

SAÚDE DO TRABALHADOR NO BRASIL

WORKER HEALTH IN BRAZIL

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RESUMO

Saúde e segurança ocupacional (SSO) estão relacionados com a saúde, segurança e questões de bem-estar no ambiente de trabalho. Ela é guiada por leis, normas e programas que visam tornar o local de trabalho mais seguro para os trabalhadores, colegas de trabalho, familiares, clientes e outras partes interessadas. A melhoria dos padrões de saúde e segurança ocupacional de uma empresa tem o potencial de melhorar o ambiente geral de negócios e contribuir para uma melhor qualidade de vida no trabalho. O Brasil tem números historicamente elevados de acidentes de trabalho, que podem ter graves consequências para os trabalhadores, como invalidez permanente e morte. O país também vem desenvolvendo nos últimos anos algumas políticas de muito sucesso relacionadas à saúde do trabalhador. O artigo teve como objetivos analisar a evolução das estatísticas de acidentes de trabalho no Brasil e o impacto de algumas variáveis demográficas e de trabalho nesses números. Embora ainda exista uma alta incidência de acidentes de trabalho no Brasil, houve redução na incidência de acidentes, óbitos e aposentadorias resultantes de acidentes de trabalho. Apesar dos avanços identificados, a situação ainda é extremamente preocupante. A responsabilidade pela construção, promoção e manutenção de um

ambiente seguro de trabalho deve ser partilhada por todos, organizações, trabalhadores, sindicatos, sistema de saúde, entre outros, visto que estar seguro no trabalho é um aspecto central para a qualidade de vida.

Palavras-chave: Saúde do trabalhador, segurança do trabalhador, acidentes de trabalho, incidentes de trabalho, qualidade de vida

ABSTRACT

Occupational health and safety (OH&S) is related to the health, safety, and welfare issues in the workplace. It is guided by laws, standards, and programs aimed at making the workplace safer for workers, along with co-workers, family members, customers, and other stakeholders. Improvement in a company's occupational health and safety standards has the potential to improve the overall business environment and contribute to a better quality of work life. Brazil has historically reported high numbers of work accidents, which may have serious consequences to workers, resulting in permanent disability or even death. The country has also been developing some very successful policies related to worker health during the last years. The objectives of this paper were to analyze the evolution of statistics of work accidents in Brazil and the impact of some demographic and work variables in these numbers. Although there is a high incidence of workplace accidents in Brazil, there has been a reduction in the incidence of accidents, death, and accident-driven retirement. Despite the identified progress the situation is still extremely worrying. Responsibility for the construction, promotion and maintenance of a safe work environment should be shared by everybody - organizations, workers, unions, health system, among others, as being safe at work is a central aspect for quality of life.

Keywords: Worker health, worker safety, workplace accidents, workplace incidents, quality of life

JEL Classification: J28 - Safety • Job Satisfaction • Related Public Policy.

1. INTRODUCTION

Labor medicine emerged in England in the first half of the nineteenth century with the industrial revolution (Mendes & Dias, 1991). The creation of the ILO (International Labor Organization) in 1919 was a very important and monumental moment with the organization's ambitious and humanitarian agenda to provide medical services to 'all' workers. In 1953 the ILO formulated Recommendation 97, specifically aimed at protecting workers' health. In 1959 the International Labor Conference approved Recommendation 112 of "Occupational Health Services", based on the experience of the industrialized countries. This international standard became a reference for the establishment of national legal diplomas in many countries, including Brazil (Mendes & Dias, 1991).

Occupational medicine has evolved into occupational health. In Brazil the development of this model occurred late, with advancements in the academic, institutional and legal aspects. However, the occupational health model was insufficient and gave rise to the worker health approach. Since the 1970s numerous countries followed Canada's recommendations based on a Royal Commission led by Dr. James Ham that provided employees with basic fundamental safety 'rights' in the workplace. In 1978 the Occupational Health and Safety Act was passed in Ontario/Canada (CCOHS, 2021). Subsequently, legislation was developed in many countries that provides workers with the right to know (you have the right to know about the hazards in your job and workplace), the right to refuse unsafe work (you have the right to refuse unsafe work without fear of reprisal) and the right to participate (you have the right to participate in decisions about your workplace safety). Dr. Ham's work led to the development of the internal responsibility system where workers, employers and government would work together for the betterment of employee health and safety in the workplace (Dehaas, 1998). In Brazil the focus on worker health can be identified from the 1980s, in line with what has occurred in the Western world (Mendes & Dias, 1991).

