre, JC (2024). Metabolic diseases that cause occupational risks in the personnel of the INDURAMA company, year 2023. *ConcienciaDigital*, 7(1.3), 28-48. <https://doi.org/10.33262/concienciadigital.v7i1.3.2935>



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The journal is published by Editorial Ciencia Digital (a prestigious publisher registered with the Ecuadorian Book Chamber with membership number 663). www.celibro.org.ec



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Palabras

claves: Riesgo
Obesidad
Salud
Seguridad
Ecuador

Keywords:

Risk
Obesity
Health
Safety
Ecuador

Resumen

La presente investigación parte de los factores asociados al riesgo laboral en la ciudad de Cuenca – Ecuador dentro de una empresa con el personal operativo. Mediante una investigación aplicada, se propone determinar que enfermedades de tipo metabólicas se encuentran correlacionadas con el riesgo laboral. El estudio es cuantitativo y decanta del constructo teórico en donde la obesidad, las dislipidemias y la hipertensión arterial están asociadas con el riesgo laboral. Se investigó a 64 personas del área operativa de la empresa Indurama. Los resultados revelan que existe correlación positiva entre las dislipidemias con 0,351**, siendo las pruebas estadísticamente significativas a un nivel menor al p – valor de 0,05 mientras que las variables obesidad con 0.031 y la hipertensión arterial con 0.029 no pasaron la prueba estadística. Se concluye que, los programas preventivos de salud deben estar orientados a tratar las dislipidemias, si se quiere disminuir el indicador del riesgo laboral en el contexto específico de estudio.

Abstract

The present investigation is based on the factors associated with occupational risk in the city of Cuenca - Ecuador with in a company with operational personnel. Through applied research, it is proposed to determine which metabolic diseases are correlated with occupational risk. The study is quantitative and relies on the theoretical construct where obesity, dyslipidemia and high blood pressure are associated with occupational risk. 64 people from the operational area of the “Indurama” company were investigated. The results reveal that there is a positive correlation between dyslipidemias with 0.351**, the tests being statistically significant at a level less than the p - value of 0.05, while the obesity variables with 0.031 and arterial hypertension with 0.029 did not pass the statistical test . . It is concluded that preventive health programs must be aimed at treating dyslipidemia, if the occupational risk indicator is to be reduced in the specific context of the study.

Introduction

The prevention of occupational risks and the regulation of prevention services, as mentioned by Ruiz et al. (2001) have become a lifestyle for companies worldwide, and it

is very important that future professionals trained in the area of occupational health and safety should know these regulations necessary for the development of preventive work activities in order to be able to solve the problems that arise in the different work centers.

According to the Ibero-American Social Security Organization (2013), in Latin America, 30 million work accidents occur per year, of which 240 thousand are fatal, including diseases that are related to employment.

In the present study we will focus mainly on the following factors of the Metabolic Syndrome and according to Rodriguez et al. (2002), a syndrome is a set of risk factors that can appear simultaneously associated with people's lifestyle.

In this study we will focus mainly on the following factors: obesity, which is defined by a variable called body mass index (BMI), relating a person's weight and height; dyslipidemia, which is the abnormal elevation of fats in the blood, which increases the risk of diseases; high blood pressure, known as a chronic pathology that affects blood vessels; and occupational risk, which is an event that endangers workers.

In Ecuador, according to a statistical report from the Ecuadorian Social Security Institute (2018), it indicates that manufacturing companies are the second line of business with the highest accident rate, which allows us to ask: What are the factors that are correlated with occupational risks in workers of a white goods company in Cuenca - Ecuador?

