
INFLUENCE OF THE ISO 45001 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM ON THE REDUCTION OF ACCIDENTS AND ILLNESSES IN WORKERS AND/OR COLLABORATORS OF THE COMPANY J. RAMÓN – LIMA – 2018

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ABSTRACT

This research proposed complementing the Occupational Health and Safety Management System (OHSMS) with ISO 45001 to reduce workplace accidents and illnesses in mining service companies, such as J. Ramón, Lima. The study began with an analysis of the OHSMS based on content or document analysis, specifically regarding 2016. This was then applied on-site, along with an analysis of reports on workplace accidents and illnesses from 2016 to 2018, and a survey. The study was initiated at the company to determine the relationship between the OHSMS and the reduction of workplace accidents and illnesses. This process identified hazards, established risks, and determined whether a relationship exists. The methodology used in the study is quantitative; results are obtained based on activity-based analysis, using records, observations, and surveys to determine the relationship. It was concluded that the OHSMS had a significant impact on the reduction of workplace accidents and illnesses, serving as a reference point for considering the findings and applying them in other companies or circumstances.

Keywords: Hazard, Risk management, Occupational safety, Workplace accidents and illnesses, and Risk control.

INTRODUCTION

According to the International Labour Organization, occupational safety and health is the science of forecasting, identifying, evaluating and controlling risks that arise at work or as a consequence of it and that could harm the health and well-being of workers, the lack or deficient application of an occupational safety and health management system (OHS-MS) generates accidents, occupational diseases, legal and financial sanctions, low morale and productivity. Globally, it is estimated that almost 2 million people die each year from work-related causes, according to the ILO and WHO. These deaths are the result of a lack of safety policies and controls, affecting employees, businesses, and the economy at large (ILO, Sep 2021, <https://surl.li/sfwkin>). This entails consequences for companies and individuals, in the first case there are legal and/or financial sanctions, loss of productivity and damage to reputation, in the second case: accidents and/or injuries, occupational diseases, impact on mental health and violation of rights, in the global and/or economic there are economic burdens, loss of human capital and inequality, as indicated by the USMP (cited by USMP, Aug 2025, <https://surl.li/bxjsvp>).

Implementing an occupational health and safety policy is an obligation of companies, not only because there is regulation in this regard, but also because it seeks to protect and improve the physical, mental, social and spiritual health of workers in their workplaces. Likewise, it is also an alternative because prevention has a positive impact on the performance of workers, avoiding additional costs resulting from an accident at work, in Peru it is the lack of appropriate and/or properly implemented systems, but in the case of the Occupational Safety and Health Law clearly establishes the legal responsibility of workers.

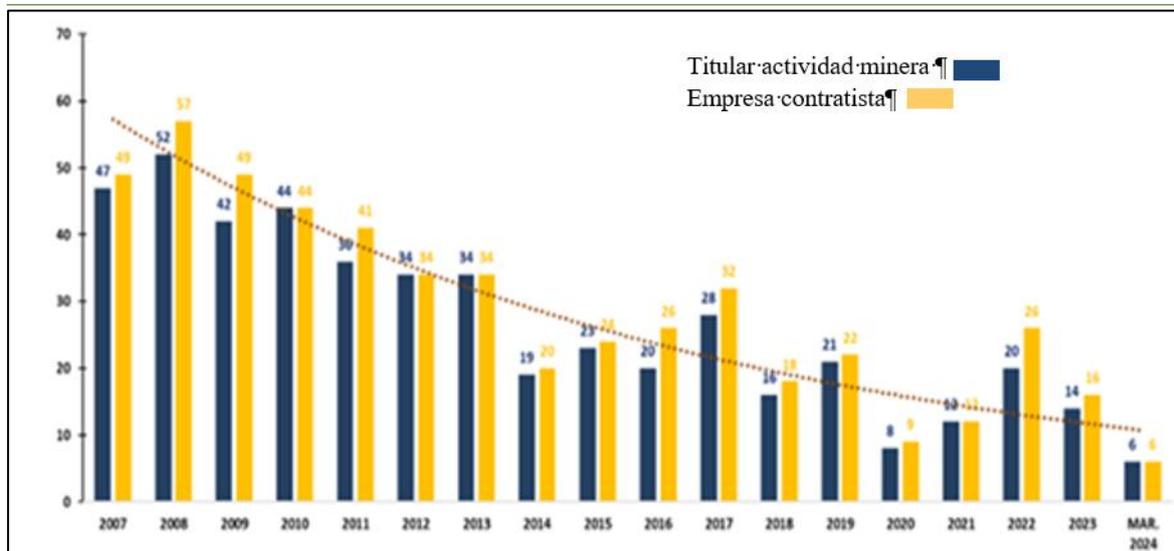


Figure 1. Accidents and fatalities in mining operations (2007 to March 2024)
 Source: OSINERGMIN. (Mar 2024. <https://surl.li/ttjekj>).

It can be seen that over time the statistics of accidents in an area for which the Company provides services that involve establishing or implementing a system to reach the ideal situation have been reduced: 0 accidents)

For this reason, the J. Ramón del Perú Company, which is dedicated to providing environmental chemical testing services for the different production sectors, began the process of implementing the ISO 45001 standard and also for compliance with the Occupational Safety and Health Law Law No. 29783, due to occupational accidents that are identified in the work areas. Chemical, ergonomic and physical hazards have also been identified in laboratory work areas that could lead to occupational diseases. In this regard, it is known that the Law indicates the Principle of Responsibility that indicates that the employer assumes the consequences when the worker is affected by an illness or accident, the Principle of Comprehensive Health Care that establishes the right to care until his recovery and rehabilitation and managing his reintegration into the workforce, the norm also establishes in Article 4 that the purpose of the Law is to prevent accidents and damage to the health that are the result of work, that is, the norm establishes compensation, notification, investigation, indemnity, among others.

