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Incidence and time trend of occupational accidents in the textile and clothing industry: analysis of Santa Catarina, Brazil, between 2008 and 2017

Incidência e tendência temporal de acidentes de trabalho na indústria têxtil e de confecção: análise de Santa Catarina, Brasil, entre 2008 e 2017

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ABSTRACT: ***Objective:*** To estimate the incidence and time trend of typical work accidents in the textile and clothing industry in Santa Catarina from 2008 to 2017. ***Methods:*** This was a retrospective epidemiological study based on data from the Annual Social Information Report (RAIS). The time trend was analyzed by calculating the average annual change and logistic regression. ***Results:*** There was a downward trend in the incidence of occupational accidents in Santa Catarina during the period studied (8.8%). The highest incidence occurred in 2008 among men (12.6%), workers aged between 40 and 49 years (6.7%), black people (7.4%), people with less than 12 years of education (5.0%), with an average income of 3 to 7 minimum wages (7.0%), with up to 4 years of employment (6.9%), workers in the manufacture of textile products (10, 3%), medium-sized establishments (that is, between 100 and 499 workers; 7.9%) and in the regions of Greater Florianópolis (7.0%) and Vale do Itajaí (6.8%). ***Conclusions:*** The risk for typical occupational accidents dropped significantly over the period studied. However, future studies are needed to analyze new relationships that may point to other associated factors. It is hoped that this study can contribute to support measures for the prevention, promotion, protection and rehabilitation of the health of workers in this production sector.

Keywords: Accidents, occupational. Textile industry. Epidemiology. Occupational health. Time series studies.

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RESUMO: ***Objetivo:*** Estimar a incidência e a tendência temporal dos acidentes de trabalho típicos na indústria têxtil e de confecção de Santa Catarina no período de 2008 a 2017. ***Métodos:*** Trata-se de um estudo epidemiológico retrospectivo baseado nos dados da Relação Anual de Informações Sociais (RAIS). A tendência temporal foi analisada por meio do cálculo da mudança média anual e da regressão logística. ***Resultados:*** Houve tendência de queda na incidência de acidentes de trabalho em Santa Catarina no período estudado (8,8%). Observaram-se as maiores taxas de acidentes no ano de 2008 entre homens (12,6%), trabalhadores com faixa de idade entre 40 e 49 anos (6,7%), negros (7,4%), pessoas com menos de 12 anos de estudo (5,0%), com remuneração média de 3 a 7 salários mínimos (7,0%), com até quatro anos de tempo de emprego (6,9%), trabalhadores da fabricação de produtos têxteis (10,3%), estabelecimentos de médio porte (100 a 499 trabalhadores) (7,9%) e nas regiões da Grande Florianópolis (7,0%) e Vale do Itajaí (6,8%). ***Conclusões:*** O risco de acidente de trabalho típico caiu significativamente ao longo do período. Contudo futuros estudos são necessários para analisar novas relações que possam apontar outros fatores associados. Espera-se que este estudo possa contribuir para subsidiar ações de prevenção, promoção, proteção e reabilitação da saúde dos trabalhadores desse setor produtivo.

Palavras-chave: Acidentes de trabalho. Indústria têxtil. Epidemiologia. Saúde do trabalhador. Estudos de séries temporais.

INTRODUCTION

Occupational accidents are a complex and multi-causal phenomenon determined by the characteristics of work organization[1]. For reporting purposes, an accident at work is a sudden event that occurs during work activity and causes damage to health, potential or immediate, resulting in bodily injury or functional disturbance that consequently causes, directly or indirectly, death or loss or reduction, permanent or temporary, of the ability to work[2]. In addition to social security costs and lost days of work[3], accidents at work generate expenses for health services and social losses for workers[4].

The textile and clothing industry is an important sector to be investigated in scientific studies on the subject in Brazil since the country ranks fifth in the world in textile production and fourth in clothing production[5]. However, there are few epidemiological studies on occupational accidents in this sector[6-12].

The state of Santa Catarina is the second largest textile hub in the country, behind São Paulo. In 2017, Santa Catarina had 1,832 textile companies and 7,411 clothing companies, and they employed 162,845 people. In that year alone, the sector generated the second highest revenue in the country's textile and clothing chain (19.7%)[13].

