The Costs of Occupational Accidents and Occupational Diseases on Country Economies: The Case of Türkiye

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Abstract

Due to occupational accidents and occupational diseases, in addition to social costs, there are visible economic costs that can be calculated, and indirect economic costs are known as the invisible part of the iceberg. Indirect or hidden costs are considered eight times higher than visible economic costs. This study analyses the official data in the Social Security Institution (SGK) statistical yearbooks on occupational accidents and diseases occurring in Turkey in the six years between 2017 and 2022. The situation of occupational accidents and occupational diseases in Turkey and the financial burden on the national economy are tried to be calculated. It aims to contribute to the policies on this issue by making suggestions. While calculating the apparent cost to the national economy, the method of multiplying the total incapacity periods obtained from the sum of temporary incapacity periods, permanent incapacity periods and days lost due to death by the average daily earnings of workers in the relevant year was used, and indirect costs were calculated as eight times the apparent cost. The total financial burden on the national economy due to occupational accidents and diseases for the six years between 2017-2022 was $19,736,030,083.
Keywords: Occupational diseases, Work accidents, Costs of occupational accidents

INTRODUCTION

One of the most critical problems of today's working life is the occupational accidents or occupational diseases that come with rapid industrialisation and result in the injury, disability or death of thousands of people who struggle to survive every year. Since occupational accidents and occupational diseases threaten the right to life, which is the fundamental right of working people, and then cause several costs for enterprises and employers, it is imperative to bring the economic dimension of the issue to light. Looking at Türkiye’s labour and social security law system, it is seen that two different laws define occupational accidents and occupational diseases. These laws

are the Occupational Health and Safety Law No. 6331 and the Social Insurance and General Health Insurance Law No. 5510.

In Law No. 6331 on Occupational Health and Safety, an occupational accident is defined as “an event that occurs in the workplace or due to the execution of the work, causing death or disabling the body integrity mentally or physically”. In contrast, occupational disease " results from exposure to occupational risks” (Türkiye Cumhuriyeti, 2012).

Social Insurance and General Health Insurance Law No. 5510, if an accident occurs in the following cases, this accident is considered an occupational accident. These situations are

a) An accident occurs while the insured is at the workplace,

b) If the insured is working independently on his behalf and account during the execution of the work by the employer, an accident due to the work he is carrying out,

c) An accident occurs when the insured is not performing his/her primary job due to being sent to another place other than the workplace by the employer to whom he/she is affiliated,

d) An accident occurs during the leave time given to the breastfeeding woman insured within the scope of the law in order to give milk to her child by the labour legislation,

e) Accidents occur while the insured travels to or from work in a vehicle provided by the employer (Türkiye Cumhuriyeti, 2006).

In the same law, occupational disease is defined as "temporary or permanent illness, physical or mental disability that the insured person suffers due to a recurring cause arising from the nature of his/her work or the conditions of his/her work".

Accidents cause injured workers not only to lose their ability to work but also to experience loss of self-confidence and self-efficacy and depression (RTW) rates that prevent them from returning

to work (Bae et al., 2019; Chung and Park, 2011; Choi and Kang, 2010; Asfaw and Souza, 2012; Kim, 2013; Brown et al., 2011; Jeong et al., 2019).

Accidents are turning points that employees spend a lot of time and effort to live through, which can affect their entire working life in various ways. It takes a long time for injured workers to recover mentally after an accident (Kang, 2022). Negative consequences for the injured worker include loss of income, physical and mental suffering, strained relationships with a partner who may be the de facto carer, and activity limitations (Chong and Collie, 2022). The longer an injured person is away from work, the more likely they are not to return to work, exacerbating the social effects of the injury (Hashemi et al., 1997). The high prevalence of persistent problems three years after the accident indicates that serious injury is primarily a chronic disease (Gabbe et al., 2017).