Specifically, in order to evaluate the impact of the implementation of the health and safety system in J. Ramón del Perú SAC. The study was carried out on occupational accidents and diseases. The question that guides the study is: "To what extent does the ISO 45001 Occupational Health and Safety Management System influence the reduction of occupational accidents and diseases in workers and/or collaborators of the company J. Ramón del Perú SAC 2018?", for this the general conditions of the Occupational Health and Management System and the level of reduction of accidents and occupational diseases were analyzed. This analysis was necessary and justified in being able to identify the reality that is experienced in the management of occupational health and safety today and in this way renew the approaches and improve them in such a way that a more effective and valuable approach has been established.

In addition, it was justified in the need to implement the occupational health and safety management system in the testing laboratories, thus reducing accidents and occupational diseases, guaranteeing the protection of the health of its workers, contributing to better performance and greater benefits, such as the reduction of costs due to accidents.

This research project justifies the importance of the implementation of the occupational health and safety management system in testing laboratories, to reduce accidents and occupational diseases allowing the protection of the health of their workers and contribute to better performance and greater benefits, such as the reduction of costs due to accidents, it becomes a reference that guides the replication of the same process in similar institutions.

Safety and hygiene at work are aspects that must be taken into account in the development of working life in the company. Its regulation and application by all levels of the same is essential to improve working conditions. A good prevention of occupational risks is based on knowledge of the causes that motivate them and the possibilities that are available to prevent or combat problems, if properly applied it is likely that negative consequences for the perfect development of working life will be avoided. Nowadays, to carry out a good total control of occupational risks for companies, it implies making economic investments that, if carried out, would often jeopardize the economic viability of these corporate names.

In accordance with the principles of safety, companies must be installed in compliance with the regulations, in order to prevent occupational risks and adopt the necessary safety mechanisms, and even modify if necessary, seen in this way, the prevention of accidents goes through three phases:

- 1°. Prevent the source: prevent the risk of work from the source of the generation itself.
- 2°. Preventing the environment: preventing the worker from the occupational risks present in his work environment
- 3°. Protect the worker: refers to the proper use of personal protective equipment based on the occupational hazards existing in their work environment.

An accident can be defined as an unwanted event that can result in damage to people, property or production processes. Accidents are the result of contact with some substance or a source of energy, whether chemical, thermal, acoustic, mechanical, electrical, etc., beyond the limit capacity of the human body or structures.

Considering the human point of view, contact can cause a cut, burn, abrasion, fracture, etc., or alteration or interference with some normal function of the body. If it is property, it can cause fire, destruction, deformation, loss of material goods, etc.

In daily work, activities, no matter how simple they may seem, can cause damage to workers by not considering the most minimal safety measures, among these is the operation of the machine and equipment, or in the environment where it carries out its activities, so it is important that the operator knows the operating procedures, developing capacities and skills that make it easier for them to face these conditions without deterioration to their person. The occurrence of an accident is controllable and can be foreseen, as long as good production and safety and hygiene practices are established in the workplace.

It is important to point out that in order for the worker to know all the risks to which he may be exposed, he must know what they are and where they may occur, so that in this way they can be prevented from their origin, for this it is essential to have the means of safety that include, among others, protection of machinery and facilities, adequate ventilation, safe work procedures, etc., as an absolute priority before thinking about protecting the worker. However, on many occasions it is difficult to guarantee that the mere application of the means of protection provides a safe work environment. Likewise, when new projects or modifications to production facilities are carried out, the surveillance and supervision of safety conditions in all aspects for the worker must be considered as a permanent practice, so emphasis is placed on carrying out studies and inventories to detect and prevent potential risks.

ISO 45001 comprises a series of voluntary international standards applied to occupational health and safety management; which replaces the OHSAS 18001 Standard. They can be applied to any occupational health and safety system. The standard does not require requirements for its application, they have been developed to be applied by companies and organizations of all types and sizes, regardless of their geographical, social or cultural origin.

The Standard is proposed as a system that establishes a series of requirements to implement an Occupational Health and Safety Management System, enabling an organization to formulate a policy and specific objectives associated with the subject, considering applicable legal requirements and information on the risks inherent to its activities.

The ISO 45001 standard is a guide for occupational health and safety systems that was born in 2014 as a specification that aims to provide the requirements that its promoters consider that an Occupational Health and Safety Management System (OH&SMS) must meet in order to have good performance, and is integrated into ISO 9001, 14001 and 27001, thus allowing the organization that applies it to control the risks to which its workers are exposed as a result of their work activity. With this system, it will be possible to achieve the protection of workers and the optimization of the work result. This standard is applicable to any organization that wants to:

- a) Establish an occupational health and safety management system, to minimize or reduce risks in their activities.
- b) Implement, maintain, and continuously improve occupational health and safety management performance.
- c) Ensure compliance and compliance with its established occupational health and safety policy.
- d) Demonstrate compliance with the Occupational Health and Safety Management System.
- e) Seek certification of your occupational health and safety management system, granted by an external body.

METHODOLOGY

Research is of an applied type, part of a knowledge or subject that has already been determined and the research updates, renews or restructures it, closing the gap between theory and product (Lozada, 2014), applying methodological, critical and statistical criteria, promoting new knowledge and feedback to the disciplines, this type of research improves and strengthens the competencies demanded by today's society (Castro Maldonado et al., 2023). The research process must consider the context of people's actions and involve philosophical, ontological, epistemological, and methodological changes (Cordero, 2009). The aim is to assess the behaviour of the independent variable in relation to the dependent variable and how one influences the other, based on the criteria and knowledge about occupational health and safety. Applied research implies a reflective, systematic, and critical procedure that seeks to discover or interpret facts, phenomena, and laws in a given area of reality (Tamayo, 2001). This approach favors solutions based on the context of people's actions and on philosophical and methodological changes in research (Vargas, 2009).