The only Brazilian study on the epidemiological profile of textile workers was conducted by the Social Service of Industry (SESI) with data from 2004. It was observed that the incidence rate of occupational accidents in the Brazilian textile sector was 24.0/1,000 workers, while the rate in the state of Santa Catarina was 32.1/1,000 workers[14]. That same year, the incidence rate of occupational accidents among the insured persons of the National

Institute of Social Security (INSS) was 16.4/1,000 workers[15]. That is, in 2004, Brazilian textile workers suffered 46% more accidents at work than general workers insured by INSS.

An important barrier to the development of epidemiological research in specific economic sectors, such as the textile industry, refers to the difficulty in accessing official databases on accidents at work. The INSS microdata are not open, and access is hampered by bureaucratic procedures. Health information systems still have limitations regarding the quality and coverage of data on accidents at work. In general, the fields on economic activity have completeness problems, making it difficult to make inferences about tendency for accidents in the different production sectors[16].

The database of the Annual Social Information Report (RAIS) has information on accidents at work for all formal workers in the country, consisting of a data source little explored by the health field, but which has the potential to provide important information on the epidemiological profile in different production sectors. Accordingly, the present study aimed to fill gaps in the literature by uncovering information about the tendency for accidents involving all formal workers in the Santa Catarina textile sector, which may contribute to a deeper discussion on occupational health.

In this study, we determined the incidence and time trend of typical work accidents in the textile and clothing industry in Santa Catarina from 2008 to 2017.

METHODS

A retrospective epidemiological study was carried out that estimated the incidence and trend of typical occupational accidents in the textile and clothing industry in Santa Catarina from 2008 to 2017. Data on occupational accidents among all formal workers in the state's textile sector were analyzed.

We used secondary data from RAIS, which gathers social and economic information on employment relationships and contracts, governed by the Consolidation of Labor Laws (CLT) and therefore registered with INSS. The information declared by companies, public and private, is sent annually to the Ministry of Economy, which processes and approves the information declared, analyzes the data, prepares work-related indicators and makes the information available to the public. According to RAIS, it is possible to obtain information from both workers (e.g., sex, age, average income and reason for work leave) and companies (e.g., size of establishment, National Classification of Economic Activities - CNAE) [17].

RAIS data used in this research were openly available through the Work Statistics Dissemination Program (available at http://pdet.mte.gov.br/microdados-rais-e-caged). The data were collected in March 2019, when it was possible to access the databanks until 2017. As there was no information on the variable "reason for work leave" for 2010 and 2011, these periods were excluded from the analysis.

The dependent variable was the occurrence of the first leave due to a typical work accident in each year analyzed. The independent variables were: sex (male, female); age group (15–19; 20–29; 30–39; 40–49; 50–59 and 60 years or older); race/color (white, black [black + brown],

indigenous, yellow and not identified); schooling (incomplete to complete higher education, complete high school, complete elementary school to incomplete high school and no schooling to incomplete elementary education); average income - average income range for the current year until December 31, in minimum wages (MW) - (up to 1.5 MW, 1.51 to 3.00 MW, 3.01 to 7.00 MW and more 7.00 MW); time of employment in the same employment relationship (up to 4 years, 4.1 to 10 years, 10.1 to 20 years and more than 20 years); textile sector (CNAE 13 - manufacture of textile products and CNAE 14 - manufacture of clothing and accessories); size of establishment according to the classification of the Brazilian Institute of Geography and Statistics (IBGE) (micro-enterprise: 0 to 19 workers, small enterprise: 20 to 99 workers, medium-sized enterprise: 100 to 499 workers, large enterprise: and 500 or more workers); and health regions of Santa Catarina (Greater West, Midwest and Serra Catarinense, South, Vale do Itajaí, North and Northeast Plateau, and Greater Florianópolis).

The χ^2 test was performed to evaluate the association between the outcome and the variables, considering the entire period studied. For the calculation of the incidence, workers who had an active relationship with an establishment on December 31 of each year were considered, a methodology adopted in the official calculations of the Labor Secretary of the Ministry of Economy.

Logistic regression was performed to estimate the occurrence or not of the typical occupational accident and its time trend in the period studied. This is the standard method for dichotomous outcomes. Methods for analysis based on Pearson's correlation coefficient, such as time series analysis, which use autocorrelation, require a larger number of points in time to obtain robust results[18]. The average change in the incidence rate in the period was calculated using the following formula (Equation 1):

$$(((Ic.2017-Ic.2008)/Ic.2008)/10)*100 \quad (1)$$

where:
Ic = incidence.

