

Identification of the main OHS problems in the district of Santa Anita: A systematic review from 2018 – 2024

Identificación de los principales problemas en materia de SST en el distrito de Santa Anita: Una revisión sistemática desde el 2018 – 2024

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ABSTRACT: In the district of Santa Anita, various OHS problems have been reported that affect businesses, markets, hospitals, and industries, exemplified by the recent accident at the PepsiCo plant. This incident highlights the need for a thorough analysis of workplace accidents in the region. **Methodology:** It is a qualitative study, with a descriptive design and systematic review of OHS problems in different labour sectors in the Santa Anita district. **Results:** Significant concerns were identified, such as a lack of adequate OSH training, improper use of personal protective equipment (PPE), inefficiencies in control and supervision, non-compliance with regulations, and poor equipment maintenance. The recent accident at the PepsiCo plant underscores the urgency of effective measures to prevent workplace accidents and promote a safe and healthy environment for workers in the district. **Conclusions:** It is imperative that local authorities and businesses in Santa Anita prioritise the implementation of policies and practices that promote a safe and healthy work environment for all workers in the district. This includes more effective occupational risk prevention and management measures to reduce the incidence of accidents and promote occupational health.

Keywords: workplace accidents, control and supervision, accident prevention, safety regulations, occupational health.

RESUMEN: En el distrito de Santa Anita, se han registrado diversos problemas de SST que afectan a empresas, mercados, hospitales e industrias, ejemplificados por el reciente accidente en la planta de PepsiCo. Este incidente subraya la necesidad de analizar a fondo los casos de accidentes laborales en la región. **Metodología:** Cualitativa, con diseño descriptivo y de revisión sistemática sobre los problemas de SST en los distintos sectores laborales en el distrito de Santa Anita. **Resultados:** Se identificaron preocupaciones significativas como la falta de capacitación adecuada en SST, uso inadecuado de Equipos de Protección Personal (EPP), ineficiencias en el control y supervisión, incumplimiento de normativas y mantenimiento deficiente de equipos. El reciente accidente en la planta de PepsiCo subraya la urgencia de medidas efectivas para prevenir accidentes laborales y promover un entorno seguro y saludable para los trabajadores del distrito. **Conclusión:** Es imperativo que las autoridades locales y las empresas en Santa Anita prioricen la implementación de políticas y prácticas que fomenten un entorno laboral seguro y saludable para todos los trabajadores del distrito. Esto incluye medidas más efectivas de prevención y gestión del riesgo laboral para reducir la incidencia de accidentes y promover la salud ocupacional.

Palabras Claves: Accidentes laborales, control y supervisión, prevención de accidentes, normativas de seguridad, salud ocupacional.

1. INTRODUCTION

Throughout the world, accidents occurring in the workplaces of different companies can cause discomfort, injuries and even, in some cases, the death of the workers involved. For this reason, there are international standards, such as ISO 45001:2018, which ensure the physical, mental and emotional well-being of workers. Likewise, countries around the world independently develop their own OSH regulations in order to protect workers within their territory. Examples of this are Germany and Chile. According to [1], Germany has a dual system to protect workers, where the first component ensures protection by the state. Chile, on the other hand, establishes regulations on occupational accidents and diseases, which declare the mandatory acquisition of social insurance against accidents and occupational diseases [2].

Another country worth mentioning is Switzerland, where the two main laws regulating OSH are: The Labour Law (Arbeit Gesetz), which covers working hours and rest periods, health and safety at work, special protection for vulnerable groups, standards for buildings used as workplaces and personal safety measures, minimum working conditions, compliance and supervision. The second is the Accident Insurance Act (Unfallversicherung Gesetz), which deals with the prevention of accidents and occupational diseases due to working conditions, as well as insurance coverage, benefits and financing, with appropriate administration and management. Labour inspections at the cantonal level, SUVA (the central accident insurance body) and the State Secretariat for Economic Affairs (SECO) are responsible for enforcing the laws. A coordination commission (EKAS) supervises and finances the inspection system for accident prevention. Its purposes are to ensure that all workers in Switzerland have a safe, fair and healthy working environment, as well as to ensure that all workers are protected against the risks of both occupational and non-occupational accidents, as well as against occupational diseases.