The design is correlational is a common choice, it allows relationships to be established between variables without manipulation (Rengifo Vega, 2022; Hurtado Valenzuela et al., 2023). Correlational research can provide valuable information (Rengifo Vega, 2022). Understanding these methodological aspects is crucial for students and researchers to design and conduct effective studies.

The variables in correlation are "the implementation of the Occupational Health and Safety System" based on the ISO 45001 standard that includes a guide for occupational health and safety systems, and is integrated into ISO 9001, 14001 and 27001, allowing the organization that applies it to control the risks to which its workers are exposed as a result of their work activity and the other is the "Reduction of Accidents and Occupational Diseases". That it is about modifying the rates of accidents and occupational diseases by strategic actions that help improve safety conditions in the work environment.

The study has an accessible but very mobile population of 113 to 75, from the J. Ramón Company, on which 77 workers from all areas and sections of the J. Ramón Company are selected arbitrarily and randomly, therefore not probabilistic

The techniques of Observation and Content Analysis or documentary are considered, the instruments being:

- Diagnostic matrix, which has allowed us to identify, evaluate and prioritize the risks and working conditions that may affect the health and safety of workers, identifying the critical points related to Occupational Health and Safety. It is understood as an IPERC Matrix,
- Checklist as a key tool to carry out inspections, internal audits or rapid diagnoses that allow you to assess whether legal, regulatory and company requirements in terms of Occupational Health and Safety are met,
- Appreciation survey, Questionnaire based on the Likert scale that allowed us to determine if the system and safety conditions were appropriate for workers from their perception
- Register of accidents and occupational diseases. A document that allows us to appreciate the situation in which these aspects are found.

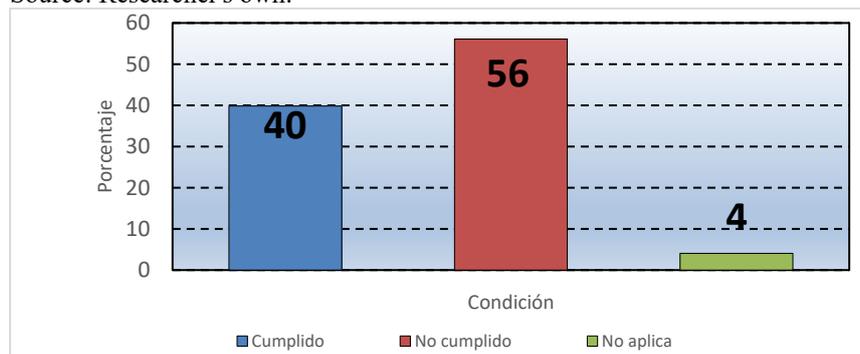
RESULTS

The result of the Before and After Verification is reached below:

Table N° 1. Diagnostic Matrix of Compliances – Non-Compliances of the Occupational Health and Safety Plan - 2017

Guideline	Indicator	Fountain	YES	NO	NA
Total indicators			49	69	5
Percentages			40	56	4
Total de Items			120	100%	

Source: Researcher's own.



Graph N° 01. Compliance with OSH Management requirements

Source: Table N° 1. In original Spanish language

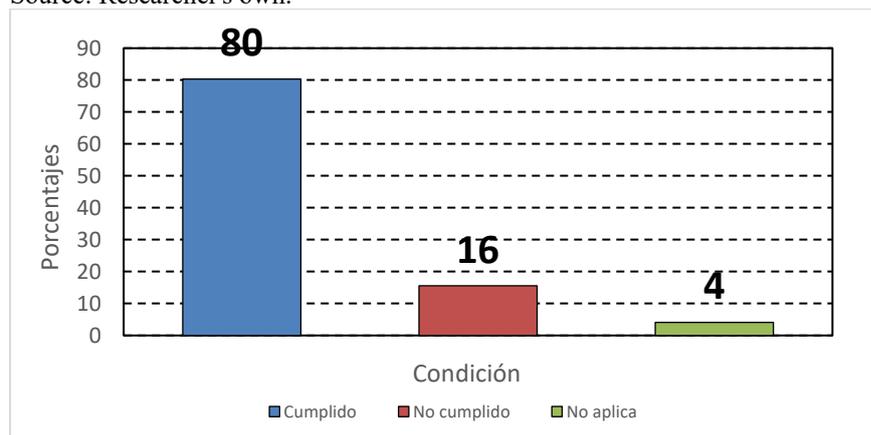
Comment:

As of 2017, it can be seen that there is a Non-Compliance of 56%, a Compliance of 40% and aspects that do not apply a 4%.

Table 2. Diagnostic Matrix of Compliances – Non-Compliances of the Occupational Health and Safety Plan - 2018

Guideline	Indicator	Fountain	YES	NO	NA
Total			98	19	5
Percentages			80	16	4
Total de Items			120	100%	

Source: Researcher's own.



Graph N° 2. Compliance with OSH Management Requirements - 2018

Source: Table 2. In original Spanish language

Comment:

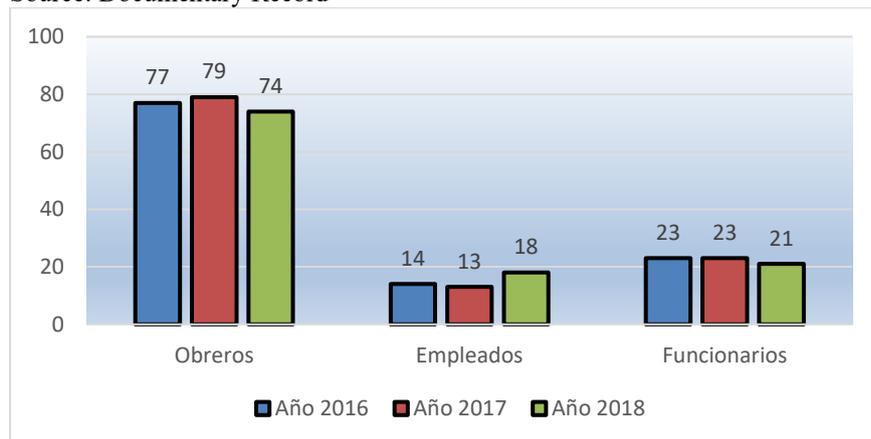
It can be seen that the non-compliances or dissatisfactions are 80%, which means the minimum majority, followed by 16% of compliances or satisfactions and 4% that does not apply.