All data were consolidated and analyzed using the Stata/SE 13.1 statistics program (Stata Corp., College Station, United States). This study was carried out using secondary data from an anonymized public domain databank, so it was not necessary to submit the project to the Research Ethics Committee.

RESULTS

The results of this research are presented in Table 1. A total of 1,555,414 employment relationships were investigated, predominantly of women (66.4%) and those between 20 and 29 years old (35.8%). There was a predominance of white workers (77.2%) and a small number of blacks (4.1%). However, the number of workers who did not have their race/color identified (17.6%) was noteworthy.

Table 1. Sociodemographic and occupational characteristics of workers and establishments in the textile and clothing industry, annual cumulative incidence (%) and time trend of typical occupational accidents, Santa Catarina, 2008–2017.

Variable	N	%	Cumulative incidence rate								Mean annual change in the period (%)
			2008	2009	2012	2013	2014	2015	2016	2017	
Sex*											
Male	523,157	33.6	12.6	7.8	1.1	1.1	1.0	1.0	1.0	0.9	-9.3
Female	1,032,257	66.4	3.4	2.7	0.6	0.6	0.6	0.6	0.6	0.60	-8.2
Age group*											
15 to 19 years	166,629	10.7	6.4	4.0	0.3	0.4	0.3	0.4	0.3	0.2	-9.7
20 to 29 years	556l,356	35.8	5.8	3.7	0.6	0.6	0.5	0.5	0.5	0.5	-9.2
30 to 39 years	407,465	26.2	5.2	3.7	0.7	0.7	0.6	0.6	0.6	0.6	-8.9
40 to 49 years	280,663	18.1	6.7	5.4	1.1	1.1	1.1	1.0	1.0	0.9	-8.7
50 to 59 years	125,229	8.1	6.1	5.3	1.5	1.4	1.5	1.4	1.5	1.5	-7.5
60 years or older	18,358	1.18	3.7	4.5	0.8	1.5	0.9	1.0	1.3	1.1	-7.0
Race*											
White	1,200,310	77.2	5.9	4.2	0.8	0.8	0.8	0.7	0.7	0.7	-8.8
Black	63,911	4.1	7.4	4.3	0.7	0.7	0.7	0.8	0.8	0.6	-9.2
Indigenous	864	0.1	0.0	0.0	0.0	1.3	2. 6	1.5	1.2	0.0	-
Yellow	17,265	1.1	4.4	2.3	0.7	0.8	0.4	0.3	0.8	0.7	-8.4
Not identified	273,062	17.6	5.4	5.4	0.7	0.6	0.6	0.7	0.7	0.7	-8.7
Schooling*											
Incomplete to complete higher education	401,356	16.3	4.0	1.7	0.2	0.2	0.3	0.2	0.2	0.3	-9.4
Complete high school	884,091	35.8	5.9	4.2	0.6	0.7	0.6	0.6	0.6	0.6	-9.0
Complete elementary school to incomplete high school	1,008,248	40.8	6.0	4.3	0.9	0.9	0.9	0.9	0.9	0.8	-8.6
No schooling to incomplete elementary school	176,637	7.2	5.9	4.5	1.3	1.3	1.3	1.2	1.1	1.1	-8.1
Average income (in minimum wages)*											
Up to 1.50	1,036,015	67.0	5.9	4.3	0.6	0.6	0.6	0.6	0.6	0.5	-9.1
1.51 to 3.00	378,212	24.5	7.4	4.5	0.7	0.7	0.6	0.6	0.6	0.6	-9.3
3.01 to 7.00	69,324	4.5	7.8	4.7	0.4	0.5	0.2	0.4	0.3	0.3	-9.7
More than 7.00	62,596	4.1	1.6	1.0	3.9	4.1	4.0	4.1	4.3	4.4	17.9

Continue...

Table 1. Continuation.