In our country, the number of cases occurring each year is not small. At the beginning of the year alone, there were multiple cases of occupational accidents. "The Ministry of Labour and Employment Promotion (MTPE) reported that between January and February 2024, more than 5,000 notifications of workplace accidents were made, mainly in the manufacturing (1,272), real estate, business and rental (925) and wholesale and retail trade sectors (718)" [3] Therefore, regulations have been established to minimise such compromising situations. These cases are regulated by Law No. 29783, the Occupational Health and Safety Law, which aims to promote a culture of occupational risk prevention in our country, regulated by Supreme Decree No. 005-2012-TR. Compliance with this law is of utmost importance in order to protect workers from accidents and illnesses related to their work [4].

In the six years since the law was created, there have been cases of occupational health and safety problems in wholesale markets, hospitals and industries in the district of Santa Anita. These include a lack of staff training, inadequate equipment maintenance, incomplete occupational health and safety equipment (PPE), poorly implemented biosafety measures, lack of a preventive maintenance plan, and inadequate supervision, among others. An example of these problems can be seen in the recent accident at the PepsiCo factory in Santa Anita, which can be attributed to a lack of maintenance of a tank in its industrial wastewater treatment plant [5].

It can be observed that there are a variety of OSH problems in the district of Santa Anita. This study seeks to conduct a systematic review to identify the main OSH problems in the district and to propose solutions that will help to minimise them and thus protect the integrity of workers.

2. MATERIALS AND METHODS

This research adopted a qualitative, descriptive approach with a non-experimental, cross-sectional design, as it focused on the observation and analysis of phenomena that had already occurred and could not be manipulated. The systematic documentary review technique was used as the main tool, with the purpose of identifying and analysing the main Occupational Health and Safety (OHS) problems in the district of Santa Anita. The study was based on an interpretative and comprehensive approach, based on the analysis of documents, technical reports, institutional reports and real cases of work incidents recorded between 2018 and 2024. The

purpose of the research was to characterise the main recurring OSH problems and propose relevant recommendations, without establishing causal relationships or hypotheses subject to statistical verification. The following methodological phases were followed in the development of this work:

1. Systematic review was used as the main method, following a structured sequence of search, selection, analysis and synthesis of academic, institutional and technical documents. The collection techniques were:
 - Documentary content analysis
 - Review of academic literature (theses, scientific articles, technical reports)
 - Consultation of reliable journalistic sources for recent cases
2. Key terms such as "Occupational Health and Safety" (Seguridad y Salud en el Trabajo), "workplace accidents" (accidentes laborales), "occupational risk" (riesgo laboral), "Santa Anita" and "OHS Peru" (SST Perú) were used in databases such as Google Scholar, UCV Repository, UPN Repository, institutional websites (DIGESA, SUNAFIL), and media such as RPP and Gestión.
3. The population consisted of documents and publications between 2018 and 2024 related to OSH in the district of Santa Anita. The sample was intentional and consisted of nine main documents that met the following inclusion criteria:
 - Direct relevance to OSH issues in Santa Anita
 - Publication date between 2018 and 2024
 - Full access to content
 - Reliable academic or institutional sources
 - Opinion pieces, documents without evidence, or those outside the proposed geographical and temporal scope were not included.
4. The information was organised into an analysis matrix (see Table 1), where the following qualitative variables were categorised:
 - Name of the company or institution
 - Type of economic sector (industry, health, commerce)
 - OHS issues identified
 - Source and author of the document

This matrix allowed an orderly comparison of findings, identification of patterns, and determination of the recurrence of certain OHS deficiencies.

5. The extracted data were subjected to a qualitative interpretative analysis based on the thematic analysis technique. Recurring themes were identified (lack of training, improper use of PPE, poor maintenance, non-compliance with regulations, etc.) and compared with previous studies included in the introduction. Based on these, practical proposals were developed (see Table 2), following the inductive logic of the qualitative approach.
6. As this was a documentary review without direct interaction with human beings or collection of personal data, the study did not require approval by an ethics committee. However, intellectual property was respected, with all sources used being correctly cited in accordance with APA style, 7th edition.
7. The following instruments were used:
 - Data collection forms
 - Categorisation tables by sector and type of problem
 - PDF readers and bibliographic reference managers

3. RESULTS

Table 1. Literature on Occupational Health and Safety problems in the Santa Anita district.