Worker health (WH) emerged in Brazil in the field of collective health seeking to better understand and intervene in the relationships between work and health-disease (Lacaz, 2007). The focus is on an integrated action that acts on the promotion, prevention and assistance, with the worker as the subject. In recent years, legal

instruments aimed at WH, the National Occupational Safety and Health Policy (Brazil, 2011) and the National Worker and Worker Health Policy (Brazil, 2012) have been published.

OH&S relates to health, safety, and welfare issues in the workplace. It is guided by laws, standards, and programs aimed at making the workplace safer for workers, along with co-workers, family members, customers, and other stakeholders. Improvement in a company's occupational health and safety standards has the potential to improve the overall business environment and contribute to a better brand image, and higher employee morale (Alli, 2008).

Brazil has developed some very successful policies related to worker health such as the prohibition of children and adolescents in occupations at risk (Santana, 2006). Other important initiatives are the Health Work Programs (HWP), which were created in the network of the State Secretariat of Health in São Paulo since 1985 and later adopted in other states of the country. The HWP model is a worldwide trend, and international organizations such as the ILO and World Health Organization (WHO) have influenced its dissemination through recommendations that emphasizes that occupational health services are a public policy with the participation of workers (Lacaz, 2007), espousing the internal responsibility system. The objectives of this paper are to analyze the evolution of statistics of work accidents in Brazil and the impact of some demographic and work variables in these numbers.

2. DEVELOPMENT

Worker's health and work environment

Technological changes and transformations in work processes have significantly altered the physical, social and psychological environment of the work environment. There have been changes at the macro and micro levels, and several hazards and resultant risks arising out of dangerous working conditions have been reduced or even eliminated in developed countries. However, new hazards and risks have also become more prominently discussed that are related to social and psychological issues. Organizations can no longer focus on only traditional workplace safety incidents, but

now the focus on safety has integrated social and psychological issues that impact on health and safety, just as much as workplace illness or injuries. Thus, the health promotion approach continues to gain prominence, focusing on individuals' behavior and lifestyle (Mendes & Dias, 1991).

Depending on the industry and organization, there are various types of occupational hazards (condition on a job that can result in illness or injury) that can arise. There are different types of hazards, like chemicals (breathing in harmful chemicals such as asbestos), physical (hearing, radiation, vibration and heat and cold), biological agents (bacteria, virus, fungal), psychological fallout (stress, bullying, violence in the workplace, sexual harassment) and ergonomic (how you are fitted to your machines) (Chiodi & Marziale, 2006). The goal of all organizations is to recognize the hazard, assess its risks, and find remedies to control these hazards.

More current language related to work accidents now uses the terminology “work incidents” since small incidents¹ can lead to more dire consequences. For example, you might trip, and not fall, and avoid an accident. But this incident allows for finding means to avoid such incidents in the future. Work incidents can affect society, communities, organizations, families and individuals. The impacts are of different natures. Economic losses occur for all levels, entailing negative consequences for society in general, as social security systems need to cover the expenses generated by work accidents. When we consider the micro level, the individual and their families, economic effects can be dramatic, and induce permanent economic losses for the entire family unit. Negative health consequences lead to intense suffering and can be permanent. Emotional and psychological consequences can also have a profound effect in families and individuals and can have a lasting nature (Santana, Araújo-Filho, Albuquerque-Oliveira, & Barbosa-Branco, 2006).

Prevention should be a primordial policy in order to minimize workplace incidents. Programs and actions for prevention of workplace incidents should be complementary and directed to different actors and areas. Organizations who can achieved exemplary health and safety records signals the commitment the organization has to workplace incident prevention. It is necessary to foster an organizational culture

¹ The term incident is now an all-encompassing term that considers accidents and near misses.

that values worker safety. Training is essential to enable workers to avoid incidents, and it should be permanent, covering lectures, on the job training, among others. Personal protective equipment (PPE) must be provided and its use must be enforced. Effective signaling is a relatively simple action that should be accomplished. Aging workers are a group that particularly benefit from a workplace incident prevention policy, since workplace incidents usually are more intense for this group (McPhee & Azevedo, 2018).