Exposure to occupational accidents or occupational diseases occurring in enterprises undoubtedly affects the employee as much as it affects the employee's family, relatives, colleagues in the workplace, employees in other enterprises around the enterprise, other workers working in the same line of business, employers, the state, and thus the whole society (Demirbilek and Pazarlıoğlu, 2007). In addition, work loss and economic losses resulting from occupational accidents are closely related to each other (Haupt and Pillay, 2016; Leigh, 2011; Dong et al., 2016). The economic costs of occupational accidents are as significant as their social costs (Bae, 2021). The visible costs of occupational accidents and occupational diseases are payments made for transportation to the hospital and treatment after the first intervention to the incident, temporary or permanent incapacity payments due to incapacity for work, funeral expenses in case of death, material and moral compensation to the right holders of the worker, penalties and compensations paid to the social security institution due to recourse. Indirect costs, which are known as the invisible part of the iceberg, are the costs incurred as a result of the interruption of production after

the accident, the cost of compulsory overtime work of other employees due to the accident, the costs related to the arrangements made to prevent similar accidents after the accident, the cost of time spent for visitors and officials investigating the accident in the post-accident process, hidden economic costs such as the cost of labour and time spent to correct the negative behaviours of other employees who experience morale and motivation disorders and increased anxiety levels, the cost incurred due to the decrease in the productivity of both the injured worker and other employees, the costs of training and adaptation of the new worker, treatment costs not covered by insurance (Crichton et al., 2011). H. W. Heinrich, who did the most well-known research on this subject, argues that the hidden economic cost is eight times higher than the visible economic cost (Heinrich and Ainsworth, 1930). Occupational accidents and occupational diseases suffered by employees significantly impact both the national economy and the productivity of the enterprises, as well as the physical or psychological damages to the employees. It is estimated that this situation corresponds to approximately 4% of the gross domestic product of countries (Muzaffer and Akbıyık, 2011).

In this study, statistics on occupational accidents and occupational diseases occurring in Türkiye in the six years between 2017 and 2022 have been analysed, and it is aimed to contribute to the policies to be produced on occupational health and safety by making some suggestions in the light of the data obtained from these statistics.

MATERIALS AND METHODS

According to Law No. 5510 on Social Insurance and General Health Insurance, occupational accidents and occupational diseases are only covered by insured persons. Therefore, this study used the Social Security Institution (SGK) statistical yearbooks as a data source. The data on "occupational accidents and occupational disease statistics" and "insured and workplace statistics"

for six years between 2017 and 2022 in the said statistical yearbooks were analysed, and the situation of occupational accidents and occupational diseases in Türkiye and the financial burden on the national economy were tried to be calculated. After 2017, since Social Security and General Health Insurance Law No. 5510 classifies employees as 4a and 4b, the data for the six years between 2017 and 2022 includes the sum of these two groups. The cost to the national economy was calculated by multiplying the total duration of incapacity and the average daily earnings of the workers in the relevant year by the figures obtained from the average exchange rates of Turkish Lira (₺) - US Dollar ($) of the Central Bank of the Republic of Türkiye in the same year. The total period of incapacity for work consists of the sum of the duration of temporary incapacity for work due to a work accident or occupational disease, the working days lost due to death as a result of a work accident or occupational disease, and the working days lost due to permanent incapacity for work. While the temporary incapacity period refers to the number of working days lost due to both inpatient and outpatient treatment as a result of occupational accident or occupational disease, the permanent total incapacity period refers to the result obtained by multiplying the number of people with at least 10% loss due to occupational accident or occupational disease by the number of 7,500 days. The number of days lost due to death is obtained by multiplying the number of people who died due to work accidents or occupational disease by the number of 7,500 days. The number used by labour statisticians in calculating the number of working days lost due to permanent total incapacity for work and death is 7,500-8,000 on average (Bekar et al., 2017). In this study, 7,500 was used to calculate the number of days lost.

Cost to the National Economy = (Temporary Disability Duration + Permanent Total Disability Duration + Days Lost Due to Death) * Average Daily Worker Earnings

Temporary Disability Duration = Number of days lost due to work accidents or occupational diseases resulting from both inpatient and outpatient treatments

Permanent Total Disability Duration = Workers experiencing at least a 10% loss of earning capacity due to work accidents or occupational diseases multiplied by 7.500.

Days you were Lost Due to Death = Number of workers who died as a result of work accidents or occupational diseases multiplied by 7.500.

Visible Economic Loss = Total disability duration * Average daily worker earnings

Hidden Economic Loss = Visible Economic Loss * 8

This study calculates the hidden economic cost as eight times the visible economic cost.