Theoretical framework

Theories around the independent research variable

X1 Obesity

This is how the author Marañón (2018) can deduce in his theory of pre-diabetic states, that the more fat there is, the more insulin resistance there is, consequently, with an early diagnosis, chronic diseases such as diabetes mellitus and arterial hypertension can be prevented. Likewise, Yamanique (2018) indicates within the theory of behavioral change that, if people are not aware of their weight status, medical advice may go unnoticed, on the other hand, regarding the theory of sleep deficiency, Cummings et al., (2018) indicate that adequate rest is very important to avoid interrupting the endocrine regulation of energy balance, in short, avoid weight gain. On the other hand, Espinoza et al., (2019) argue within the theory of current criticism that the solution to obesity can be deduced from capitalism by putting into practice the science of logic that means "the immediate", which proposes the construction of public policies focused on Latin America that is called "good living".

*Studies applied in contexts other than the independent research variant**X1 Obesity*

A study carried out by Abril et al. (2018), in Azuay - Ecuador, evaluated the body mass index (BMI) of the population of 364 adults between the ages of 18 and 64, finding that 17.6% were overweight and obese, 78% reported body dissatisfaction, with obesity being more frequent (90.9%) than overweight (67.5%).

Similarly, in another field study conducted by the author Ortiz et., al (2017), in the parish of Cumbe - Ecuador, using a cross-sectional analytical method in 374 people of both sexes, all over 18 years of age, it was found that the prevalence of overweight was 34.7% and obesity 19%. Women had a higher prevalence of obesity (21.8%), and men reached (13.5%). Among the main risk factors found were: being female, having a history of type 2 diabetes mellitus and high blood pressure, being a smoker, not doing physical activity.

Additionally, in Cartagena, in a study of 675 people, 60.8% of whom were men, and according to the body mass index, 41.1% were overweight and 18.5% were obese (Ruiz et al. (2018).

Definitions of the concept of the variable X1 Obesity

Obesity or overweight is defined by a variable called body mass index (BMI), relating a person's weight and height. It can be deduced that obesity or overweight is currently the cause of risks for a series of chronic diseases such as diabetes mellitus, cardiovascular diseases, high blood pressure and strokes, and can cause cancer (World Health Organization 2021). Likewise, obesity causes metabolic syndrome as a consequence, due to poor eating habits, lack of physical activity and additionally high workloads that prevent an adequate rest routine (Nieves et, al (2019).

Similarly, Santos et al (2005) defines obesity as an increase in body weight caused by excess fat that causes serious health problems, confirming that it is associated with metabolic syndrome causing a multifactorial disease, caused by social, occupational, physiological, metabolic, molecular and genetic elements.

The definition of the state of "metabolically healthy" obesity in the childhood-adolescent period is controversial and constitutes a dynamic concept related to weight evolution, and may be the result of a set of etiologically heterogeneous pathologies that share this phenotypic trait, being an early-type disease that in the future will cause pathology that may affect the working stage (World Health Organization 2021).

*Theories around independent research variables**X2 Dyslipidemia*

Authors Vázquez et., al (2008) indicate within the theory of cognitive social learning, that the joint work of specialists in the areas of nutrition and physical activity, manage to incorporate healthy lifestyle habits.

Likewise, other authors, Ibañez et al (2019), support within their theory of self-determination that changing behavior contributes to making such lifestyle changes. On the other hand, Méndez et al (2020) support in their symptom management theory that they identify the risk factors for cardiovascular disease causing acute coronary syndrome as a result of dyslipidemia. Furthermore, Queralt et al (2005) indicate in the theory on high cholesterol concentrations that maintaining high levels of LDL causes endothelial injury that produces atheroma and arterial occlusion.

Similarly, Romero et al. (2018) propose that cholesterol, being a fundamental component in the formation of eukaryotic cell membranes, allows the stabilization of the plasma membrane, as well as the translocation of lipids and proteins through it.

Applied studies in contexts other than independent research variants X2 Dyslipidemia

In a cross-sectional study carried out in the San Cristóbal Municipality, Venezuela, according to Ochoa (2017), with 362 individuals of both sexes, they performed a complete clinical history, lipid profile and anthropometric assessment: body mass index (BMI), abdominal circumference and waist-height ratio, finding that 81.2% of the individuals studied presented some type of dyslipidemia.

