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Research Article

Involvement of Brazilian companies with occupational health and safety aspects and the new ISO 45001:2018

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Abstract

Paper aims: This paper aimed to analyze the level of involvement of companies in the state of São Paulo with aspects of occupational health and safety (OH&S) and with NBR ISO 45001:2018. OH&S aspects have acquired increasing prominence worldwide especially due to the unprecedented publication of ISO 45001 in 2018.

Originality: To the authors' knowledge, this is the first paper published in Brazil to explore the applicability of ISO 45001 to Brazilian companies.

Research method: A survey was structured based on the requirements of the standard and sent to a sample of companies. After data collection and analysis, interviews were conducted with some of the companies as a way to complement and specify the data obtained.

Main findings: OH&S operations with a management approach mostly occur in large companies. Small and medium-sized companies also work on OH&S aspects, however with specific actions oriented towards the compliance with Regulatory Standards by the Ministry of Labor. The knowledge about ISO 45001 proved to be still incipient.

Implications for theory and practice: Since very few companies have performed some kind of work in order to bring the requirements of ISO 45001 to the organizational environment, new gaps must be filled concerning OH&S aspects.

Keywords

Occupational health and safety. Management system. ISO 45001.

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1. Introduction

Over the past years, there has been an unprecedented increase in companies looking for external certification for processes of various types. The traditional example concerns the certification of the Quality Management System (QMS) based on ISO 9001, whose popularity is still incomparable (Lo et al., 2014). However, due to the growing pressure from several groups of stakeholders such as customers and government agencies for sustainability certification (Marshall et al., 2015) associated with environment (ISO 14001) – Environmental Management System (EMS) – and workforce certifications, aspects of occupational health and safety (OH&S) have been showing an increasing global interest. In this context, the ISO 45001 standard was published in 2018 in an unprecedented way in order to offer companies a unique and clear structure to improve the OH&S performance. This standard replaces OHSAS 18001 published for the first time in 1999 by the British Standard Institute (BSI) and with definitive withdrawal in March 2021 (British Standards Institution, 2020).

According to Uzun et al. (2018), ISO 45001 describes a more advanced management system than OHSAS 18001 does, with more clearly defined terms, definitions, functions and scope. Like other management

standards, ISO 45001 is based on the plan-do-check-act (PDCA) cycle, which provides to companies a structure of planning focused on continuous improvement. One of the greatest particularities is that its structure is based on the so-called high-level structure defined in Annex SL, which guarantees its compatibility with other management systems, such as ISO 9001 and ISO 14001. Neag et al. (2020) mention there seems to be a consensus in the academic and consulting community that ISO 45001has a real opportunity to play an important role over global issues.

The general objective of this work was to evaluate the degree of involvement of Brazilian companies from different sectors, located in the state of São Paulo, with OH&S aspects and with NBR ISO 45001. The following specific objectives can be mentioned: identification through a structured survey of the level of knowledge and compliance with OH&S regulatory aspects in accordance with NBR ISO 45001; data collection about OH&S management through semi-structured interviews.

2. Background

Several discussions about the effects of occupational health and safety management systems (OHSMS) certification on OH&S performance have happened since OHSAS 18001 emerged. Lo et al. (2014) reported a significant increase in abnormal performance on safety, sales growth, labor productivity, and profitability of OHSAS 18001 certified companies. Assessing the industry scenario in Spain, Abad et al. (2013) confirmed an increase in the performance of companies that adopted a management system. Figure 1 illustrates the relationship between the adoption of OHSAS 18001 and the performance in terms of safety and labor productivity. It is noteworthy that, at first, internal organizational factors motivate the adoption of OHSMS, so that occupational risk prevention and control measurements help reducing the rate of occupational accidents and the associated costs (Robson et al., 2007; Zeng et al., 2008), as well as material losses and interruptions in the manufacturing process (Kjellén et al., 1997; Jallon et al., 2011).

Abad et al. (2013) mention that managers should see the OHSMS certification as a strategic tool that introduces work safety control processes and hence may facilitate the development of a competitive advantage. In the long run, investing in the OHSMS implementation and certification tends to result in a gain in performance, as shown in the last stage in Figure 1. Lafuente & Abad (2018) pointed out that the effect of a management system on the occupational safety performance is heterogeneous among companies and depends on the characteristics of their operational processes. Companies that have highly systematic processes benefit more from OH&S knowledge and experience, while OHSMS effects are diluted in companies with high tacit knowledge and with processes that hide the consequences of work accidents.