It can be seen that in 2018 there was a substantial improvement, 80% of Compliance, 16% of Non-Compliance and 4% of Non-Compliance.

Table 3. Workers by groups

Year	Workers	Employees	Officials	Total
2016	77	14	23	114
2017	79	13	23	115
2018	74	18	21	113

Source: Documentary Record



Graph N° 3: Workers by groups 2016 – 2018

Source: Table N° 3. In original Spanish language

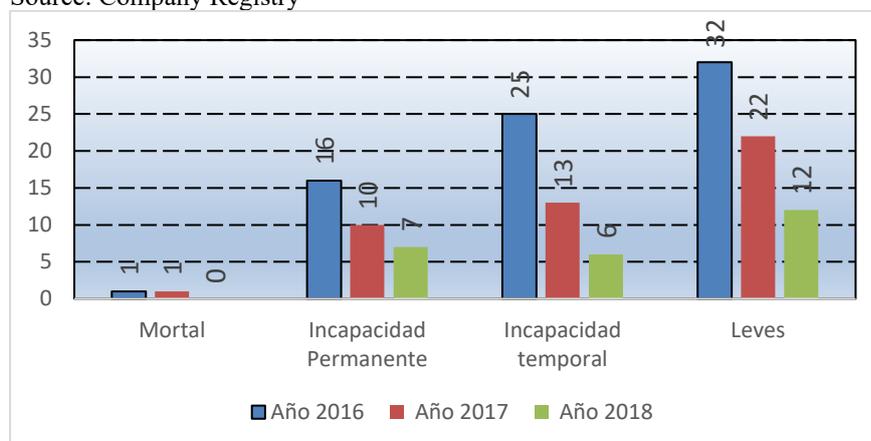
Comment:

It can be seen that between 2016 and 2018 the number of workers of 114, 115 and 113 has not changed significantly, it can be seen that the values vary annually in all cases.

Table N° 4. Accident Record by Type

Year	Mortal	Permanent Disability	Temporary disability	Mild	Total
Year 2016	1	16	25	32	74
Year 2017	1	15	19	22	46
Year 2018	0	12	19	14	25

Source: Company Registry



Graph N° 4. Accident type record.

Source: Table No. 4. In original Spanish language

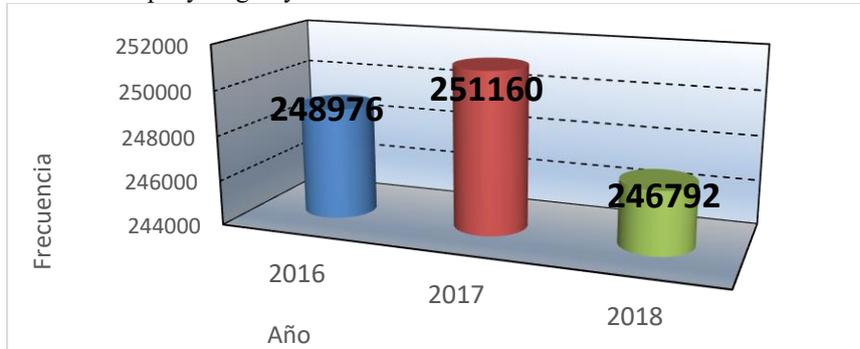
Comment:

It can be seen that permanent accidents have been gradually reducing, and the statistics of workers without accidents, from 2016 to 2018, to 2018 no fatal accidents are reported and permanent accidents from 16 (2016) to 12 (2018), temporary accidents from 25 (2016) to 19 (2018), minor accidents from 32 (2016) to 14 (2018), now in total there were 74 reports in 2016, 46 reports to 2017 and 25 reports to 2018.

Table 5. Registration of Man Hours Worked

Unit	HHT
2016	248976
2017	251160
2018	246792

Source: Company Registry



Graph N° 5: Record of Man Hours Worked

Source: Table No. 5. In original Spanish language

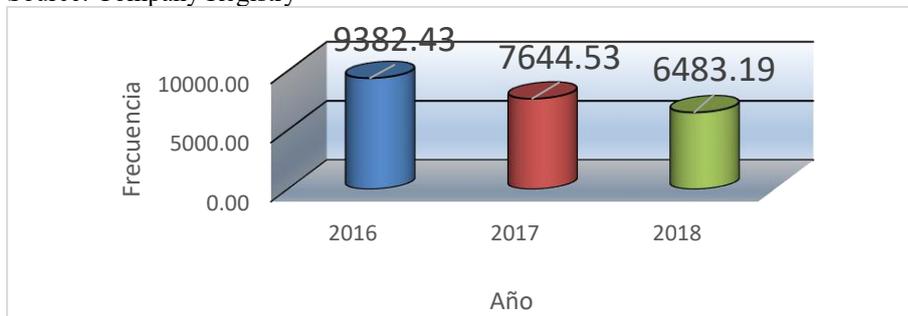
Comment:

It can be seen that in the years 2016 to 2019 Man Hours Worked can be seen and a reduction in Man Hours Worked can be seen in 2019.

Table N° 6. Lost hours

Year	Days Lost	HHT	Frequency
2016	2336	248976	9382.43
2017	1920	251160	7644.53
2018	1600	246792	6483.19

Source: Company Registry



Graph N° 06. Lost work-related hours.