In another study of a total of 74 students, from the 3rd and 4th year of the Private Educational Unit "Universitaria de Azogues", it was found that 70.3% of the students had normal weight, while 29.7% were overweight and 8.1% had high levels of cholesterol and triglycerides, which required follow-up.

Similarly, a study that aims to determine the prevalence of overweight, obesity and dyslipidemia in health workers, carried out a sample with 123 health workers, where they evaluated the body mass index and abdominal perimeter, finding that the prevalence of overweight was 41.1%, obesity 25.8% and abdominal obesity 37.5%. Avellaneda et, al (2017).

Similarly, according to Cordero et al (2017), in a study of a sample of 399 inhabitants, the lipid profile was evaluated with the ATP III classification, blood pressure, and nutritional status with the abdominal waist. It was determined that 26% of adults had dyslipidemia, 11.3% had arterial hypertension, and 13.3% reported being smokers, 37.1% had mixed dyslipidemia, concluding that mixed dyslipidemia correlates with the diagnosis of nutritional status, which is increasing in the male sex.

Definitions of the concept of the variable X2 Dyslipidemia

The term dyslipidemia refers to the alteration of the concentration of one or more plasma lipoproteins and the elevation of triglycerides, Sayle et, al. (2017). Subjects are also divided into eulipemic (no lipid alteration) and dyslipidemic (some lipid alteration), according to Chiqui et al. (2014).

Similarly, Cordero et al (2017) defines dyslipidemia as an alteration of the metabolism due to an increase in lipids in the bloodstream, causing a series of alterations, chemically constituted by different types of fats, with mixed lipid diseases being those that cause an obstruction in the blood vessels.

Additionally, González et, al (2020), defines dyslipidemia as a set of asymptomatic diseases, which have in common that they are caused by abnormal concentrations of blood lipoproteins.

Theories surrounding the independent research variable X3 Arterial Hypertension

According to the author Dec. 12, et al, (2012), indicates within his theory of arterial hardening, which more frequently affects young people and young adults, demonstrating that arterial stiffness is increased due to the pressure it exerts.

Additionally, another theory of generalizability indicates that, in the 48 readings obtained by self-measurement of pressure, the 43 patients were detected with arterial hypertension (HTA), during the evaluation of a pretreatment, according to García et, (1999).

Furthermore, Dorotea Orem's self-care theory indicates that there are 17 items grouped into three dimensions, which are the fundamental capabilities, components of power and self-care capacity to avoid developing high blood pressure, Anchury Diana et al (2009).

Applied studies of the independent research variant of X3 Arterial Hypertension.

In a study carried out by Francisco et, al (2022), where 141 patients who suffered from a diagnosis of arterial hypertension (HTA) were studied, who underwent laboratory and other test controls, were treated at the first level of care and were over 18 years of age, it was found that 79.43% (112 patients), the vast majority of whom were women, are under control.

Similarly, in another study that studied 399 adults from the urban area of Cuenca, Ecuador, excluding pregnant women and people with a definitive diagnosis of high blood pressure, it was found that the prevalence of high blood pressure was 11.28%. This is how it was concluded that, in the city of Cuenca, around one eighth of the adult population has high blood pressure, which is associated with the presence of central obesity, sedentary lifestyle, insulin resistance, hypercholesterolemia and hypertriglyceridemia.

Similarly, Ortiz et al (2017) conducted a study with 530 individuals over 18 years of age of both sexes, where they found that the prevalence of HTA was 16.3% for women and 16.1% for men, with the main factors associated with HTA being middle-aged, elderly, alcohol consumption, divorced marital status, and high physical activity in the leisure sphere.

Definitions of the concept of the variable X3 Arterial Hypertension

Arterial hypertension is the increase in arterial pressure, being the force exerted by the blood against the vascular walls of the large arteries, Tinoco et, al (2022). Similarly, Pérez et, al (2021), indicates that hypertension is the persistent elevated condition of systemic blood pressure, being the product of cardiac output and total peripheral vascular resistance.