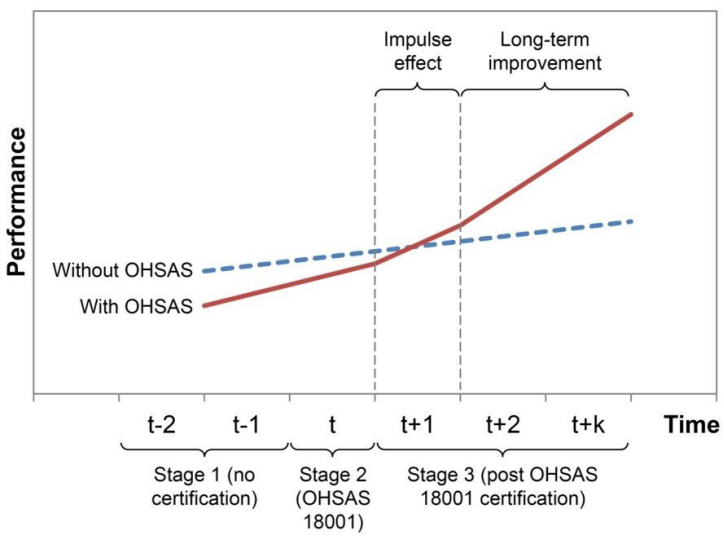

Figure 1. Relationship between the adoption of OHSAS 18001 and the company performance. Source: Adapted from Abad et al. (2013).

There are authors who are not so optimistic about the OHSMS implementation. Frick (2011) says the certification creates levels of expertise in OH&S efforts that end up excluding workers from critical discussions and decisions. Blewett & O'Keeffe (2011) believe the OHSMS implementation increases organizational bureaucracy. Some studies carried out in Denmark have identified how aspects of psychosocial health and safety are difficult to fit into a certified OHSMS (Jespersen et al., 2016). Such aspects tend to be neglected in audits and certification processes. Hohnen & Hasle (2018) say that OHSMS certification unintentionally creates an environment of measurable and auditable facts shaped in response not only to legal and market demands towards a safe work environment, but also to external demands for visible and accountable work environment standard. In this way, accidents would get to be seen as rational events based on a linear cause-and-effect logic that could be avoided if the correct procedures were followed.

3. Methods

A qualitative research was carried out in this study by means of a content analysis approach, which is intended to identify patterns or biases through a detailed examination of the contents of a particular environment (Haradhan, 2018). Since interviews are within the most common methods of data collection in qualitative research (Gill et al., 2008), the present work was designed in two stages: i) evaluation of OH&S aspects of different companies using a structured survey; ii) obtaining complementary information from some of the companies evaluated in the previous stage through live interviews with OH&S personnel. The geographical area covered by the research comprised the north of the state of São Paulo and mostly the central-east region of it, as shown in Figure 2. This area has been considered strategic since it is characterized by a large concentration of industries and business activities in different sectors (Fundação Seade, 2019).

The survey was based on the requirements of NBR ISO 45001:2018 ("Occupational health and safety management system – Requirements with guidance for use"). The survey had 19 closed questions to address different and strategic aspects of OH&S management and was randomly sent by e-mail between March and June 2020 to nearly 100 companies. The contacts and e-mail addresses of those companies were obtained with the support of a consulting firm specialized in business management with regional operations, as well as through search on the website of the companies.

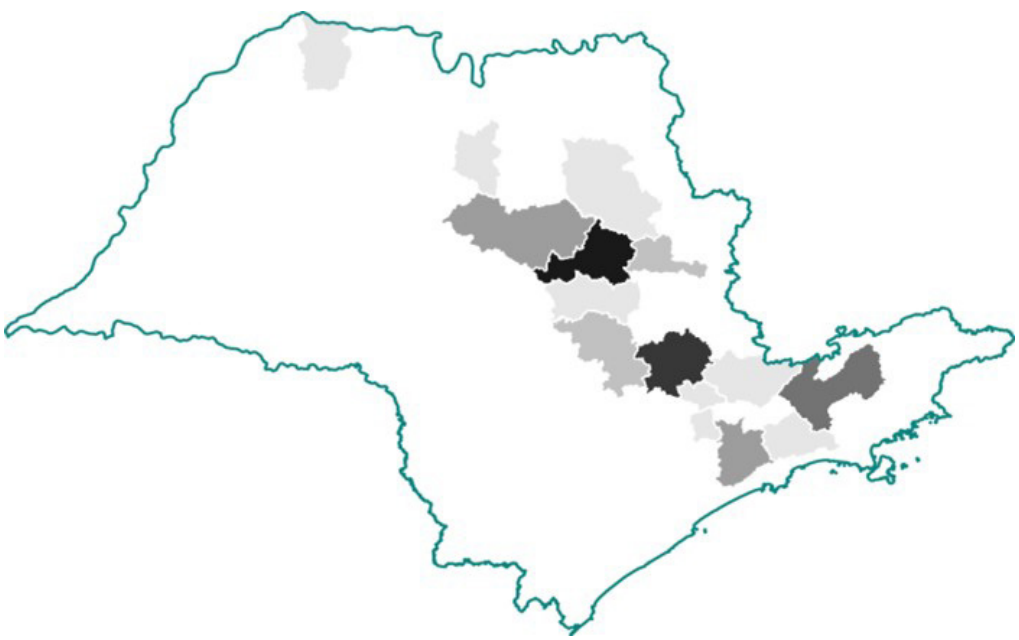

Figure 2. Distribution of companies participating in the survey by microregion of the state of São Paulo. The intensity of colors is proportional to the density of companies. Source: Authors (2021).