COMPANY NAME	TYPE OF COMPANY OR SECTOR	OHS PROBLEM	AUTHOR AND DATE
		An explosion was reported at the factory, causing the structure of a tank at its industrial wastewater treatment plant to collapse and causing the death of three people.	
PepsiCo	Food Industry	The tank containing the wastewater was 'relatively new' and, according to its capacity, the maximum volume was 839.3 cubic metres. However, on the day of the accident, it exceeded the established limits. Therefore, the company faces charges under Article 168-A of the Peruvian Criminal Code.	[6]
Industria de Maderas y Afines Santa Anita S.A.C.	Wood Industry	Among the main problems are the lack of a preventive maintenance plan, lack of order in the area, lack of training, lack of a suitable place for hazardous materials, etc. Addressing these issues proactively will not only help ensure the safety and well-being of employees, but also improve the operational efficiency and long-term sustainability of the company.	[7]
Jasif S.A.	Textile Industry	The main occupational health and safety issues were lack of training, staff turnover, lack of noise and lighting control, lack of order and cleanliness, lack of equipment maintenance, presence of machines in poor condition, excessive working hours, lack of commitment to safety, and lack of communication between the boss and employees. As a result, accidents such as falls, cuts, trips and bumps occurred. Workers also suffered from visual fatigue, postural fatigue and auditory fatigue.	[8]
Hermilio Valdizan Hospital	Health Sector	The main occupational health and safety issues identified were a lack of disinfection equipment, absence of risk sensors and alarms, lack of a real-time monitoring system, incomplete PPE, poorly implemented biosecurity measures, shortage of materials needed to disinfect care areas, absence of a safety culture, poor and weakly structured organisational system, absence of diagnostic methods, lack of accident records, lack of risk and hazard control and reduction policies, high levels of staff stress, few accident control systems, poor administrative coordination, recent changes in safety policies due to the pandemic, no OSH policies or HIRA matrix, weak management of the occupational health and safety	[9]

		committee, no training on occupational health and safety systems, and no monitoring system.	
EMMSA S.A.	Wholesale market	The main OSH problems were lack of training, lack of correct use of PPE, poor cleanliness and order in the work area, poor management of measures to counter incidents and accidents, and lack of supervision.	[10]
PepsiCo	Food sector	It should be noted that the company has developed an OHMS that classifies accidents as: Minor (cuts, sprains, blows and falls to ground level), Serious (low back pain, loss of consciousness and falls from height) and Very serious (bone fractures, falls from a height of two metres and muscular strain due to heavy lifting). Despite this, it was sometimes observed that the personnel observed had no intention of using PPE, stating that it hindered their work and that without it everything was easier to handle.	[11]
Centro de Salud Chancas de Andahuaylas	Health Sector	Among the problems are a lack of knowledge and understanding of the integrated safety, health and environmental policy, incomplete application of regulations and poor compliance with the law. The main types of risks and hazards found in the company's various activities are mechanical, locational, electrical, natural, physical, chemical, biological, ergonomic and psychosocial.	[12]
Makro Supermayorista S.A.	Wholesale market	The health centre does not have sufficient biosafety resources, there is noise in the workplace, exposure to sunlight, and little information regarding OSH risks. In addition, there is no PPE available, there is exposure to hazards, and some staff suffer from ailments and experience muscle or mental fatigue.	[13]
Workers' illnesses in a Peruvian company in	Plastics industry	The main problems in the wholesale market include: tools in poor condition, lack of maintenance, inefficient accident control, and old machinery. In addition, symptoms of COVID-19 were found in staff, which shows that occupational diseases are not being taken as seriously as they should be. Likewise, current OSH regulations and quality parameters are not being complied with, and staff are not trained in emergency procedures.	[14]

application of the
OSH law

during, and at the end of the employment relationship. In this context, a study was conducted to identify the most frequent diseases according to work area in a factory in Lima that was implementing Law 29783. The study population was divided into two groups: workers and administrative staff. By work area: blue-collar workers had a higher frequency of hearing problems, dyslipidaemia, overweight and high blood pressure (HBP). White-collar workers had a higher incidence of dyslipidaemia, uncorrected ametropia, grade I obesity and overweight.