This is how Infobae et, al (2021) defines hypertension as the detection of maximum (systolic) and/or minimum (diastolic) pressure averages above the limits established as normal, the limit being 140/90.

Therefore, the main risk of hypertension is associated with a CVA (cerebrovascular event), Martín et, al (2022). It turns out that Ortiz et, al (2017), indicates that arterial hypertension is a modifiable risk factor for the presence of vascular, cardiac and renal diseases, with important repercussions on global public health.

Theories around the dependent variable and Occupational Risk

Sánchez et al. (2016) in their theory of negative effects, indicates that an occupational risk is based on four different effects with their own characteristics, being fatigue, monotony, psychological boredom and distress.

For this reason, there must be self-control, as indicated by Karasek (2018), in his demand/control theory, which he calls the “job content questionnaire”, where he refers to the fact that occupational stress depends on the union of effects between psychological demands and the decision-making capacity or autonomy of the worker to face these situations.

Therefore, demands would include situations that require action from the worker, while decision control is the ability to modulate the stress that causes the demands on a given action. On the other hand, Abdul (2012) called it the "domino effect" where each event corresponds to a causal factor or a set of factors (Puyal, 2001). These theories put the greatest emphasis on human acts, arguing that around 88% of accidents are caused by them, 10% by dangerous conditions and 2% by fortuitous events (Abdul, 2012).

In practice, they are behaviors based on the skills and abilities developed in routine tasks; together with the working conditions that sometimes become dangerous. This is how

various theories have been found in national and international literature, where there is no unified criterion regarding the identification of hazards, analysis, evaluation and assessment of risks, calling it the risk assessment theory, according to Beltrán et, al (2016).

Similarly, Beltrán et, al (2016), indicates in their theory of the reference framework and context of risk that, by integrating the organizational, strategic, administrative and operational aspects of the activity and task to be analyzed, they are used for the adequate approach to the process of identifying the danger and assessing the risk in general.

Appreciated under this approach in the risk treatment theory, it is proposed to incorporate control formulation criteria based on the previous assessment stage, combined with the definition of risk treatments, formulation of the action plan for the implementation of the proposed controls in the risk treatment and Follow-up and Monitoring Actions of the same, according to Beltrán et, al (2016).

Applied studies in contexts other than the dependent variant and Occupational Risk

The author Madrid et, al (2014) in a study has detected an increased risk among those dedicated to health care or social services, who suffer aggression from clients and patients, a "growing problem particularly among women", finding that among immigrant workers the death rates were even higher, with 824 deaths, nineteen fewer than a year earlier. 59% were Latino; 18% white and 16% Asian.

This is how the report analyzes "death at work being the share of negligence" and does not analyze the legal situation of workers, but Seminario highlighted the vulnerability to labor abuse in which undocumented workers find themselves, and considered that immigration reform would be a "big step" to avoid it.

On the other hand, Rojas et, al (2019), in a quantitative study, in a total of 75 people, found occupational risk at a moderate level with a frequency of 58 people and a percentage of 77%, thus reaching the conclusion that healthy lifestyle habits are not related to job satisfaction, which means that job satisfaction is independent of healthy lifestyle habits.

Similarly, according to the World Health Organization study (2022), 1.9 million people died in 2016 from diseases "mainly respiratory and cardiovascular diseases and from injuries caused at work, and this situation may be aggravated by the impacts of Covid-19.

Non-communicable diseases caused 81% of deaths, mainly chronic obstructive pulmonary disease (450,000 deaths), stroke (400,000) and ischemic heart disease (350,000).

This is how the ILO-WHO study, disseminated in their respective headquarters in this Swiss city, considers occupational risk factors, such as long working hours and exposure in the workplace to air pollution, carcinogenic substances, ergonomic risks and noise. Finally, the most frequent occupational risks include falls (20.9%), blows (14.9%) and cuts and punctures (12.7%). Most of the accidents detected are due to lack of confidence or habit and fatigue, Fábrecas (2008). Poor quality of sleep was present in 94.1% and excessive daytime sleepiness in 35.3%.