Chart 1 shows the questions related to OH&S that were part of the survey and are related to the requirements of NBR ISO 45001:2018. Other organizational questions were also included in the survey, such as: name of the company, position held by the employee who filled in the survey, city where the company is placed, number of employees, sector of activity and other system management certifications that the company might have. One last question deserves to be highlighted for having assessed the level of interaction and/or knowledge of the company with NBR ISO 45001:2018, mainly due to its recent publication and importance for OH&S management.

As it was a long survey, Google Forms was used for its structuring, distribution and fill-in. From a total of approximately 100 companies, responses were obtained from exactly 50 companies, from small and medium-sized companies – those in the industrial sector with up to 499 employees, according to the classification by Serviço Apoio às Micros Empresas São Paulo (2013) – to large companies – those with more than 500 employees. All the data obtained were tabulated, and then graphs were drawn up to analyze, verify trends and discuss the results.

The second stage of the study comprised phone or Skype interviews (face-to-face meetings were avoided due to the COVID-19 pandemic) with some companies evaluated in the first stage in order to obtain further and more specific information concerning their actions in OH&S management. The criterion used for the selection of those companies was the quality of the survey responses and mainly the position held in the companies by the employee who responded the survey (managers, analysts, technicians and engineers). 6 companies were interviewed, being 4 small and medium-sized and 2 large companies. The interviews were based on a semi-structured script consisting of 17 questions based on the survey and, therefore, on the requirements of NBR ISO 45001:2018.

Chart 1. Questions related to the requirements of NBR ISO 45001:2018, which are part of the survey used in the first stage of the study.

Number	Question description
1	Does the company have OHSMS implemented?
2	Does the company have OH&S personnel (e.g. engineers, technicians, specialists, etc.)?
3	Does the company have OH&S policy?
4	Does the company have consultation and participation mechanisms for workers (or their representatives, e.g. CIPA, health and safety committees) in matters related to OH&S (e.g. hazards and risks identification, definition of health and safety objectives, etc.)?
5	Considering the different organizational processes, does the company work with the identification of hazards (sources with potential to cause injuries and health problems) in its processes and associated risks?
6	Does the company determine the legal requirements applicable to OH&S hazards and risks?
7	Does the company have clearly defined OH&S objectives?
8	Does the company develop awareness actions (through, for example, the organization of SIPAT, etc.) in the area of OH&S focused on the employees?
9	Does the company develop actions in its processes in order to eliminate hazards and reduce OH&S risks?
10	Does the company determine potential emergency situations related to its activities, as well as emergency action plans to respond adequately to these situations?
11	For the monitoring and evaluation of its OH&S performance, does the company have defined indicators?
12	Does the company regularly perform audits and/or safety inspections?

Source: Authors (2021).

4. Results

4.1. Small-medium sized companies

Figure 3 shows the responses obtained with the small-medium sized companies for each of the 12 questions listed in Chart 1.

The first question was about the OHSMS (requirement 4.4 of ISO 45001 – "OH&S management system"). Out of the total amount of small and medium-sized companies evaluated, 43% indicated they have a management system. The fact that these companies work with OH&S management within the context of a management system does not mean that the system is certified according to a published standard. The other 57% indicated they do not have a management system. These results mean that small-medium sized companies are not likely to have an implemented OHSMS.

The second question was about the OH&S team. Out of the total amount of small and medium-sized companies evaluated, 50% indicated they have OH&S personnel, while the other 50% do not have a specialized

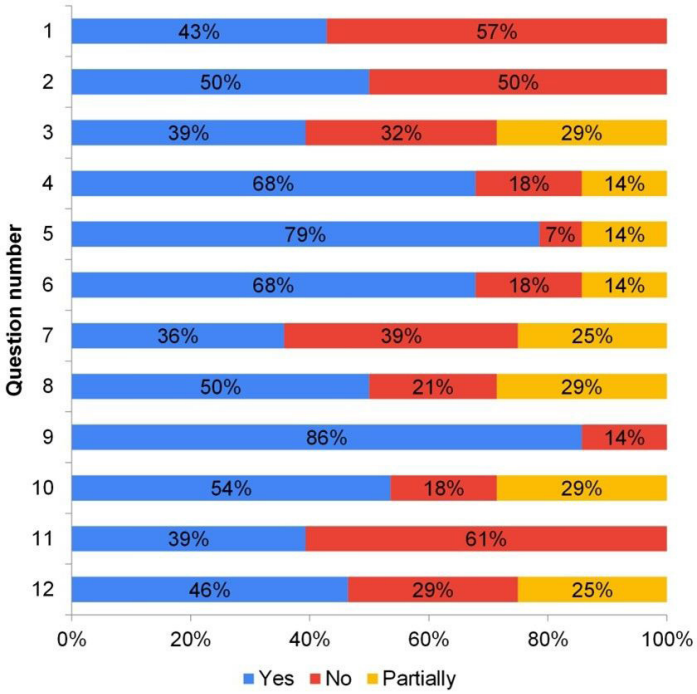

Figure 3. Results of the 12 questions obtained with the small-medium sized companies evaluated in the study. Source: Authors (2021).

staff. Although in this study small and medium-sized companies were evaluated within the same context, in this specific question the small companies (those with up to 50 employees) were the ones that pointed out the lack of OH&S team. These companies generally have the support of a work safety technician or some kind of external assistance.