Source: own elaboration

Information from eight institutions and/or companies was reviewed: Two wholesale markets (EMMSA and Makro), two health centres (Hermilio Valdizán Hospital and Centro de Salud Chancas de Andahuaylas), and four industries (wood, textile, food and plastic). In addition, the most recent news on occupational safety in the district of Santa Anita (explosion of a wastewater tank at the PepsiCo company) was taken into account. Table 1 contains information collected on the main occupational safety and health problems, as well as the types of incidents or occupational diseases present in the nine pieces of literature reviewed, each with its respective authors.

The recent incident at the PepsiCo plant in Santa Anita, Lima, where a tank exploded, highlights the importance of occupational health and safety (OHS). This event underscores the need to implement strict industrial safety protocols to prevent accidents that can endanger workers' lives and cause significant damage to infrastructure. The explosion not only reveals possible failures in equipment maintenance and handling, but also in staff training and preparedness for emergency situations. Accidents of this type should serve as a wake-up call for companies to strengthen their OHS policies by conducting regular inspections, adopting early fault detection technologies, and ensuring that all employees receive ongoing training in safe practices. For this last point, according to Law 29783, companies are required to provide four training sessions per year to their workers, one of which should cover what to do in an emergency in order to take the necessary actions. However, it is clear that not all companies comply with this requirement, which is essential for preventing or dealing with these situations. Only through a serious and constant commitment to OSH can risks be minimised and both workers and the surrounding community be protected.

Regarding the EMMSA wholesale market, [10] mentions that the problems encountered were lack of training, inadequate use of PPE, inefficient control, management and supervision, as well as disregard for regulations despite having an OHSMS that classifies accidents in the company. On the other hand, [13] found that the Makro wholesale market also has the same problems mentioned above, in addition to tools in poor condition and outdated machinery. Figure 1 summarises the main OSH problems in wholesale markets, which are: lack of training, inadequate use of PPE, inefficient control, management and supervision, as well as non-compliance with regulations.



Figure 1. Main OSH problems at Makro and EMMSA - Santa Anita.

Source: Own elaboration

Regarding health centres, [9], reports that the following problems were found at the Hermilio Valdizán psychiatric centre: lack of training, materials, disinfection equipment, sensors, alarms, monitoring systems, inadequate use of PPE and, most alarmingly, a poor organisational system with no records, matrices or OSH policies. This is a worrying picture for a health sector institution, which has mainly led to very high levels of stress among workers.

Meanwhile, at Centro de Salud Chancas de Andahuaylas, [10] mentions that there was evidence of exposure to light, noise at work, ailments and the presence of muscular and mental fatigue, as well as a lack of biosafety resources, PPE and little training and information on OSH. This type of situation is very common in hospitals, and other additional problems observed in this sector include the absence of occupational risk assessment and control studies, scarce resources for financing necessary equipment, and a certain lack of interest in occupational health on the part of hospital decision-makers [15].

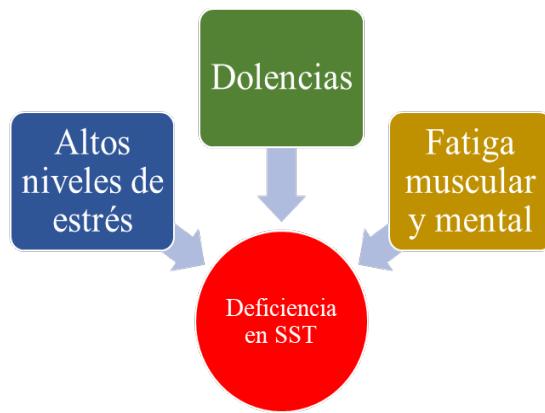


Figure 2. Consequences of OSH deficiencies in health centres in the district of Santa Anita.

Source: Own elaboration

Of the health centres analysed, the following OSH problems stand out: lack of training, lack of biosafety materials, and inadequate use of PPE.