A low level of psychosocial risk and occupational stress was observed, but a high prevalence of poor sleep quality and daytime sleepiness was found, so adequate sleep hygiene and organizational measures that reduce the incidence of these disorders should be promoted.

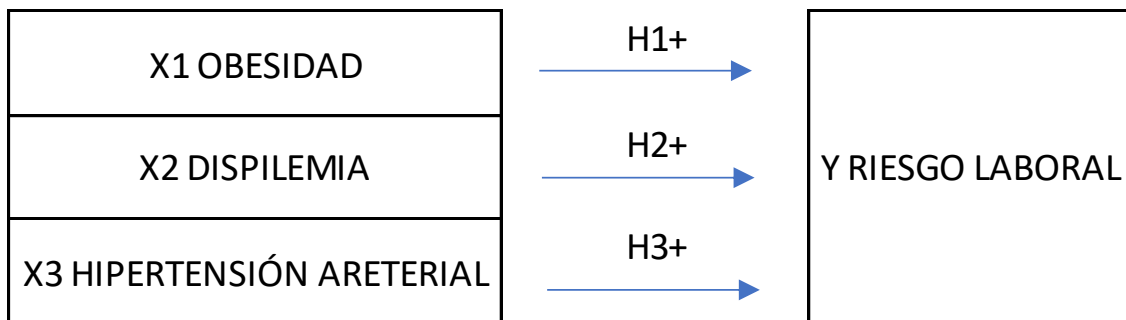
Definitions of the concept of the variable Y Occupational Risk

The author Sánchez et, al (2016), defines occupational risks as the “occupational disease” that appears from any disease contracted by exposure to risk factors resulting from a work activity. Likewise, the author Hernáiz et, al (2015), defines occupational risks as “that situation that results from the interaction between people with foreseeable permanent deficiencies and any type of barriers that limit or prevent their full and effective participation in society, on equal terms with others.”

Similarly, the Court of Justice of the European Union (2000) defines occupational risks as: a condition caused by a disease medically diagnosed as curable or incurable, when this disease entails a limitation, derived in particular from physical, mental or psychological ailments that, when interacting with various barriers, may prevent the full and effective participation of the person in question in professional life on equal terms with other workers, and if this limitation is of long duration.

Figure 1.

Dependent and Independent Variables



Note:Dependent and independent variables lead us to counteract the problem of current metabolic diseases
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Methodology

The present thesis: "METABOLIC DISEASES THAT CAUSE OCCUPATIONAL RISKS IN INDURAMA STAFF, YEAR 2022" is influenced by the positivist paradigm since there are elements of positivism immersed in the area of psychopathology (Veliz, 2012). Indeed, the paradigm collects the origin of the research problems, the method that answers them and the analyses that emerge from the field findings (Cascante, 2023). The type of research is quantitative because it fits a non-experimental research design (Agudelo & Aigner, 2008) by not deliberately managing the variables. The research does not voluntarily modify the predictor variables to measure their impact on other variables.

The scientific method is understood as a systematic process that is applied to obtain valid and reliable knowledge of the natural world (Castán, 2014). It was based on the observation of a phenomenon that triggers scientific interest in knowing its cause-effect relationship (González and Barajas, 2023). The scientific question arose based on careful, objective and evidence-based observation that results in the research design (García et al., 2023). The hypothesis as a theoretical assumption approaches a tentative explanation of the phenomenon under study equivalent to a possible solution to the scientific problem (Romaní et al., 2022). The analysis was based on statistical tools to determine statistically significant data and validate them as results of the research process that lead to the inference of conclusions and recommendations (Cerezo, 2022).