Source: Table 6. In original Spanish language

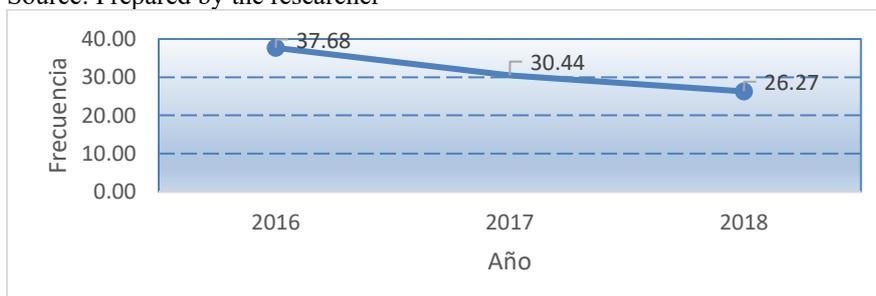
Comment:

It can be seen that the days lost have been reducing, from 2016 with 9382.43 hours lost in the year and 2017 with 7644.53 hours lost and 2018 with 6483.19 hours lost.

Table N° 7. Frequency index

Unit	Indicators	Frequency
2016	9382.43	37.68
2017	7644.53	30.44
2018	6483.19	26.27

Source: Prepared by the researcher



Graph N° 07. Accident frequency from 2016 to 2018

Source: Table No. 7. In original Spanish language

Comment:

It can be seen that there has been a decrease in the accident rate from 37.68 in 2016 to 26.27 in 2018 Frequency, which reflects that the performance of occupational health and safety management is improving, as temporary disabilities have been less and less.

Table No. 8. Severity Index

Unit	Days Lost	HHT	Severity
Year 2016	2336	248976	1876.49
Year 2017	1920	251160	1528.91
Year 2018	1600	246792	1296.64

Source: Company Registry: Processed by the investigator.



Graph N° 08. Severity Index 2016 - 2018

Source: Table No. 8. In original Spanish language

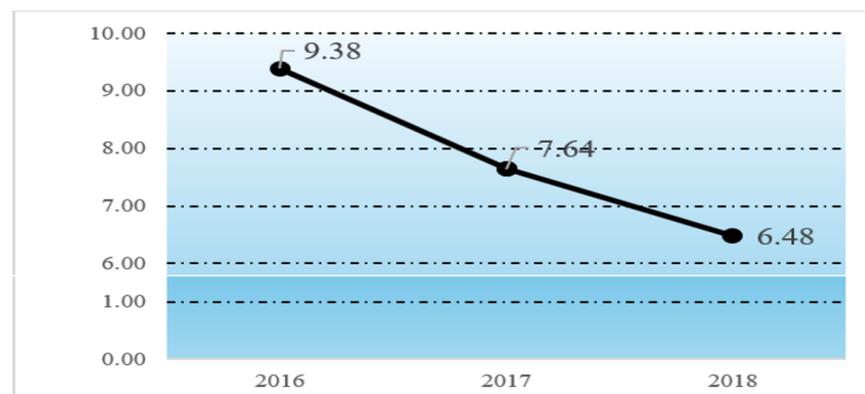
Comment:

It can be seen that the measure of severity or impact of adverse events in terms of severity, that is, time lost in hours, reflects a total of 1876.49 hours in 2016, a total of 1528.91 hours in 2017 and a total of 1296.64 hours quantified in temporary absences from work, affecting productivity.

Table N° 9. Accident Rate

Unit	Days Lost	HHT	Accident Rate
2016	2336	248976	9.38
2017	1920	251160	7.64
2018	1600	246792	6.48

Source: Company Registry. Prosecuted by the researcher



Graph N° 09. Accident rate 2016 - 2018

Source: Table No. 9

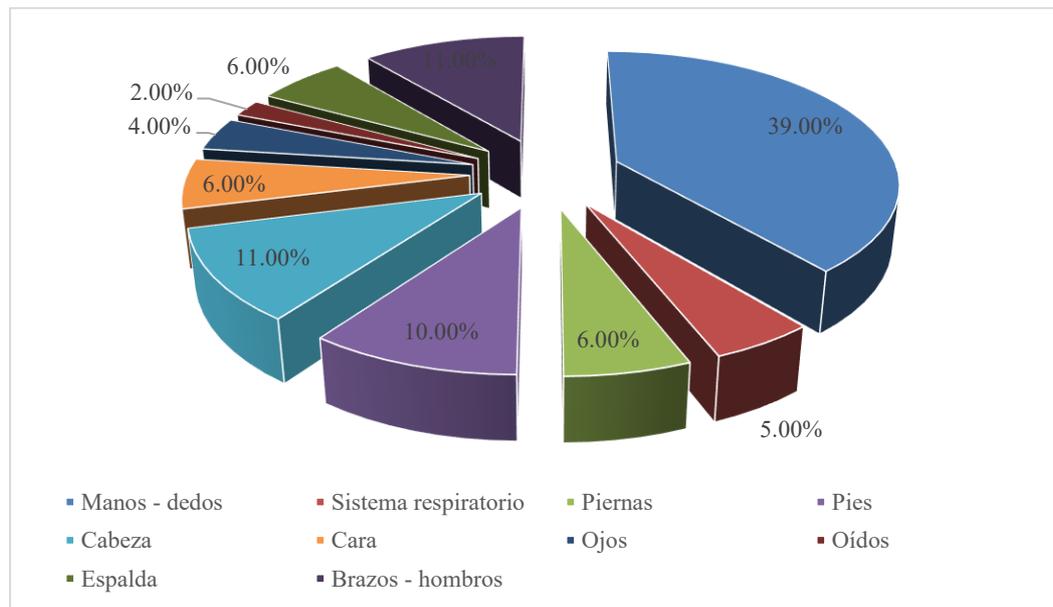
Comment:

It can be seen that there is a trend of accidents from 9.38 accidents of all kinds in 2016, to 7.64 in 2017 and from 6.48 to 2018, which implies that there are fewer and fewer workers exposed to the risk of an accident.