Variable	N	%	Cumulative incidence rate								Mean annual change in the period (%)
			2008	2009	2012	2013	2014	2015	2016	2017	
Time working*											
Up to 4 years	895,314	57.6	6.9	4.4	0.5	0.5	0.5	0.5	0.5	0.4	-9.4
4.1 to 10 years	351,993	22.6	5.3	3.6	0.9	0.9	0.9	0.8	0.8	0.7	-8.6
10.1 to 20 years	305,497	19.6	5.4	4.7	1.2	1.2	1.1	1.1	1.1	1.1	-8.0
More than 20 years	2,610	0.2	-	-	-	-	-	-	-	-	-
Textile sector*											
Manufacture of textile products (CNAE 13)	490,540	31.6	10.3	7.1	1.1	1.1	1.1	1.1	1.1	1.0	-9.1
Manufacture of clothing articles and accessories (CNAE 14)	1,064,874	68.5	3.7	2.7	0.6	0.6	0.6	0.5	0.6	0.5	-8.6
Size of establishment (in number of workers)*											
0 to 19	426,238	27.4	4.6	4.4	0.5	0.5	0.6	0.5	0.6	0.5	-8.8
20 to 99	463,635	29.8	6.9	5.9	0.8	0.8	0.7	0.6	0.6	0.6	-9.2
100 to 499	374,232	24.1	7.9	4.1	0.8	0.9	0.9	0.9	0.9	0.9	-8.8
500 or more	291,309	18.8	4.8	3.6	1.1	1.1	0.8	1.1	0.9	0.9	-8.2
Health regions of Santa Catarina*											
Greater West	51,781	3.3	4.4	3.6	0.3	0.6	0.6	0.5	0.5	0.5	-14.8
Midwest and Serra Catarinense.	32,319	2.1	4.3	3.0	0.4	0.5	0.5	0.7	0.8	0.7	-14.1
South	215,956	13.9	5.3	3.8	0.4	0.5	0.4	0.4	0.5	0.5	-15.2
Vale do Itajaí	830,680	53.4	6.8	5.1	1.0	0.9	1.0	0.9	0.9	0.8	-14.7
North and Northeast Plateau	305,272	19.6	3.7	2.7	0.7	0.7	0.5	0.7	0.6	0.6	-14.0
Greater Florianópolis	46,464	3.0	7.0	7.1	0.5	0.7	0.7	0.8	0.8	0.8	-14.8
Foz do Itajaí	72,942	4.7	6.9	2.9	0.7	0.9	0.7	0.6	0.8	0.6	-15.2
Total SC	1,554,414	100.0	5.9	4.2	0.8	0.8	0.7	0.7	0.7	0.7	-8.8*

*χ^2 test, $p < 0.05$; logistic regression (odds ratio — OR = 0.78, 95% confidence interval—95%CI 0.77 – 0.78); -: period with no record; years of 2010 and 2011 were excluded from analysis because the open databank and public domain of RAIS did not show information referring to the variable "reason for work leave #1".

As for schooling, 40.8% of textile workers had completed elementary to high school, while 35.8% had completed high school. The majority had an average income of up to 3.0 MW (91.6%) and less than 10 years of employment (80.2%). Only 18.8% of employment relationships came from large companies. About 70.0% worked in the manufacture of clothing articles and accessories. Among the state's regions, Vale do Itajaí employed more than half of all textile workers (53.4%).

Between 2008 and 2017, there was a downward trend of 22% per year, on average, in the incidence of typical occupational accidents in Santa Catarina (OR = 0.78, 95%CI 0.77 - 0.78). A drop in rates was noted in all health regions, varying on average in the period, from -14.0 to -15.2%. The highest incidences were observed in 2008 in Greater Florianópolis (7.0%), Foz do Itajaí (6.8%) and Vale do Itajaí (6.8%). Rate confidence intervals can be found in the Supplementary Material.

With regard to sex, in 2008, men took a leave of absence 3.7 times more than women due to a typical work accident. While the risk among men was 12.6%, for women it was 3.4%. There was a reduction in the average annual incidence in the study period for both men (-9.3%) and women (-8.2%). Likewise, the ratio of rates between men and women decreased by 69% over the period, from 3.7 in 2008 to 1.4 in 2017.

In 2008, there was a higher incidence rate of accidents among workers aged 40 to 49 years (6.7%), although there was an annual drop in the risk of accidents at work in all age groups. Blacks stood out with the highest rate in 2008 (7.4%), while, at the end of the period, the incidence was similarly distributed across all race/color categories.

As for education, the highest incidence occurred in 2008 among workers who did not have higher education (5.9%). Although rates fell over the period, in 2017, workers with no schooling or with incomplete primary education had a 344% higher risk of accidents than those with higher education.