In the literature reviewed on the four industries, in the textile industry, [8] found problems related to lack of training, inadequate staff turnover, poor noise and lighting control, lack of order, cleanliness and maintenance, and machinery in poor condition. On the other hand, [7] conducted a study in the wood company Industria de Maderas y Afines Santa Anita S.A.C., where they identified major problems related to inadequate spaces for hazardous waste, a preventive maintenance plan and, as in the rest of the industries, a lack of training for personnel.

According to [6] and [11] the food industry had problems related to a lack of knowledge and understanding of OSH policy, incomplete application of regulations and a lack of training, despite having its hazard identification and matrix, such as mechanical, locational, electrical, natural, physical, chemical, biological, ergonomic and psychosocial hazards.

Regarding the plastics industry [14] medical examinations were carried out on employees in order to identify the most common diseases among them according to their area of work. It was found that both manual and administrative staff suffered from dyslipidaemia and overweight. However, diseases such as high blood pressure, uncorrected ametropia and grade I obesity were also found.

Mechanical: These can cause injury due to the mechanical action of machine parts, tools, etc.	Locative: A source or situation with the potential for harm present in the workplace.	Electrical: Injury to the body caused by direct contact with a high-voltage electrical source.	Physical: Environmental factors that depend on the physical properties of bodies,	Chemical: Substances that can cause harmful effects on health and occur naturally or artificially.
Natural: Natural process or phenomenon that can cause death, injury or other health effects.	Biological: Associated with the presence, incorporation, survival or proliferation of living organisms.	Ergonomic: Work situations that cause wear and tear on the body and can cause injury.	Psychosocial: Related to the way work is designed, organised and managed, as well as the economic and social contexts of work.	

Figure 3. Main types of hazards in industries in the district of Santa Anita.

Source: Own elaboration

The industries studied have certain problems in common, such as lack of training and non-compliance with regulations. However, it can be seen that each industry has its own particular OSH problems, as the similarities between these problems are not very frequent. In addition, it should be taken into consideration that these industries use different equipment that requires different safety precautions for workers.

In general, among the three groups of institutions and/or companies, the OSH problems they share are lack of training, poor knowledge of regulations, inadequate maintenance of PPE, and inadequate supervision. For this reason, there is a clear relationship between the problems found in wholesale markets, health centres, and the industries analysed. However, it is important to determine what measures were implemented to solve their notable OSH problems.

Table 2 shows the proposed solutions to the main problems identified by the study group. The proposals relate to the implementation of training, analysis of the Occupational Safety and Health Policy, control of Personal Protective Equipment and its maintenance, as well as the rest of the materials and machinery used in the different companies and/or institutions analysed.

It is also worth highlighting the role of the National Superintendency of Labour Supervision (SUNAFIL), which is essential for solving OSH problems by supervising and enforcing compliance with labour standards. Its intervention ensures safe and healthy work environments, promoting the prevention of accidents and occupational diseases. In addition, it acts as a mediator in labour disputes, improving working conditions and protecting workers' rights.

Table 2. Proposed solutions to the main problems reviewed in the literature analysed on OSH.

PROPOSED SOLUTIONS	AUTHOR AND DATE
LACK OF TRAINING	
<p>Solutions were proposed to improve the safety management culture of personnel through occupational safety and health (OSH) training in the Cable Assembly Unit of the company A & N Proyectos S.A.C. Specific solutions included:</p> <ul style="list-style-type: none"> • Determining the level of education of workers and its relationship to the OSH programme, in order to identify areas that need more attention. [16] • Developing awareness and willingness among workers towards the importance of occupational safety and health. • Implementing a training and prevention plan focused on occupational safety and health, using occupational awareness methods to ensure a thorough understanding of the risks. 	
NON-COMPLIANCE WITH REGULATIONS	
<p>To solve this problem, it is recommended to analyse the Integrated Health, Safety and Environment Policy in order to gain a greater knowledge and understanding of it. A methodology should be created to facilitate understanding, incorporating practical examples for greater comprehension. Furthermore, inspections would need to be carried out to ensure compliance with the OHS standards defined in the company. In the event of non-compliance, corrective measures should be taken.</p>	[11]
LACK OF OR INADEQUATE USE OF PPE	
<p>Greater control over the use of PPE by staff is proposed. To this end, the hazards identified in each activity must be analysed. This must be carried out by the workers to ensure the proper provision of PPE, which will have to be checked daily by a designated leader. They will be responsible for ensuring that workers cannot perform their duties without the appropriate PPE and must be removed from the area or provided with replacement equipment if available. Specific inspection days should be established to monitor the condition of PPE and ensure that it is still in optimal condition.</p>	[10]