Research on worker health in Brazil

The economic and social impact of occupational incidents in Brazil is immense (Fundacentro, 2015). The consequences of occupational incidents can be divided into four main types: medical care, temporary incapacity, permanent disability, and death. Most workplace incidents result in temporary incapacity, but about 0.4% result in death in Brazil (Dieese, 2016).

Diseases usually associated with the workplace are: hypertension, chronic respiratory diseases, diseases of the musculoskeletal system, mental disorders and stress (Mendes, 1988). There is, however, a new morbidity profile with increased incidence of repetitive stress injuries (RSI) and mental health problems related to economic and productive restructuring (Costa, Lacaz, Jackson, & Vilela, 2013). Mendes (1988) identified the main psychosocial stressors at work: quantitative overload, qualitative load lower than possibilities, role and responsibility conflicts, lack of control over one's situation, lack of social support, physical stressors (e.g., noise, heat) and industry-specific stressors. Over the years, this list has been expanded to include workplace injustice, and workplace harassment and sexual harassment (Brown, Rospenda, Sokas, Conroy, Freels, & Swanson, 2011).

The Brazilian scientific production in post-graduation worker health began in the 1950s and has grown exponentially, quadrupling every decade between 1970 and 2000. The diversity of themes is quite large, and the majority of studies have focused on important issues for public health in Brazil. It should be noted, however, despite the dearth of workplace studies on relevant safety illnesses and injury, such as cancer and possible occupational determinants, workers in the primary sector of the economy and in the construction sector, are both recognized as being areas at greater risk for fatal incidents (Santana, 2006).

The use of the scientific knowledge produced on the determinants of occupational diseases and diseases has contributed to the development of several programs and actions directed towards worker health, which has led to a reduction in the number of fatal accidents at work and of several occupational diseases in almost all the world, including Brazil (Santana, 2006; Ministério da Fazenda, 2018). Understanding the epidemiological effects of occupational diseases in the country is difficult due to factors related to diagnosis and factors related to the registry (Augusto, Rocha, Freitas, Lacaz, & Bichir, 1986). Underdiagnoses entails a series of problems, not only of treatment, but also of prevention. Occupational disease is intrinsically epidemic, as it rarely occurs in isolation. It is also completely avoidable because it is due to working conditions (Cordeiro, 1995).

The health of the Brazilian worker in numbers

Worker safety is a very important element in the work environment. In 2017 the ILO reported 2.78 million deaths per year and 374 million non-fatal work-related injuries and illnesses. It is a problem that affects all age groups. According to the ILO, Brazil ranks fourth in the world ranking of fatal work accidents (Costa et al., 2013). Data from Social Security indicated that work accidents cases that were finalized in 2018 (607,489) resulted in more than 2,100 deaths (0.4% of the accidents) and almost 20,000 retirements due to permanent incapacity (3.2% of the accidents) (Ministério da Fazenda, 2018). The total numbers may in fact be much higher because the official data does not include the informal sector, not all the accidents are registered by the companies, and not all employees report accidents, for fear of reprisal and job loss from their employers. Until the 1980s, the incidence of work accidents was very low because there was a lot of underreporting and lack of diagnosis (Costa et al., 2013), a situation that improved along the years.

In Brazil the Secretary of Social Security of the Ministry of Finance publishes a Statistics Yearbook of Work Accidents with numbers and indicators of work accidents. Another source of data regarding workers health was published by the Instituto Brasileiro de Geografia e Estatística (IBGE), a Brazilian public institute responsible for collecting and analyzing information and data regarding geoscience and economic,

demographic and social statistics. IBGE carried out a national health survey (NHS) in 2013 in partnership with the Ministry of Health.