The research was exploratory, descriptive and correlational. The study explored the research phenomenon in its specific context. It was characterized by the generation of ideas and the identification of patterns of interest, also discovering associations and suspecting the first theories (Gracia et al., 2023). The research characterized the research phenomenon and specified its facts, causes and consequences (Calero et al., 2022). The study analyzed the correlation between the independent variables with the dependent variable, establishing a causal relationship. The correlation coefficient ranges from -1 to +1. If the correlation is zero, it means that there is no correlation between the research variables (Pérez and Martín, 2023).

The present probabilistic study was based on probability theory and applied random sampling techniques and statistical analysis to infer the correlational behavior of the research variables in the specific context of the study (Frucio et al., 2022). A representative sample of the target population was selected by the unrestricted random method that allowed inferences to be made with a confidence level of 95% with two standard deviations (Allende et al., 2022). The formula is as follows:

Figure 2.

Sample calculation of the target population

$$n = \frac{Npq}{(N - 1)(z)^e + pq}$$

$$n = \frac{633 * 0.9 * 0.1}{(633 - 1)\left(\frac{0.05}{1.96}\right)^2 + 0.9 * 0.1}$$

$$n = \frac{56.97}{0.09}$$

$$n = 63.30$$

Note:The target population is 63.30 people in order to obtain the information corresponding to the surveys and analyze results.

Fountain:Prepared by the Author

Indeed, the probabilistic study determined precise estimates of the population parameters with averages, proportions and correlations with confidence intervals that reveal the uncertainty related to the estimates made (Santillán, 2022).

The research was cross-sectional or observational in nature, collecting data at a single point in time, allowing for a snapshot of the target population (Quevedo et al., 2022). The essential feature of cross-sectional research was its focus on measuring factors at a specific point in time.

(Vázquez et al., 2023). The technique applied was the survey with a questionnaire prepared with a Likert scale. 5 response options were assigned, with 1 being totally disagree, 2 being disagree, 3 being neither agree nor disagree, 4 being agree, and 5 being totally agree. In the second part of the measurement instrument, the control variables that served to characterize the research subject were written (Vargas, 2022).

Content validation assessed whether the instrument adequately addresses the theoretical construct. Expert opinion allowed the number of items in the instrument to be refined based on the definition of the concept of each research variable (Guerrero et al., 2022). Content validation allowed the measurement instrument to be perfected prior to the application of the pilot test that was carried out with thirty study subjects (Cartagena et al., 2022). In turn, the reliability of the instrument was measured using Cronbach's Alpha coefficient, considering 0.6 as the threshold of internal consistency of the observable variables with the definition of the concept of the study dimension (Melo et al., 2022).

Table 1.

Reliability measurement of Cronbach's Alpha instrument

<i>Independent Variables</i>		
X1= Overweight	6	0.731
X2= Dyslipidemia	5	0.645
X3= High Blood Pressure	7	0.868
<i>Dependent Variables</i>		
Y1= WORK RISK	8	0.94
Cronbach's alpha of the general scale	26	0.824

Fountain.Own elaboration

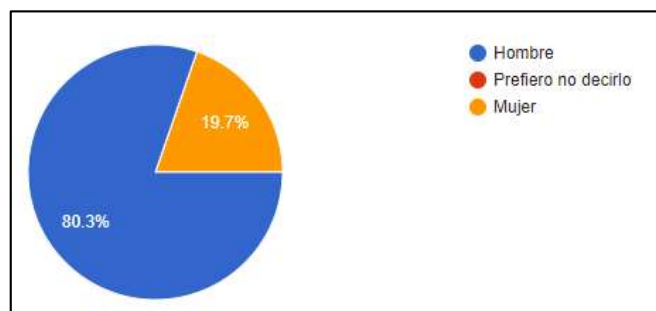
Research results

The results of the research are presented in two parts: first, the subject of study is characterized with the results of the control variables. Second, the results of the parametric test, the frequency histogram and the non-parametric correlations are described.

Characterization of the subject of study

Figure 3.