The third question addressed OH&S policy (requirement 5.2 of ISO 45001 – "OH&S policy"), that is, the commitment of the company to the OH&S issues that permeates its activities, as formally expressed by the Top Management. Out of the total amount of small and medium-sized companies evaluated, 39% indicated they have a policy defined, 32% do not have it, and 29% partially do it. The fact that the company has a policy demonstrating its commitment to those issues is independent on having an OHSMS implemented.

The fourth question addressed the mechanisms for consultation and participation of workers in OH&S issues (requirement 5.4 of ISO 45001 – "Consultation and participation of workers"), which is something emphasized in NBR ISO 45001:2018. Out of the small and medium-sized companies evaluated, 68% indicated they have structured mechanisms, 18% do not have any mechanisms, and 14% have mechanisms partially consolidated. This is one of the questions with mostly affirmative responses, indicating that different aspects of OH&S are followed with the participation of workers or their representatives, such as CIPA (Internal Commission for the Prevention of Accidents) (which according to Regulatory Standard n° 5 by the Ministry of Labor is mandatory for companies with more than 20 employees) or even internal OH&S committees.

The fifth question addressed the identification of hazards (sources with the potential to cause injuries and health problems) and respective OH&S risks in different organizational processes (requirement 6.1.2.1 of ISO 45001 – "Hazard identification" – and requirement 6.1.2.2 of ISO 45001 – "Assessment of OH&S risks and other risks to the OH&S management system"). It is noteworthy that the process approach is one of the foundations of ISO 9001 and also applies to OH&S management. Out of the total amount of small and medium-sized companies evaluated, 79% stated they work with the identification of OH&S hazards and risks in their processes, 7% do not work with it at all, and 14% partially do it. Considering the requirements of NBR ISO 45001:2018, the identification of OH&S hazards and risks is one of the starting points for the OHSMS structuring. Exactly half

of the small and medium-sized companies have a QMS implemented and certified; the risks and opportunities approach required by ISO 9001:2015 is a catalyst for the same approach in OH&S management.

The sixth question was about the determination of legal requirements (requirement 6.1.3 of ISO 45001 – "Determination of legal requirements and other requirements") (e.g. laws in general, labor legislation, Regulatory Standards by the Ministry of Labor, Terms of Conduct Adjustment that the company may have, etc.) applicable to the OH&S hazards and risks. This is also another important aspect of OH&S management, since companies must always act to comply with the applicable legislation. Out of the small-sized companies evaluated, 68% stated they determine the legal requirements applicable to their OH&S hazards and risks, 18% do not do it, and 14% partially do it. These are specific results in the OH&S area and are noteworthy for involving a group of companies that mostly do not have an OHSMS implemented.

The seventh question addressed OH&S objectives (requirement 6.2.1 of ISO 45001 – "OH&S objectives"), which mean the results to be achieved by the company in the OH&S area. Out of the total amount of small and medium-sized companies evaluated, 36% indicated they have OH&S objectives clearly defined, 39% do not have them, and 25% partially have them. The results obtained in this question are similar to those obtained for the third question about the OH&S policy. In fact, OH&S objectives are an offshoot of the OH&S concerning the company's will to achieve when working with concrete management actions.

The eighth question addressed the awareness actions in the OH&S area to be promoted by the companies and focused on their employees (requirement 7.3 of ISO 45001 – "Awareness"). Several matters of OH&S management can be handled in the context of awareness actions, such as the OH&S policy, hazardous and risks of the processes, appropriate use of personal protective equipment, potential emergency situations associated with the company activities, etc. In this context, 50% of the small and medium-sized companies evaluated indicated they develop awareness-raising activities focused on employees, 21% do not carry out any action, and 29% partially carry out those awareness actions.

The ninth question was about the development of actions in the organizational processes in order to eliminate hazards and reduce OH&S risks (requirement 8.1.2 of ISO 45001 – "Eliminating hazards and reducing OH&S risks"). Hazard elimination is the starting point for a hierarchy of controls prescribed by ISO 45001; it includes the replacement of less dangerous processes, operations, materials or equipment, engineering controls, administrative controls (including training), and appropriate use of personal protective equipment. Out of the small and medium-sized companies evaluated, 86% stated they work on processes to eliminate hazards and reduce OH&S risks, and 14% do not do it. Note that this question was the one with the highest percentage of affirmative responses. The requirement of the Regulatory Standards by the Ministry of Labor for programs such as PPRA (Environmental Risk Prevention Program – Regulatory Standard n° 9) is a catalyst for the development of actions aimed at eliminating hazards and minimizing OH&S risks.

The tenth question focused on the determination of potential emergency situations (e.g. fire, chemical spills, explosions, toxic gas leaks, etc.) associated with the company activities, as well as the preparation of emergency action plans to respond appropriately to those situations (requirement 8.2 of ISO 45001 – "Emergency preparedness and response"). Out of the total amount of small and medium-sized companies evaluated, 54% stated they have means to determine potential emergency situations and also have emergency action plans, 18% do not have them, and 29% partially have them.