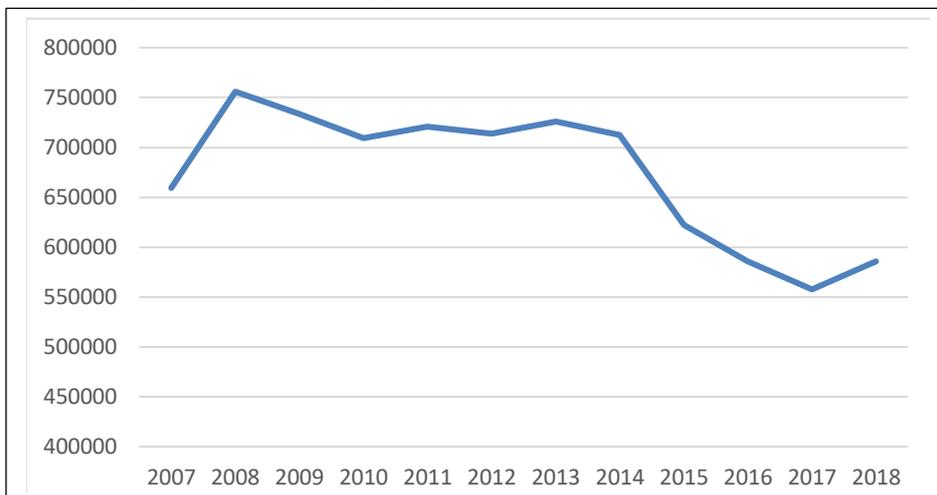
The national health survey was published in 2015 and results made possible to estimate the accuracy of official government numbers. The survey reported much larger numbers of work-related accidents compared to data recorded in the Statistical Yearbook of Social Security of 2013. The NHS numbers are almost seven times higher than those of Social Security. According with IBGE almost 5,000,000 workers aged 18 and over reported having suffered an occupational accident in 2013. The Secretary of Social Security registered only 725,664 work accidents for the same period of time. This discrepancy was much greater in the group of workers aged 60 or over, in which the ratio was almost 20 times. There was also great variability in the discrepancy of the numbers between the country states. For example, the country average was 6.9, with a ratio of almost 40 in Maranhão and less than 4 in São Paulo (Fundacentro, 2015). Government reports collect data from information related to workers documented in the formal labor market, does not have data related to the informal labor market, and as a result, information of workplace accidents that are not registered in government systems is not considered, leading to a considerable amount of work accidents being ignored by official statistics.

The Departamento Intersindical de Estatística e Estudos Socioeconômicos (Dieese) is an organization created and maintained by the Brazilian union movement with the objective to conduct research that supports workers' demands. It published in 2016 the report Yearbook of Worker Health, that was developed based on data from 10 different official databases and contained a detailed analysis of workers health by demographic and work conditions variables. These variables can have a significant impact on workplace accidents indicators. The analysis of Brazilian workers health in the work environment presented in this paper were conducted based on material published by Ministry of Finance, IBGE and Dieese. These organizations are the main sources for data of worker health and safety in Brazil and have databases regarding work accidents.

Despite the high numbers, since 2008 the number of workplace accidents in Brazil has a downward trend (Figure 1), even with the increase in the number of workers. In 2018, in spite of a small rise in the number of accidents, the total number

was 586,017, which was 11.0% lower than the number of 2007 (Ministério da Fazenda (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018)).

Figure 1
Number of work accidents by year

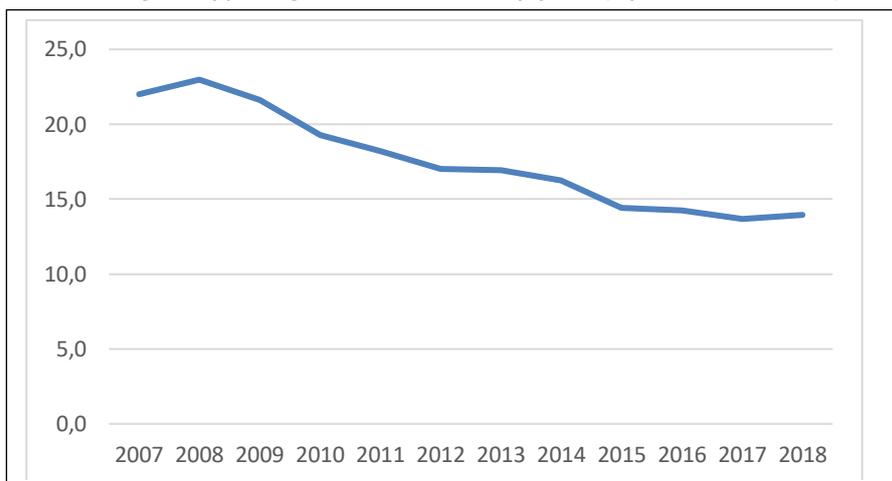


Note. This figure was produced, summarizing data of work accidents. Adapted from Ministério da Fazenda, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, *Anuário Estatístico de Acidentes do Trabalho* (AEAT).