EQUIPMENT AND MACHINERY IN POOR CONDITION

It is proposed to establish continuous maintenance of equipment and machinery within institutions and/or companies. To this end, effective maintenance management is recommended. First, it is necessary to analyse the form and continuity of current equipment maintenance. Second, if it is identified that the maintenance carried out is not sufficient, new maintenance regimes should be established. The above points are complemented by training for maintenance personnel. If the number of personnel is insufficient, consider hiring new technical personnel. It is also important to improve the spare parts supply system.

[17]

Source: Own elaboration

4. DISCUSSION

The results of this research reveal a series of critical deficiencies in Occupational Health and Safety (OHS) in the district of Santa Anita, which largely coincide with previous findings reported in the literature. For example, the study by [15] already warned of the scarcity of resources, weak organisational management and lack of a culture of prevention in hospitals, a situation that is confirmed in this study with the case of the Hermilio Valdizán Hospital and Centro de Salud Chancas de Andahuaylas. Both lack sensors, monitoring systems and structured protocols, which are essential elements highlighted in international standards such as ISO 45001:2018.

In the industrial sector, studies [7], [8] and [11] highlight the presence of machinery in poor condition, the absence of maintenance plans and inadequate training. These findings are directly reflected in the present study, which shows a structural recurrence of the same type of failures, as in the cases of the timber and textile industries. This parallelism reveals a systematic pattern of non-compliance, despite the guidelines established by Law 29783 and its regulations.

However, this study provides differential and more up-to-date evidence compared to other works, as it integrates the analysis of a recent event with high public connotation: the explosion at the PepsiCo plant in Santa Anita ([Ramos, 2024; [18]]. Unlike previous studies that documented generic or institutional risks, this specific case offers a critical example of the consequences of ignoring the maintenance and control of industrial equipment, leading to irreversible human losses and criminal violations under Article 168-A of the Criminal Code.

In addition, this study systematises information from sectors that are not closely related to each other (markets, health, industry) and shows that OSH problems are not exclusive to any one sector. This cross-cutting perspective is an original contribution of the study, as it allows us to identify that lack of training, misuse of PPE and inadequate supervision are common problems that must be addressed with comprehensive strategies rather than isolated ones.

Unlike other studies that are limited to diagnosis, this review includes a proactive analysis with specific solutions for each problem detected, based on studies such as [11], and [16]. The added value of this approach lies in its usefulness for managers, supervisors, and OSH officers in different productive sectors.

The practical implications of the study are manifold. First, the systematisation of problems by sector allows local authorities (such as SUNAFIL) to focus their interventions. Second, companies can adapt the examples of good practices and preventive measures proposed to strengthen their own safety management systems. Third, it is proposed to strengthen internal audits with more rigorous protocols, something that to date has not been adopted in a standardised manner in the district.

At the regulatory level, the study's findings support the need to strengthen mandatory compliance with the four annual training sessions required by Law 29783. As has been shown, many of the companies involved do not comply with this obligation, exposing their workers to hazardous working conditions.

Finally, the study contributes an updated and detailed mapping of occupational risks in Santa Anita. This database can serve as input for future academic research, public policy, and local prevention strategies, thereby promoting a sustainable safety culture focused on prevention.

5. CONCLUSIONS

The first problem identified in the area of occupational safety and health (OSH) in the district of Santa Anita is the lack of staff training, which leads to the improper use of PPE by staff, resulting in an increased risk of accidents and occupational diseases.

Secondly, there is inefficient control, management and supervision of work activities. As reviewed in the cases mentioned, poor supervision can lead to non-compliance with OSH standards and inadequate implementation of preventive or corrective measures (in the case of an emergency such as that at Pepsico). The latter is important when it comes to effective and efficient decision-making.

Finally, the last problem encountered was the need for continuous maintenance, as inadequate maintenance of equipment and machinery is another critical area that affects workplace safety, since machinery will at some point malfunction or fail, leading to serious accidents or even death, as mentioned in the Pepsico case.

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