The eleventh question addressed OH&S indicators, which are variables to be monitored, mainly aimed at measuring the OH&S performance (requirement 9.1 of ISO 45001 – "Monitoring, measurement, analysis and performance evaluation"). Such indicators are generally developed within the context of well-established management systems. Out of the small and medium-sized companies evaluated, 39% indicated they have some OH&S indicators, and 61% do not have them. These results are aligned with those obtained for the first question that addressed whether the small-medium sized companies have an OHSMS.

Finally, the twelfth question addressed audits and/or security inspections. Safety inspection routines are part of the work of the OH&S team, while audits are mainly performed in the context of management systems (requirement 9.2 of ISO 45001 – "Internal audit"). Out of the total number of small and medium-sized companies evaluated, 46% stated they regularly perform audits and/or security inspections, 29% do not conduct them, and 25% partially conduct them.

4.2. Large sized companies

Figure 4 shows the responses obtained with the large sized companies evaluated for each of the 12 questions listed in Chart 1.

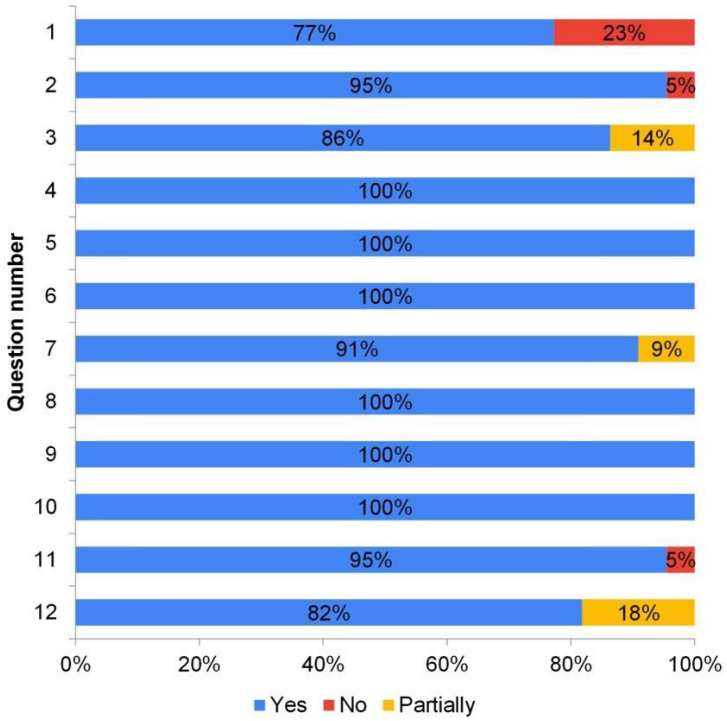

Figure 4. Results of the 12 questions obtained with the large sized companies evaluated in the study. Source: Authors (2021).

For the first question about OHSMS, 77% of the large companies evaluated in the study indicated they have a management system implemented, and 23% do not have it. As previously mentioned, working with OH&S management within the context of a management system does not mean the system is certified, even in large companies. However, these results demonstrate a contrary scenario to the one obtained for small-medium sized companies. In this case, most companies have OHSMS, but none of them pointed out ISO 45001 as the guiding standard; only 3 companies indicated their management systems are certified by OHSAS 18001:2007. It is usual for large companies, and especially multinationals, which represent 60% of the large companies in this study, to handle the different fronts of organizational management (e.g. quality, environment and OH&S) in a more structured way, such as by implementing management systems.

For the second question about the OH&S personnel, 95% of the large companies evaluated indicated they have a consolidated staff, and only 5% do not have it. Large sized companies usually have better-structured and diversified teams of OH&S workers, especially due to their highest risk levels, which directly reflected in the results obtained here.

Regarding the third question on OH&S policy, 86% of the large companies evaluated indicated they have a policy, and 14% partially have one. This result is fairly expected since most of the large companies in the study have an OHSMS implemented.

For the fourth, fifth and sixth questions, which respectively addressed mechanisms for consultation and participation of workers in OH&S matters, identification of hazards and respective OH&S risks in organizational processes, and the determination of legal requirements applicable to the OH&S hazards and risks, 100% of the large sized companies evaluated selected an affirmative response for all these items.

For the seventh question regarding the definition of OH&S objectives, 91% of the large companies evaluated stated they have these objectives well-defined, and 9% only partially defined.

In relation to the eighth, ninth and tenth questions, which respectively addressed awareness actions in the OH&S area focused on employees, the development of actions in order to eliminate hazards and reduce OH&S risks (starting point of the hierarchy of operational controls of OH&S management), and the determination

of potential emergency situations and preparation of emergency action plans, again 100% of the large sized companies selected an affirmative response for all these items.

For the eleventh question that addressed OH&S indicators, out of the total amount of large sized companies evaluated, 95% indicated they have such indicators properly established for monitoring OH&S performance, and only 5% do not have them. These results are significantly more expressive when compared to those obtained for small-medium sized companies.