As for income, the highest incidence of typical occupational accidents occurred, in 2008, among workers who received between 1.51 and 7.00 MW (above 7.4%). Workers with income above 7.00 MW were the only ones who had an increased risk of typical occupational accidents over the period studied (17.9%), going from 1.6 to 4.4%.

Regarding the time of employment, the highest incidence of typical occupational accidents occurred in 2008 and among workers with up to 4 years of employment (6.9%). However, at the end of the period, those with an employment time between 10.1 and 20.0 years had a 153% higher risk of accidents compared to workers with up to 4 years of employment.

In relation to the textile sector, in 2008, the rate was 178% higher in the manufacture of textile products (10.3%) compared to the manufacture of clothing articles and accessories (3.7%). Evident was a predominance of typical occupational accidents in the first sector (CNAE 13) over the second (CNAE 14) during the entire period studied, although there was an average annual change of -9.1 and -8.6%, respectively, indicating a drop in incidence in both sectors.

The greatest risk in relation to the size of the establishment occurred in 2008 in medium-sized companies (7.9%). Although the risk of accidents at work had fallen in

all types of establishments, regardless of size, we found that at the end of the period, establishments with more than 100 workers had a 46% higher incidence of work accidents compared to smaller establishments.

DISCUSSION

Between 2008 and 2017, there was a downward trend in the incidence of typical occupational accidents in Santa Catarina, varying, on average, -8.8% per year. It was also possible to observe an abrupt decline of 81% in the accident rate between the years 2009 and 2012, from 4.2 to 0.8%. In general, the highest incidence rates were found among male workers, with less than 12 years of schooling (with no schooling to incomplete high school), who were employed in the manufacture of textile products and in medium-sized companies (100 to 499 workers).

In the period studied, the Santa Catarina textile sector employed more women (66.4%) than men. Although the incidence of typical occupational accidents was higher among men throughout the period, the difference in rates in relation to sex narrowed over the years.

Two studies of textile workers treated at hospitals in Turkey due to an accident at work revealed differences in relation to sex. In the first, 73.3% of work accidents occurred among men[10], while in the second, 76.2% of work accidents occurred among women[9]. It is worth mentioning that these studies were not population-based, so the results cannot be directly compared to those of this research.

In this study, the activities performed by men and women were not analyzed, but the fact that the greatest risk of a typical occupational accident was among men suggests that they would be working more with machinery, while women would occupy functions more related to manual and repetitive activities, which generate more occupational diseases than accidents. Men carry out predominantly capital-intensive activities, which require greater qualification, fitted with greater technological development and with greater technical demands, whereas women are allocated mainly to activities based on intensive work, with less qualification, worse conditions, characterized by precariousness and work exploitation[19]. Thus, the sexual division of labor was reflected in accident rates. In future studies, it is suggested to study the social and occupational differences between men and women in the textile sector to better understand the aspects that are related to the occurrence of work accidents between them.

It was observed that the highest incidence of typical occupational accidents occurred in 2008 with workers between 40 and 49 years of age (6%). A study conducted in the Democratic Republic of Congo found that the majority of accidents in the textile industry occurred among workers up to 38 years old (65%)[20], while other studies found 40.6% of accidents among people aged 30 to 39[10] and 44.7% of accidents involving workers between 14 and 24 years of age[9].

We found that 92.9% of textile workers had an education level up to high school. Those with no schooling or incomplete elementary school had 4.4 times more risk of accidents at work compared to workers with higher education (incomplete or complete). Two previous studies revealed that the highest proportions of occupational accidents in the textile industry occurred among people with education levels up to high school (89.6 and 63.5%, respectively)[9,20].

There was a difference in tendency for accidents according to the time of employment. Although it is not possible to state that the length of employment is the same as experience, it is possible to assume that it is related to the worker's knowledge about work processes, operative strategies and different levels of perception about unexpected changes or technical problems. Differences in experiences influence the moment of identifying the source of failures or problems in the system. Thus, understanding a noise, for example, can be different for a novice and an experienced worker. Less experienced workers, therefore, tend to be more exposed to the risk of accidents at work[1].

In this study, the risk of a typical occupational accident in 2008 was 7.0% for workers with up to 4 years of employment, that is, 27% more than those with 10.1 to 20 years of employment. Regarding the interference of experience in tendency for accidents, previous studies have shown that workers with less than 10 years of experience are the ones who most suffer accidents at work[10,21].