There is also an improvement of workplace accident indicators, and this trend signals an improvement of work conditions in general (Figure 2). Considering all types of work accidents (incidence by 1,000 workers) numbers have fallen 36%, from 22.0 in 2007 to 14.0 in 2018. But between 2015 and 2018 the number of accidents increased by 2018 (Ministério da Fazenda (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018)).

Figure 2

Incidence of all types of work accident by year (by 1,000 workers)

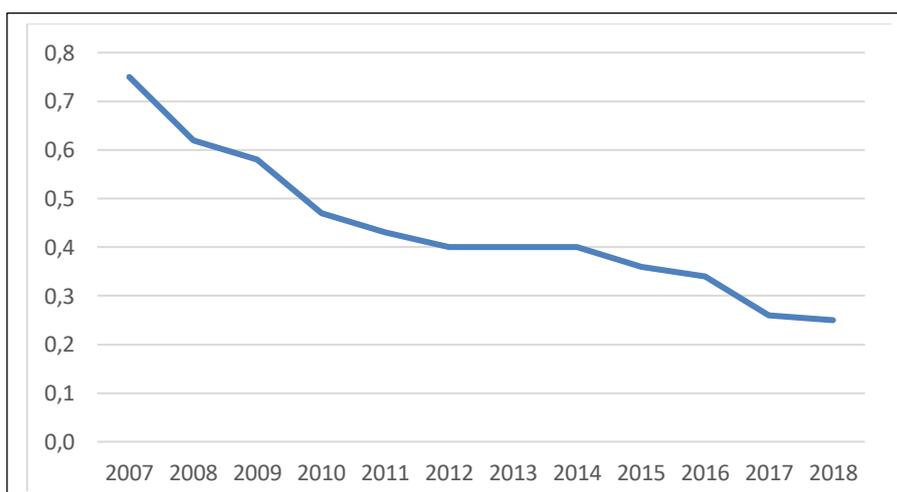


Note. This figure was produced, summarizing data of work accidents. Adapted from Ministério da Fazenda, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, *Anuário Estatístico de Acidentes do Trabalho* (AEAT).

The improvement of work disease occurrences was significant between 2007 and 2018, decreasing from 0.75 to 0.25 diseases by 1,000 workers (Figure 3) (Ministério da Fazenda (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018)).

Figure 3

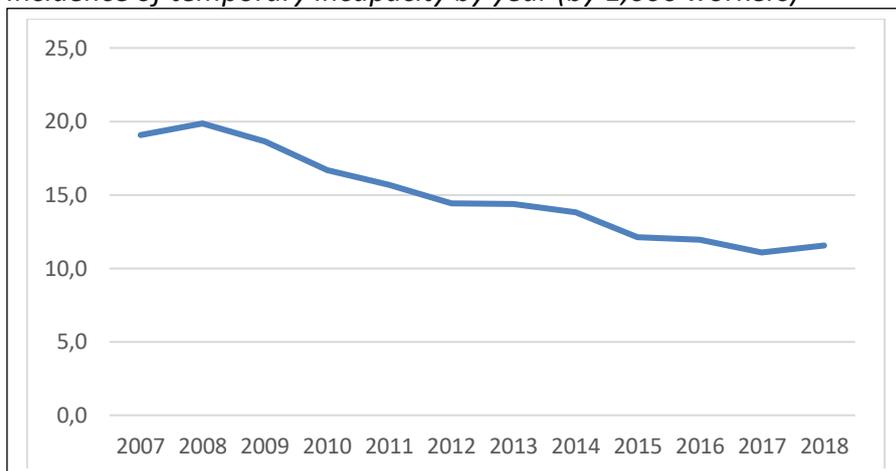
Incidence of work diseases by year (by 1,000 workers)



Note. This figure was produced, summarizing data of work diseases. Adapted from Ministério da Fazenda, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, *Anuário Estatístico de Acidentes do Trabalho* (AEAT).

The decrease of 40% in the number of those temporarily incapacitated (Figure 4) was similar to the decrease of all types of work accidents (Ministério da Fazenda (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018)).