Table N° 10. Injury Risk Report by Body Location – 2018

No.	Type of accident	Not on display
1	Brothers - Data	39.00%
2	Respiratory system	5.00%
3	Legs	6.00%
4	Feet	10.00%
5	Head	11.00%
6	Face	6.00%
7	Eyes	4.00%
8	Ears	2.00%
9	Back	6.00%
10	Arms - shoulders	11.00%

Source: Company Registry



Graph N° 10. Location of the risk or injury in the body.

Source: Table No. 10. In original Spanish language

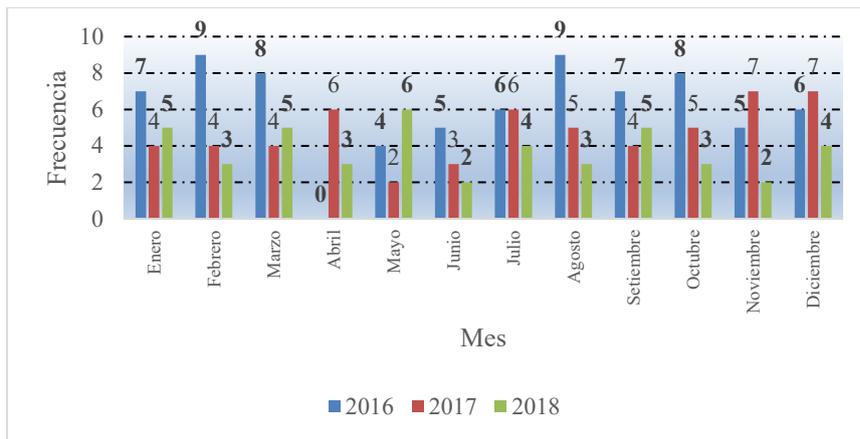
Comment:

It can be seen that there are areas that are more exposed to accidents and therefore to injuries, of which Hands – fingers is the most exposed with 39% of injuries, followed by Head and Arms – shoulders with 11%, and Feet with 10%.

Table N° 11. Accident report by year

Year / Month	Accidents and incidents involving personal injury and property damage		
	2016	2017	2018
January	7	4	5
February	9	4	3
March	8	4	5
April	0	6	3
May	4	2	6
June	5	3	2
July	6	6	4
August	9	5	3
September	7	4	5
October	8	5	3
November	5	7	2
December	6	7	4
Subtotals	74	57	45

Source: Processed by the investigator of the company's Registry



Graph N° 11. Personal and property injury accidents 2016 to 2018.
 Source: Table 11. In original Spanish language

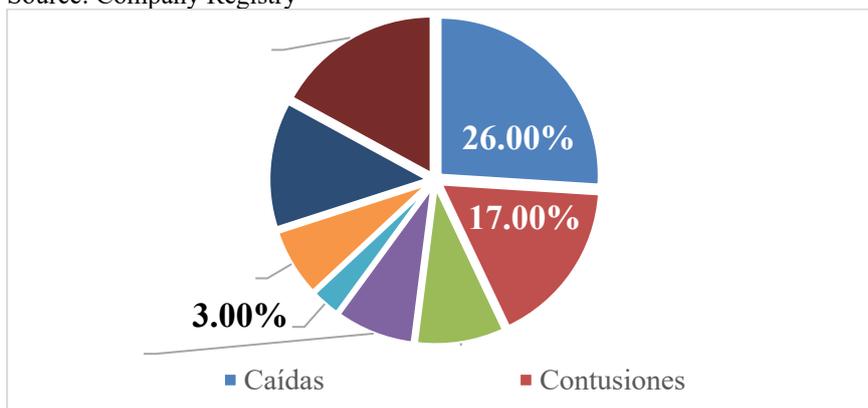
Comment:

It can be seen that according to the year there have been accidents and it is evident that they are reduced from 2016 to 2018 in a connotative way, with February, March, August and October being the months with the highest frequency of accidents to 2016.

Table 12. Accidents by type or cause - 2018

No.	Type of accident	Percentage
1	Falls	26.00%
2	Bruises	17.00%
3	Overexertion	9.00%
4	Intoxication	8.00%
5	On Itinerary	3.00%
6	Electrocution	7.00%
7	Lacerations or Cuts	13.00%
8	Other	17.00%
Summations		100.00%

Source: Company Registry



Graph N° 12: Distribution of accidents due to their cause.
 Source: Table No. 12. In original Spanish language

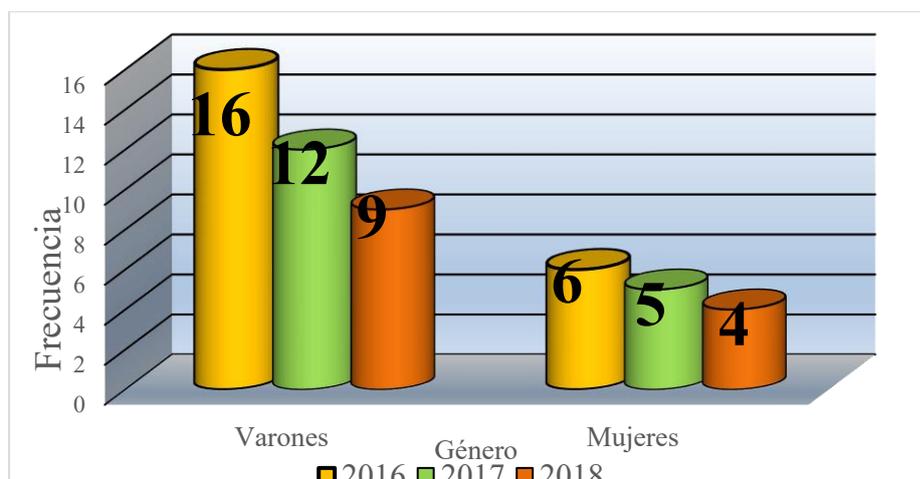
Comment:

It can be seen that the most frequent accidents are falls, requiring more than 26%, followed by Contusions that was 17%, and then Lacerations or Cuts are 13%, in Overexertion it was 9%, Others require 8%, for Electrocution is 7% and in Itinerary it is 3%.