Pie chart result of the gender of the target population

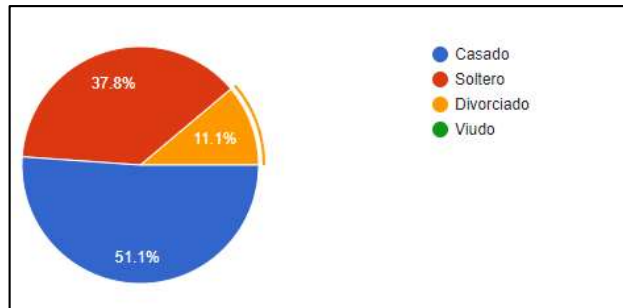


Note:Based on gender, we have a greater number of male collaborators since we are focused on production operations personnel.

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Figure 4.

Pie chart result of marital status of the target population

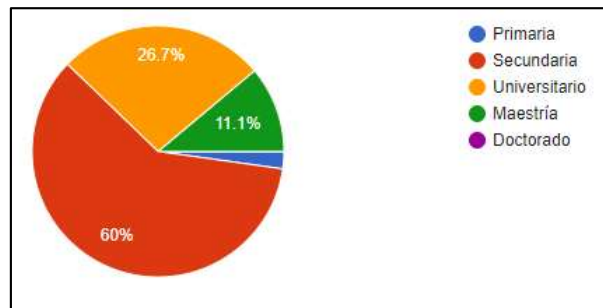


Note:More than 50% of our staff live an active married life, which can be an important factor for our study.

Fountain:Prepared by the Author

Figure 5.

Pie chart result of the level of study of the target population



Note:In this part of the company you can see that most of the people who work here have secondary education studies.

Fountain:Prepared by the Author

Parametry test

A parametric test was applied to determine the behavior of the data in the area under the curve. The statistical test corresponds to the Kolmogorov-Smirnov test because $n=64$ study subjects. The results of the research variables are statistically significant as they are less than the p -value 0.05. Consequently, the distribution of the data has a biased behavior that will be more accurately seen in the frequency histogram. Therefore, the Spearman correlation was applied as written by Landero and González, (2016) cited by Solís Muñoz, JB (2022). (see table 2).

Table 2.

Test of normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistical	Gl.	Next.	Statistical	Gl.	Next.
Avg. Occupational Risk	,148	64	,001	,875	64	<,001
Avg. Obesity	,091	64	,200*	,982	64	,454
Avg. _Dyslipidemia	,128	64	,011	,975	64	,211
Prom._Arterial Hypertension	,090	64	,200*	,987	64	,751

*. This is a lower limit of the true significance.