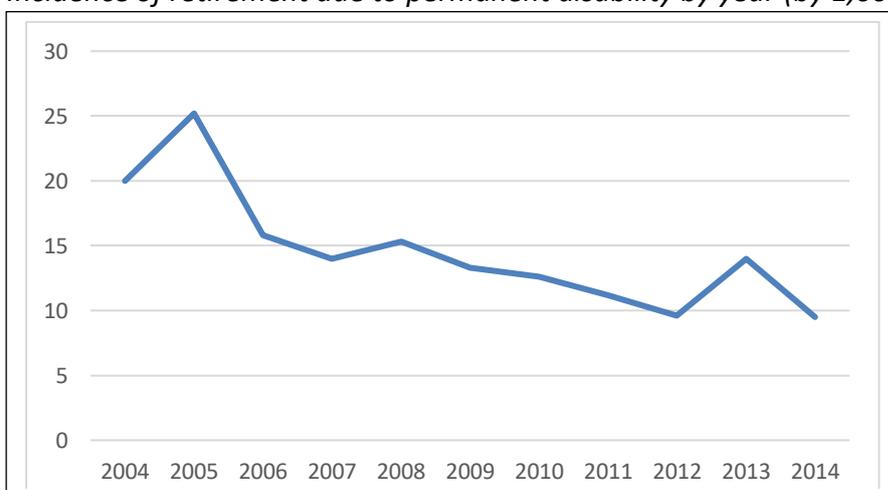
Figure 4
Incidence of temporary incapacity by year (by 1,000 workers)



Note. From Dieese, 2016, *Anuário da saúde do trabalhador*. Departamento Intersindical de Estatística e Estudos Socioeconômicos. (2016). *Anuário da saúde do trabalhador*. São Paulo: Autor.

The most detrimental effects of workplace accidents that lead to retirement were due to permanent disability and death. An analysis of retirement due to an occupational accident is also very positive (Figure 5), indicating a reduction of 52% between 2004 and 2014 (Dieese, 2016).

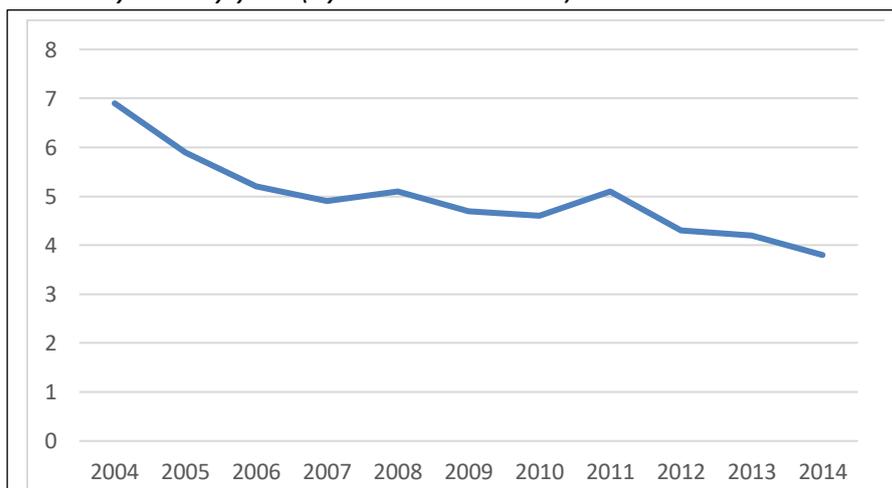
Figure 5
Incidence of retirement due to permanent disability by year (by 1,000 workers)



Note. From Dieese, 2016, *Anuário da saúde do trabalhador*.

In 2011, the incidence rate of fatal work accidents in Brazil per 100,000 workers was 7.4, significantly higher than the numbers reported by developed countries (Dieese, 2016). Even recent official figures still put Brazil in a very precarious situation compared to several other countries. For example, in 2018 the mortality rate in Brazil reached 5.1 per 100,000 workers (Figure 6) compared to 3.1 in Chile and 1.7 in Israel (ILO, 2021). The U.S. rate in 2014, was 3.4 fatalities per 100,000 full-time equivalent workers. In spite of a high mortality rate, the numbers in Brazil have been declining consistently along the years. In 2007 it was 9.5 and declined to 5.1 per 100,000 full-time equivalent workers, translating to a reduction of 86% (Ministério da Fazenda (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018)).