Regarding the twelfth question about audits and/or safety inspections, 82% of the large sized companies stated these activities are part of their work routines, and 18% partially carry out audits and/or inspections. In this case, affirmative results are also considerably more expressive when compared to those for small-medium sized companies.

4.3. Knowledge of NBR ISO 45001:2018

The last question in the survey sought to assess the level of interaction and/or knowledge of NBR ISO 45001:2018 considering the alternatives set out in Chart 2.

For this last question in the survey, the results obtained for small-medium sized companies are shown in Figure 5. In 46% of the companies evaluated, the OH&S team knows NBR ISO 45001:2018, but without in-depth knowledge. In 21% of these small-medium sized companies, the OH&S team has not had any interaction with the standard yet.

Figure 6 presents the results obtained for large companies. 32% of companies evaluated know the standard, especially their OH&S team, and are likely to adapt their OHSMS in order to meet the requirements and, therefore, obtain the ISO 45001 certification. It noteworthy that 27% of the large companies have already provided for their employees some kind of training on the interpretation of the requirements of NBR ISO 45001:2018.

Chart 2. Alternatives to the last question of the survey related to the level of interaction and/or knowledge of the companies in relation to NBR ISO 45001:2018.

Option	Description
A	The OH&S team has not had any interaction with the standard yet.
B	The OH&S team knows the standard, but lacking depth of details.
C	The company has already provided training on the interpretation of the requirements of the standard.
D	The company knows the standard, especially the OH&S team, and intends to implement an OHSMS based on the requirements of the standard aiming at certification.
E	The company knows the standard, especially the OH&S team, and intends to adapt its OHSMS in order to meet the requirements of the standard and obtain certification.

Source: Authors (2021).

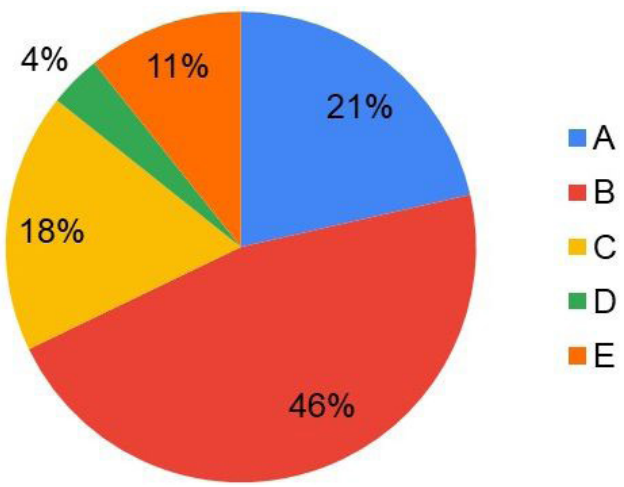

Figure 5. Graph that represents the results obtained for the last question of the survey for small-medium sized companies considering the options A, B, C, D and E described in Chart 2. Source: Authors (2021).

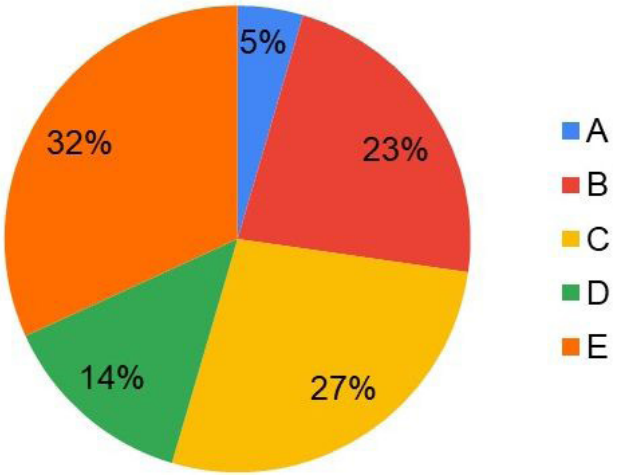

Figure 6. Graph that represents the results obtained for the last question of the survey for large sized companies considering the options A, B, C, D and E described in Chart 2. Source: Authors (2021).

Since the present study found that OHSMS is seen most often in large companies rather than in small-medium sized ones, large companies are indeed expected to have greater knowledge or interaction with ISO 45001, given the current importance of this standard for OH&S management in the world scenario.

5. Interviews and discussion

In order to understand better if OHSMS is real, it was questioned whether the implementation process was based on the requirements of a published standard. For small-medium sized companies, the results of the interviews unanimously confirmed the hypothesis that OH&S management, when it is the case, is not based on a standard. The implementation of management systems in small and medium companies is more challenging, as noted by Sousa-Poza et al. (2009) for implementing QMS in accordance with the requirements of ISO 9001. The authors attributed this fact to the negligence of these companies about the complexity of the implementation processes and the organizational changes necessary to guarantee the system functionality. The management reality of these companies is so particular that models have been developed and tested in order to make easy the implementation of management systems (Anholon et al., 2017; Bianchi & Ferraz Junior, 2020). Regarding large companies, the situation is different when it comes to more traditional management systems, such as QMS. For OHSMS, only one out of the companies interviewed – a multinational one – reported to have the system not only implemented, but also OHSAS 18001:2007 certified.