a. Lilliefors significance correction

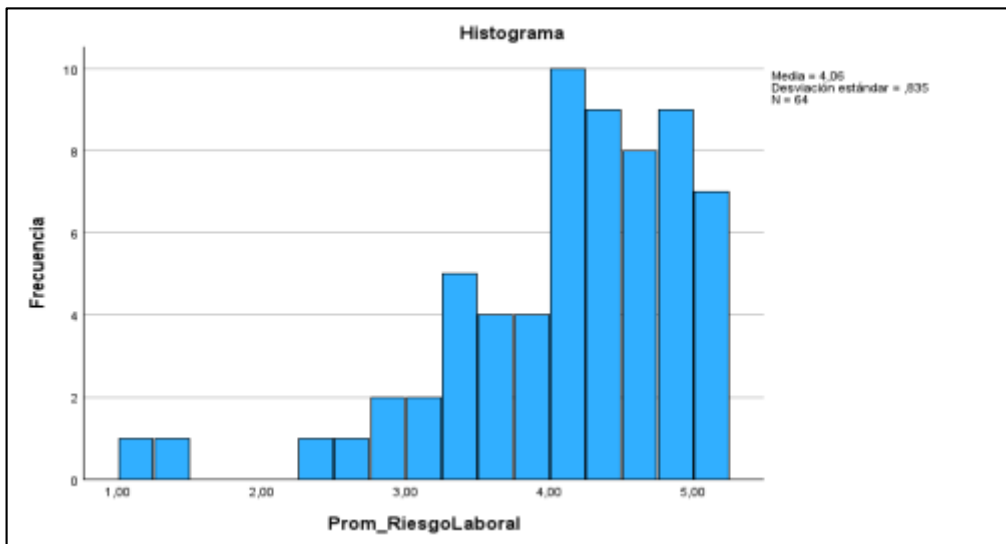
Fountain:Own elaboration

Frequency histogram analysis

Figure 3 presents the histogram of the results. The average is 4.06 with a standard deviation of 0.835. This means that the data are mostly grouped between 3,225 and 4,895. The figure shows a natural bias to the left, thus confirming a non-parametric distribution.(See table 3).

Figure 6.

Histogram of Occupational Risk Frequencies



Note:Histogram that allows to analyze the correlation later

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Nonparametric correlations

Table 3 presents the results of the non-parametric correlations obtained in the research. The variable Avg. Obesity presents a positive correlation of (0.031) at a bilateral significance level of 0.810 greater than the p-value of 0.01, therefore, it is not statistically significant. As the number of obesity increases, the alterations in occupational risk increase or vice versa. The variable Avg._Dyslipidemia has a positive correlation of (0.351) at a bilateral significance level of 0.005 less than the value 0.01. It implies that, as dyslipidemia decreases, the occupational risk decreases. The variable Avg. Arterial Hypertension presents a correlation of (0.029) a bilateral significance of 0.742 is not statistically significant, therefore, there is no correlation with the Avg. Occupational Risk in this context.(See table 3).

Table 3.

Correlations

			Occupational Risk	Obesity	Dyslipidemia	High Blood Pressure
Spearman's Rho	Avg. Occupational Risk	Correlation coefficient	1,000	,031	,351**	,029
		Next (bilateral)	.	,810	,005	,820
		N	64	64	64	64
	Avg. Obesity	Correlation coefficient	,031	1,000	,615**	,089
		Next (bilateral)	,810	.	<,001	,485
		N	64	64	64	64
	Avg. Dyslipidemia	Correlation coefficient	,351**	,615**	1,000	,083
		Next (bilateral)	,005	<,001	.	,514
		N	64	64	64	64

Prom. Arterial Hypertension	Correlation coefficient	,029	,089	,083	1,000
	Next (bilateral)	,820	,485	,514	.
	N	64	64	64	64

** . The correlation is significant at the 0.01 level (two-tailed).

Fountain:Own elaboration

Discussion of the results

The discussion of the results of a cross-sectional study carried out in the San Cristóbal Municipality, Venezuela, is presented. Ochoa (2017), on metabolic syndrome, found that, in effect, dyslipidemias do correlate with the occupational risk variable at a level of (0.351**), which is in dialogue with the present study carried out at the Indurama company, Cuenca- Ecuador.

On the other hand, according to Rojas et, al (2019), in the context of a study on lifestyle, they found no association between the variables overweight, high blood pressure and dyslipidemia, which contradicts the empirical finding in the Ecuadorian context, concluding that healthy lifestyle habits are not related to job satisfaction, which means that job satisfaction is independent of healthy lifestyle habits.

Conclusions

- The study answers the research question because it determines that dyslipidemias are factors correlated with occupational risk in workers at the white goods production company Indurama in Cuenca, Ecuador.
- It is concluded that all risk factors can be related to the bad habits that people have today, such as lack of daily physical activity, poor diet, a life of excess, stress, lack of adequate sleep, among other aspects, which can lead to obesity and chronic diseases.
- Dyslipidemias and their risk factors cause millions of deaths a year worldwide, which is why it is currently recommended to eat a healthy diet to avoid suffering from any risk factor that may lead to any pathology.
- The study also responds to the general research objective, which was to determine the factors associated with occupational risk. In fact, through applied research it was determined that dyslipidemias are negatively associated with occupational risk. On the other hand, obesity and high blood pressure did not obtain significant statistical evidence.

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