The incidence of typical occupational accidents in the Santa Catarina textile sector at the end of the period was 0.7%, a figure well below that found in countries such as the Netherlands (5.2%) and Sweden (1.1%) in 2016, as disclosed by the World Labor Organization[22]. However, it is assumed that the proportions found in this research do not reflect the accident reality in the state, because:

the data obtained from RAIS are declaratory and it is possible that they do not reflect all the cases of typical occupational accidents recorded by INSS[23];

about 41.0% of workers in Brazil are in the informal sector[24] and, although the exact percentage of these in the textile industry is not known, RAIS only presents information about formal workers;

as the notification of work accidents contributes to the composition of the social security accident factor, implying an increase in the rate paid by the industry to finance the work accident insurance[25], there is strong pressure for the records to be missing.

The sharp drop in the risk of an accident at work between the years 2009 and 2012 was also found by Araújo et al.[26]. The reduction of work-related injuries would hardly be sudden in such a short period of time without any change at the national level. As there are no reports of substantial changes in working conditions that could explain such a fall, it is assumed that the reduction in incidence is related to barriers for the recognition of cases of work accidents by the INSS medical expert.

In 2007, INSS instituted a new system for granting accidental benefits, called the social security technical epidemiological nexus (NTEP). The benefits for cases of work

accidents started to be granted even without the issuance of the Work Accident Report and the burden of proof became the company's[23]. The construction of the NTEP is based on the identification of statistical associations between the morbid entity motivating the disability and the economic activity of the company, through the association of codes of the international classification of diseases and CNAEs[27].

Although the NTEP presupposes the inversion of the burden of proof, this being the responsibility of the company and it is up to the company to present evidence that there are no risk factors at work for the disabling injury, in practice this did not occur, causing the number of accidental benefits to decrease over the years after the institution of NTEP[28,29]. This demonstrates how much Brazil still has limitations with regard to official data on the tendency for accidents, impacting the social protection process and the health of its workers[26].

The underreporting of work-related injuries is a known fact in Brazil, and there are several studies that point to this reality[30-33]. The causes of underreporting are multiple. Together with the others already mentioned, it should be noted that the granting of the INSS accident benefit is at the discretion of the medical expert. In addition, in recent years, the incorporation of new technologies may have contributed to alienating INSS workers, especially the digital illiterate.

Another explanatory hypothesis for reducing the risk of a typical occupational accident over the period is related to the conduct of companies to relocate workers who have suffered less serious accidents in activities considered lighter, known by workers as "compatible work". Regardless of leave, the case should be reported as an accident at work, but it is not always so. Conceptually, compatible work is a situation in which the worker with permanent partial disability, with definite restriction, after treatment and professional rehabilitation, has the ability to perform another activity or function "compatible" with his/her health conditions and work capacity[34].

This strategy, created as a resource to reinsert the worker with permanent partial disability into work activity, has been used by companies to keep the injured worker active until he is reestablished and can return to the original function. However, the "compatible" worker may suffer even more than the "healthy" worker, as he/she faces intensification of work, intense pace, densification of work and extension of the workday. The use of this resource has directed practices that lead to the exclusion of the "compatible" worker both inside and outside the company[34].

The period studied in this research was emblematic, with a predominance of the Toyota production model and heavy investments in new technologies in the Brazilian textile sector with the primary objective of increasing productivity and competitiveness in the world market[5]. However, this was not accompanied by an improvement in objective working conditions, which could lead to intensification and precariousness.

Among the limitations of the study, the possible and even likely underreporting of occupational accidents in the formal sector stands out because of the financial burden they impose on the company. In addition, the textile sector has historically outsourced

many stages of the production process to individuals not covered by RAIS. This research studied the incidence and time trend of typical work accidents in the textile and clothing industry in Santa Catarina. It is necessary to consider the social and scientific relevance of the study, by revealing epidemiological data that may contribute to the planning of measures for workers' health, especially those related to health monitoring, in addition to subsidizing information for the actions of labor inspection agents.

Considering that the RAIS databases are openly available and provide public information on employment relationships throughout Brazil, this database is an essential source of information for studies that seek to understand the extent of work accidents in the various production sectors. In future studies, it is suggested to analyze the risk of occupational accidents in the Brazilian textile sector and in other production sectors that are still little explored in the country.

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