It was previously said that having an OH&S policy in most large-sized companies would be associated with an OHSMS implemented. In fact, the large-sized companies interviewed informed that they have a formal text of the OH&S policy and somehow communicated or made available to interested parties. On the other hand, the small and medium-sized companies interviewed consensually stated they do not have a formalized and communicated OH&S policy; all claimed to have only the Quality policy. Having OH&S policy despite an implemented management system is a way of demonstrating that OH&S aspects are part of the organizational culture; it is an important step towards the hope to reduce the risk of accidents and incidents at work (Oliveira et al., 2010). The success of OH&S programs involves, among other things, the contribution of workers in the formulation of policies, which leads to greater motivation for the implementation of the policy and for its improvement through personal responsibility and continuous feedback (Abudayyeh et al., 2006).

How involved the workers are in matters related to OH&S was also the subject of the interviews. Regardless of the size of the company, a recurring pattern was observed with regard to the mechanisms for consultation and participation of workers. It is related to strategies such as consultation of workers through their representatives in CIPA or internal OH&S committees, specific programs structured for this purpose and daily or weekly safety dialogues. Still in terms of personnel, the interviews revealed that, there is not a consolidated staff in the context of small-medium sized companies, but only the technical support of an expert (a safety engineer and/or an occupational safety technician) or an external consultancy. On the other hand, large companies do have

a consolidated and diversified staff typically consisting of managers, analysts, safety engineers, occupational safety technicians, occupational doctors and nurses, physical therapists, etc.

The identification of hazards and respective OH&S risks proved to be a common practice among the companies evaluated. When asking whether the OH&S hazard and risk management is adequately structured through registration in spreadsheets or matrices, a mostly positive response was obtained. It can be justified by the fact that the risk mapping that some companies already have (it is one of the CIPA attributions) or even requirements of the Regulatory Standards by the Ministry of Labor, such as the PPRA, already address the concepts of hazards, risks and actions to minimize risks. The management of OH&S hazards and risks is recognized as a strategy to minimize occupational accidents and their consequences, and has already been verified by Laruccia (2014) to occur in Brazilian companies due to the need to comply with legal obligations. It is worth mentioning that a small-medium sized company interviewed of the building construction sector reported that it works with this identification through PCMAT (Work Conditions and Environment Program in the Construction Industry – regulated by Regulatory Standards n° 18). A large company interviewed pointed out that it had its own consolidated system to determine and analyze hazards and risks in its processes.

Regarding the identification, updating and retention of documented information of the legal requirements applicable to OH&S hazards and risks, an inspection of the performance in the OH&S area is already made in Brazil by agents such as the Ministry of Labor and the Regional Labor Precincts, which is guided by the current legislation, as well as the work of the workers' unions vis-à-vis the companies. These aspects are a catalyst for companies to pay attention somehow to the applicable legislation. The interviews revealed that small-medium sized companies have some kind of external assistance for this purpose, or even some other department (e.g. Quality) working in this area. Large companies, in turn, indicated they have more structured systems and software in addition to legal advice.

Both ISO 9001:2015 and ISO 45001:2018 bring the concept of retention of documented information, which comprises the documents necessary to ensure the effectiveness of the management system. The documents typically include the policy, objectives and specific procedures and records, although their scope may vary among companies. When addressing documented OH&S objectives, the interviews showed a similar result regardless of the size of the company. Although in the survey few companies indicated the absence of defined objectives, only the multinational company with OHSMS certified reported to have such objectives properly documented. It is important to highlight that having OH&S objectives defined, documented and broken down into targets is generally characteristic of companies that have OHSMS implemented based on some published standard.

As part of the documented information, a different scenario was observed when addressing if OH&S indicators, which were said to have by a significant percentage of small-medium sized companies, are in fact defined and documented and if they are monitored by these companies. Some small-medium sized companies interviewed said they have some indicator related only to quality management and/or sustainability. Large companies, on the other hand, have such OH&S indicators as part of their more structured management systems. The management of indicators aims to measure the efficiency and quality of organizational processes, guiding the need for strategic actions, as stressed by Ferrari et al. (2020). Saurin et al. (2012) stated that OH&S performance measurement usually has a reductionist approach, limited to the collection of quantitative data and guided by the ease of this collection or in meeting legal requirements. By adopting concepts of the so-called resilience engineering, the authors were able to monitor the vulnerabilities throughout the socio-technical system and obtain relevant aspects from a systemic point of view (commitment of managers, training of workers, situational awareness of interested parties, etc.). Thus, it is irrefutable that OH&S management must have indicators, which must not only measure the company performance, but also be aligned with organizational strategies (heuristic approach).