Figure 6
Mortality rate by year (by 100.000 workers)



Note. This figure was produced, summarizing data of work mortality rate. Adapted from Ministério da Fazenda, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, *Anuário Estatístico de Acidentes do Trabalho* (AEAT).

Workplace accidents, demographic and work variables

There are different behaviors and physical characteristics associated with different age ranges. Older workers are usually considered a group that deserves special attention. In fact, aging brings with it functional changes, both physically and mentally. These functional changes can impact on a worker’s ability to complete their job tasks in a timely and safe manner (McPhee & Azevedo, 2018). As a result of these challenges to

aging workers, productivity levels, which are needed to compete global, may be hampered.

Young workers (age 15-24) are also considered a vulnerable group, as they tend to be at higher risk for incidents. Teens are injured at a rate of at least two times higher than adults (Niosh, 2006) and in Canada, every hour of every single day, 4 or 5 young workers are injured on the job (Harvey, 2013). Research on occupational injuries suggests that although younger workers are more at risk of an injury at work, older workers are more at risk of death. Personick and Windau (1995) found workers over 55 did not have as many serious non-fatal accidents as some might suspect, but need more time to heal, as a younger person takes 20 days compared to 60 days of an older person. Workers aged 55 and older represent 22.1 percent of the U.S. workforce (Toossi and Torpey, 2017) and are involved in 35 percent of the deaths due to workplace accidents (Zamudio and Minkoff, 2017).

Demographic and work variables were available for a subset of workplace accidents in Brazil. To estimate the impact of these variables on workplace accident indicators, a subset of data from 2005 to 2015 was used for the analysis presented in the next paragraphs (Dieese, 2016).

The incidence of retirement due to permanent disability by age group increases as workers get older. The rate for the older group (workers 50 and above), are almost 4 times higher, reaching 35,1% in 2015, for reasons related to aging as previously discussed. These numbers indicate the importance of the development of specific policies for this group. The mortality rate remains almost the same in all age groups until 49 years. The exception is for the age group of workers 50 and older; in this group the mortality rate reaches 5.8 by 100,000 workers, which is 70% higher than the previous age range. It should be noted that there was a decrease of the mortality rate between 2005 and 2015, in all age groups, ranging from 20% to 45% (Dieese, 2016).

Education is also an important variable to be considered. More educated workers may have more access to information regarding different aspects that can impact the occurrence of work accidents: use of individual protection equipment (PPE), safety guidelines, accident prevention, among others. Workers that are illiterate are not able to read information regarding safety, and many times workers with few years of formal

education also have significant difficulties understanding written material about work safety.

Another relevant aspect associated with educational level is the type of job the worker executes. Less educated workers tend to have jobs that have a higher physical demand, being more prone to workplace accidents, while more educated workers tend to have jobs that have a higher cognitive demand. The available mortality rate data for 2005 and 2015 indicates a reduction from 5.9 to 3.7 per 100,000 workers. Mortality rate and the incidence of retirement due to permanent disability falls as the level of schooling increases; the rate of death was 7.6 among illiterates to 1.1 among workers with college education. The same pattern occurs for retirement, where the incidence rate is 26.1 for illiterates and falls to 5.9 among college educated (Dieese, 2016).

The mortality rate due to typical accidents, commuting accidents and occupational disease was 3.7 per 100,000 workers in Brazil in 2015. The numbers separated by sex were quite different, being much higher among male workers (5.7 per 100 thousand workers) than female (1.0 per 100 thousand workers). In 2005 the pattern of incidence between men and women was the same. An important factor for the difference between genders is that occupations with higher mortality and accidents are predominantly performed by men. The retirement rate due to work accidents was reduced 35% between 2005 and 2015, and was 8.8 by 100,000 workers in 2015. The incidence of among women was 30% lower than among men (Dieese, 2016).

The time of service is also a relevant variable as in 2015 it was inversely proportional to the mortality rate, being 3 times lower for workers with tenure of more than 60 months compared to those with tenure of up to 6 months. With retirement due to disability, the opposite happens, it rises as tenure increases. It is expected, as retirement increases when the person gets older. Mortality falls in companies with more workers from 6.2 (up to 19 workers) to 2.0 (100 workers or more). The size of the company did not have a linear impact on retirement due to disability (Dieese, 2016).