Table N° 13. Diseases

No.	Area	Occupational diseases		
		2016	2017	2018
1	Males	16	12	9
2	Women	6	5	4
Total		22	17	13

Source: Company Registry



Graph N° 13. Registry of occupational diseases.
 Source: Table 13. In original Spanish language

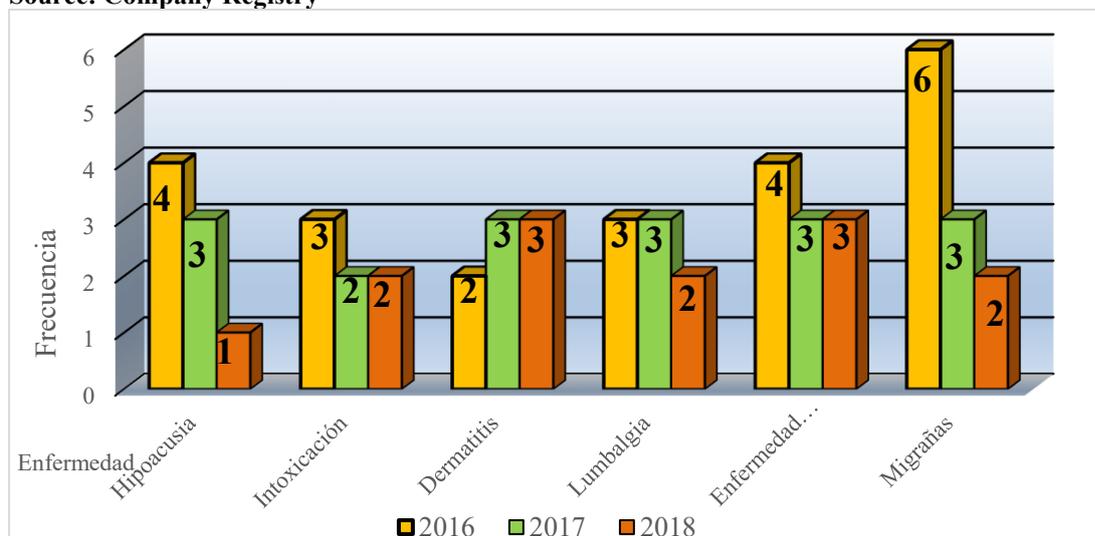
Comment:

Between 2016 and 2018 you can see reports of diseases, between men and women, in the case of men in 2016 there were 16 accidents, in 2017 there were 12 accidents,

Table N° 14. Type of diseases

No.	Area	Occupational diseases		
		2016	2017	2018
1	Hearing loss	4	3	1
2	Intoxication	3	2	2
3	Dermatitis	2	3	3
4	Lumbago	3	3	2
5	Respiratory diseases	4	3	3
6	Migraines	6	3	2
Total		22	17	13

Source: Company Registry



Graph N° 14: Type of diseases, years 2016, 2017 and 2018.

Source: Table No. 14. In original Spanish language

Comment:

It can be seen that diseases such as Hearing Loss, Intoxication, Dermatitis, Low Back Pain, Respiratory Diseases and Migraines have been identified, all being recurrent diseases, but it has been reduced from 2016 to 2018.

Survey Summary: "Security Perception"

Table N° 15. Security Perception Summary

Indicator	ALSO	NAC / NED	OF	NC	Total
Accident report by year	35.1	5.2	58.4	1.3	100.00

Excess incidents or accidents per year	28.6	6.5	63.6	1.3	100.00
Feeling safe at work	54.6	3.9	37.7	3.9	100.00
Identification and dissemination of risks at work	61.0	3.9	31.2	3.9	100.00
Identifying and correcting unsafe behaviors	76.7	3.9	15.5	3.9	100.00
Safety training or inductions are frequently carried out	76.6	1.3	18.2	3.9	100.00
Appropriate and verified use of PPE	71.4	3.9	20.8	3.9	100.00
Safe, comfortable and clean environment	89.6	1.3	7.8	1.3	100.00
Appropriate signage for Occupational Health and Safety	89.6	1.3	7.8	1.3	100.00
Knowledge of Occupational Health and Safety protocols	81.8	2.6	11.7	3.9	100.00
Importance of the Joint Committee on Safety and Health at Work	42.9	2.6	50.6	3.9	100.00
Is aware of the Occupational Health and Safety Management Plan	32.5	2.6	61.0	3.9	100.00

Source: Applied survey.

DISCUSSION OF THE RESULTS.

In this research, a significant reduction in the accident rate in the company has been observed after the implementation of the ISO 45001:2018 standard. The accident rate of accidents per hours worked between 2016 and 2018 (9.38, 7.64 and 6.48) according to table No. 10, then it can be seen that it has been improving, considering that ISO 45001 : 2018 is implemented that year and a decrease in the accident rate is appreciated and if tables 8 and 9 on Frequency and Severity are reviewed, the decrease is also appreciated, which coincides with the thesis of Carhuaricra (2021) who in his study determined the importance of the OH&S Management System for performance in this aspect, and in Calcora (2021) it can be seen that there is a direct relationship between the OH&S Policy and risk management, it can be said that it has been effective in reducing the accident rate in our company.

In addition, we have identified that several types of accidents have been detected and defined as of 2018, in those related to [describe the types of accidents]. This suggests that the standard has had a positive impact on improving safety in those specific areas.