Concerning awareness actions in OH&S area, the survey previously indicated such actions are mostly developed; the interviews were able to identify the methods to carry out such actions. Companies in general make use of strategies such as security dialogues (daily or weekly), speeches with specialists, campaigns, meetings and inspections focused on awareness. The promotion of SIPAT (Internal Week for the Prevention of Work Accidents) happens in large companies, and is not part of the dynamics of the small-medium sized companies interviewed. Still regarding the development of actions focused on employee awareness and/or training, the interviews also approached if a structured training program in OH&S area is carried out; it was verified that it depends on the size of the company. Small and medium-sized companies promote sparse and punctual training, while large ones have those programs. Both awareness-raising activities and well-established training programs are important to support management programs implemented by the companies in the area of OH&S, Quality or even Environmental Management.

Concerning the action plans to respond to potential emergency situations and simulations, the interviews detected again a situation that varies with the size of the company. With the exception of a single company

in the aeronautical sector that faces external requirements for its hangars, the other small and medium-sized companies revealed at first a concern with emergency situations in the survey, but they neither have documented action plans nor perform simulations. On the other hand, large companies have suitably documented action plans and perform simulations at different frequencies depending on OH&S risks. For Seiffert (2010), the planning of emergency situations involves the provision of financial and human resources, including trained personnel. This fact may justify the difference noted among the companies' sizes in terms of coping with emergency situations. Likewise, while small and medium-sized companies in general work with security inspections on an approximately monthly basis, large ones carry out them more frequently and, in the case of the OHSMS certified multinational, there is a properly structured program of internal audits.

Finally, regarding the use of NBR ISO 45001:2018, the information obtained in the interviews was similar regardless of the size of the company. While some companies are likely to start working with the standard in the medium term, others do not have this claim. It was confirmed, therefore, that there is still no in-depth knowledge of NBR ISO 45001:2018 by any of the companies interviewed. During the development of the research, it was found a multinational company belonging to the chemical sector in the city of Araraquara (SP) with its OHSMS recently certified by the aforementioned standard. Although an attempt was made to include this company in the sample of the present study, the responses were not provided by its OH&S team. A multinational in the automotive sector was also identified in the city of Jambeiro (SP) with its OHSMS certified by NBR ISO 45001:2018. It is worth highlighting that both are multinational companies.

6. Conclusions

A different scenario was observed between the set of small and medium-sized and the set of large companies evaluated in terms of OH&S management. Within the differences, the occurrence of implemented systems in large companies was identified, although the implementation was not necessarily linked to certification; most small and medium-sized companies do not have implemented systems in accordance with any standard. Another difference concerns the OH&S staff, which was shown to be structured and diversified just in large companies. OH&S policy suitably formalized and communicated to interested parties occurs in large companies. Only large companies also claimed to have OH&S objectives, although having them does not mean that they are documented. Following this same trend, defined, documented and monitored OH&S indicators are owned by large companies. Regarding security inspections and audits, all companies perform inspections with different frequencies, whereas an internal audit program was identified only in certified OHSMS.

As a recurring pattern, all companies evaluated have some mechanism for consultation and participation of workers. An effort has already been made to identify hazards and assess OH&S risks, which is driven by current regulatory requirements in the country. Awareness-raising actions in the OH&S area are carried out by companies of all sizes, but only in large ones by means of more structured strategies (such as SIPAT). Concerning actions to eliminate hazards and reduce OH&S risks, due to the Regulatory Standards by the Ministry of Labor, there was a consensus among all companies towards the development of these actions. Concerning emergency action plans and simulations, on the other hand, only large companies have them properly structured. In general, work in the OH&S area is performed by all companies, but the large companies are those that work with a greater management approach. Even so, it was noted that the level of interaction with NBR ISO 45001:2018 is still very low despite the size of the company.

The OHSMS implementation helps the company in the process of structuring and organizing the OH&S management area, as well as in a better development of all the activities that are part of this area. ISO 45001:2018 is considered today the main global normative reference for OHSMS, and therefore comprises a tool that enables companies regardless of size and sector to work on OH&S management in a more strategic and integrated way, as well as from a well-founded systematic. From an operational point of view, when implementing standardized OHSMS, it is possible to develop an operational control in the OH&S area that is more stringent and well-founded for the different organizational processes, with a better management of OH&S hazards, risks and opportunities.

In Brazil, despite all necessary investments, the implementation of an OHSMS based on the requirements of NBR ISO 45001:2018 represents an opportunity for companies to work on OH&S aspects (such as those recommended by the Regulatory Standards or even by the applied federal legislation) from a high level management approach and with compatibility with other management systems. Since the latest versions of ISO management system standards (e.g. ISO 9001:2015 and ISO 14001:2015) have similar structures that follow the four steps of the PDCA cycle with some related requirements and with great compatibility, the OHSMS implementation process becomes easier for companies that already have QMS and/or EMS implemented.

Finally, the OHSMS implementation through the requirements of ISO 45001:2018 allows: strengthening of the OH&S organizational culture; addressing the needs and expectations of stakeholders; greater senior management engagement; greater worker participation; identification of hazards and assessment of OH&S risks and opportunities in different organizational processes; structuring and consolidation of a training dynamic in the OH&S area focused on employees; implementation of a systematic for relevant internal and external communications; better management of potential emergency situations and development of action plans; evaluation and monitoring of OH&S performance; formulation of strategic OH&S indicators; establishment of an internal audits program; etc.

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