Occupation has a huge impact on the mortality rate. The average rate was 3.7 in 2015 and the professions with the highest mortality were truck driver (26.5), metal frame builder (25.4) and motorcyclist (14.7). These figures reflect traffic violence on Brazilian highways and cities (Dieese, 2016).

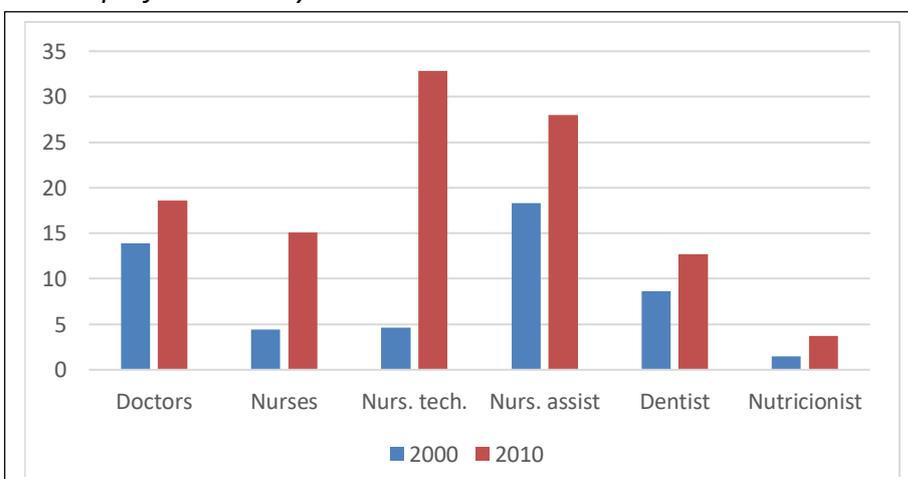
The impact of occupancy on permanent disability retirement due to the incidence of workplace accidents is also significant, but occupations with higher rates are different, where the highest incidence is among construction workers (14.5), followed by urban bus drivers (12.6). The profile of occupations retirement rates due to professional diseases is a little bit different. Teachers of primary school have the highest rate (23.9 by 100.000 workers), followed by construction workers (19.3) and urban bus drivers (17.1) (Dieese, 2016).

Due to the increase in the size of the workforce, despite the reduction in the incidence of workplace accidents, the death and permanent disability pension rates, there is not a consistent decrease in numerical terms along the years, in general absolute numbers are diminishing, but eventually increases occurred (Dieese, 2016).

The most common diseases resulting from work-related accidents are related to wrist and hand injuries. Cold/flu (17.8%), back pain and neck problems (10.5%) are responsible for almost 1/3 of the cases in which the workers stopped performing any usual activities in the previous weeks (Dieese, 2016). Actions to prevent accidents to wrist and hands, the spread of colds and flu, and the occurrence of pain in the back and neck can have a significant positive effect.

A relevant indicator to be considered for worker health is the number of health professionals per capita. It increased significantly in Brazil between 2000 and 2010 (Figure 7), especially among technicians and nursing assistants (Dieese, 2016).

Figure 7
Health professionals by 10.000 inhabitants



Note. From Dieese, 2016, *Anuário da saúde do trabalhador*.

3. FINAL CONSIDERATIONS

Although there is a high incidence of workplace accidents in Brazil, there has been a reduction in the incidence of accidents, death and retirement due to accidents. Some successful experiments have been carried out and the field of worker health has become part of the country's public policies. Academic research in the area has grown and the diversity of the subjects treated is significant.

Despite the identified progress the situation is still extremely worrying. A comparison of the national reality with that of developed countries shows significant issues. The number of workplace accidents is still remarkably high and many workers, especially those in the informal sector of the economy, experience precarious working conditions. The increase in health professionals is one of the promising aspects of the changes in progress. Consistent public policies aimed at workers' health in an integral way can improve this scenario.

A safety organizational culture promotes the importance of working safely where everybody is accountable to one another. Leadership is an important element as it can inspire workers to work safely; truly care for your own well-being; offer training about hazards in the workplace; provide personal protective equipment and give feedback. An organizational environment that enforces workers fundamental rights (right to know, right to refuse unsafe work and right to participate) is also a central element for the promotion of workers health and safety (CCOHS, 2021). Responsibility for the construction, promotion and maintenance of a safe environment should be shared by everybody, organizations, workers, unions, health system, among others, as a safe work is a central aspect for quality of life.

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