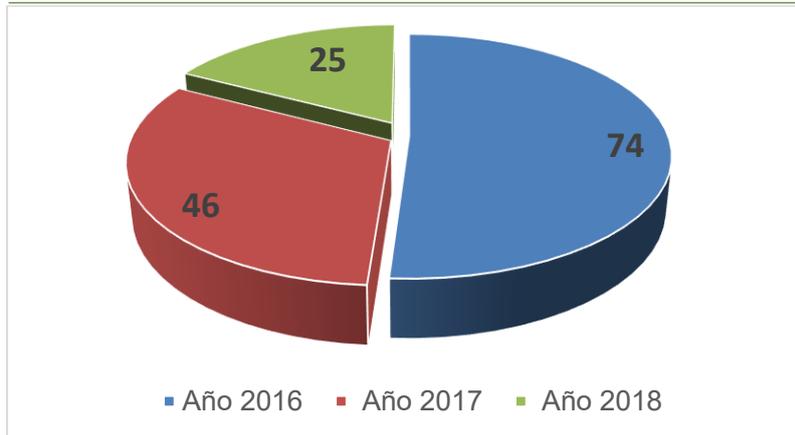
It can be seen that the main factor of minimization of accident rates has implied the improvement from 2017 to 2018 of Occupational Health and Safety Management, as can be seen in Tables No. 1 and 2, with their respective graphs, and this effect can also be seen in the thesis of Carhuaricra (2021) in which the implementation allowed him to achieve this effect, that is, it is necessary to implement management in occupational health and safety, in addition to Catacora (2021) it can be seen that there is a direct relationship between OHS Policy and risk control, it is deduced that if there is risk control, adverse events are minimized, in this way all studies that apply or implement this aspect lead to improving accident rates and risk control, The improved system involves many facts, but substantially it is worth mentioning vital aspects such as internal and external auditing, the identification and evaluation of risks, training and the timely dissemination of work guidelines, evidenced in the study in Table No. 17 where 54.55% consider that the work environment is safe, Table No. where 61.04% state that there is Identification and dissemination of risks at work, in table No. 20 76.62% affirm that they receive training or inductions in safety and in table No. 21 89.61% indicate that the environment is safe, comfortable and clean. While we have observed positive results, we also recognize some limitations in our research. For example, we do not have sufficient historical data to compare the accident rate with periods prior to the implementation of the standard. For future research, we propose long-term monitoring to assess the sustainability of the reduction in accident rates. In addition, it would be interesting to analyse how ISO 45001:2018 affects other aspects of occupational health and safety management, such as worker satisfaction or productivity.

It can be stated then that the general conditions of the Management and Occupational Safety System in the reduction of accidents and occupational diseases in workers and/or collaborators of the company J. Ramón SAC 2018, before implementing the design is unsatisfactory, which is improved with the implementation of the design.

Table 16: Accidents and incidents by year

Year	Total
Year 2016	74
Year 2017	46
Year 2018	25

Source: Table 4 (p. 52)



Graph N° 15: Accident report from 2016 to 2018.

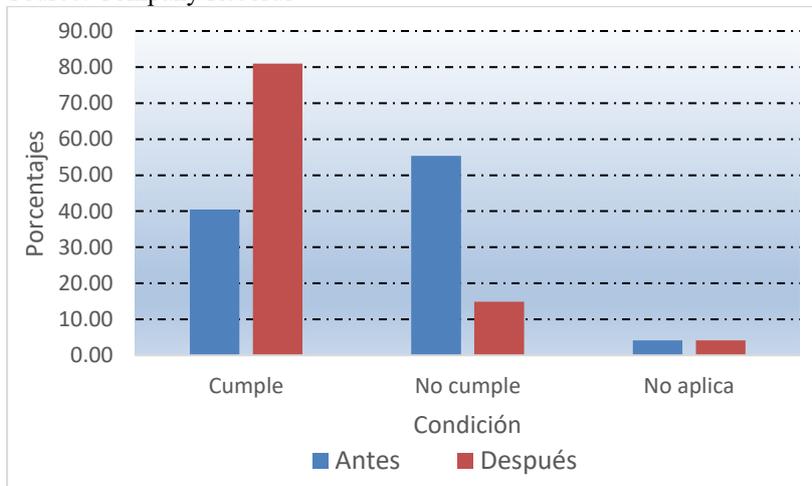
Source: Table 16. In original Spanish language

It can be seen that accident reports have been reduced from 74 reports in 2016, 45 reports in 2017 and 25 reports in 2018.

Table 17. OH&S & Health & Human Rights System Compliance Reporting Comparison Table

Conditions	Before		After	
	f	p	f	p
Meets	49	40.50	98	80.99
Not compliant	67	55.37	18	14.88
Not applicable	5	4.13	5	4.13
Total	121	100.00	121	100.00

Source: Company Records



Graph N° 16. OH&S & MS Compliance Comparison

Source: Table 17. In original Spanish language

As can be seen, the results show the improvement in the OH&S Management System with the application of ISO 45001: 2018, this fact was favorable from unfulfilled conditions to a notable improvement

CONCLUSIONS

- In tables 1 and 2 you can see the conditions of the Occupational Safety and Management System using the check list and it can be seen that before the use of ISO 45001 : 2018 the conditions were not favorable and non-compliances were the majority reaching 56%, and in 2018 ISO 45001 was implemented: 2018 and compliance with the items or requirements has risen to 80%.
- With respect to the reduction of accidents, it could be seen that tables 4, 7, 8 and 9 show that accidents have been reduced in such a way that the reports are favorable, both for their frequency and in the indices of severity, frequency and accident rate that from 2016 to 2018 have been significantly reduced.
- It has been possible to establish that the SSGO based on ISO 45001 contributes to the reduction of accidents and diseases, since table No. 2 is of high compliance since it reaches 80% and high values of accidents are reduced to lower values, which is auspicious in favor of the study.

RECOMMENDATIONS

- Organizations must implement the Occupational Health and Safety Management System and permanently monitor that it is in optimal shape, so that it can guarantee the integrity of people and facilities.
- The monitoring of accident rates must be assumed preventively, this helps to reduce them, but this must be emphasized in training on occupational safety and health, this task must be assumed with great responsibility.
- The result that the OH&S Management System is influential in reducing accidents and illnesses is justification, not only to implement it, but also to finance it and thus avoid other difficulties that involve too much investment.

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