Total Economic Loss = Visible Economic Loss + Hidden Economic Loss

Incidence Rate of Occupational Injuries (IROI): A concept that indicates the number of insured individuals who experienced work accidents per 1.000.000 work hours in a calendar year, or the number of insured individuals who experienced work accidents per 100 full-time workers. It is calculated using the following formula;

$$IROI = NEI \,/\, (NDPA * 8) * 1.000.000 \; or \; NEI \,/\, (NDPA * 8) \; x \; 225.000 \qquad (1)$$

NEI represents the number of insured individuals who have experienced work accidents. NDPA represents the total accrued days of premiums, and when multiplied by 8 hours of full-time work per day, it gives the total working hours of all insured individuals within a year.

1.000.000: Used to find the number of insured individuals who experienced work accidents in one million work hours.

225.000: A value used in calculations assuming that 100 insured individuals work full-time for 45 hours per week and 50 weeks a year.

Weight Rate of Occupational Injuries (WROI): Indicates how many work days were lost due to work accidents in 1.000.000 work hours within a calendar year or how many were lost due to work accidents in every 100 work hours. It is calculated using the following formula;

$$WROI = TLD \,/\, (NDAP * 8) * 1.000.000 \; or \; (TLD * 8) \,/\, (NDAP * 8) * 100 \qquad (2)$$

TLD: It indicates the total number of working days lost due to cases of occupational injury with temporary incapacity for work. Total Days Lost Due to Work Accidents = (Temporary Disability Durations) + (Total of Permanent Total Disability Durations * 75) + (Number of Fatalities * 7,500)

100: Used to find the number of work hours lost due to work accidents in 100 work hours.

Fatality Injury Rate (FIR): Indicates the number of individuals who suffered fatal injuries per 100.000 workers and is calculated using the following formula;

$$FIR = (Number\ of\ Fatal\ Work\ Accidents)/(Number\ of\ Insured)\ x\ 100.000 \qquad (3)$$

Work Accident Fatality Rate (WAFR): Expresses the fatality rate of work accidents. The calculation is done using the following formula;

$$AFR = (Number\ of\ Fatal\ Work\ Accidents)/(Number\ of\ Work\ Accidents)\ x\ 1.000 \qquad (4)$$

While there were 1,874,682 public and private workplaces in Türkiye in 2017, this number increased by 16.81% to 2,189,841 in 2022. In parallel with this increase in the number of

workplaces, the number of insured employees, 22,280,463 in 2017, increased by approximately 18.23% to 26,344,234 (Table 1) (Sosyal Güvenlik Kurumu, 2024).

Table 1. Number of workplace and employee numbers by year.

Years	Number of Workplaces (Public and Private)	Number of Employees (Law No. 5510-4-1/a,b,c)
2017	1,874,682	22,280,463
2018	1,879,771	22,072,840
2019	1,891,512	22,000,964
2020	1,960,911	23,344,547
2021	2,087,692	24,745,149
2022	2,189,841	26,344,234

In the six years from 2017 to 2022, a total of 2,700,296 occupational accidents occurred, 8,480 of which resulted in death, and 5,901 employees were diagnosed with occupational diseases in the same period, and 48 of them died due to this occupational disease (Table 2) (Sosyal Güvenlik Kurumu, 2024).

Table 2. Number of work accidents and occupational disease numbers by years.

Years	Work Accidents (Law No. 5510-4-1/a,b)	Fatal Work Accidents (Law No. 5510-4-1/a,b)	Occupational Disease (Law No. 5510-4-1/a,b)	Fatal Occupational Disease (Law No. 5510-4-1/a,b)
2017	359,866	1,636	693	0
2018	432,526	1,544	1,046	0
2019	422,837	1,149	1,091	0
2020	384,605	1,240	909	5

2021	511,639	1,394	1,209	35
2022	588,823	1,517	953	8

The number of 359,866 occupational accidents in 2017 increased by 20.19% to 432,526 in 2018 compared to the previous year, and this increase decreased to 422,837 in 2019. Starting from 2020, a downward trend was observed in the number of work accidents, which was recorded as 384,605, but the number of fatal work accidents was 1,240, with an increase of 7.92% compared to the previous year. In 2021, 511,639 occupational accidents occurred, and the number of fatal ones increased by 8.79% compared to the previous year, from 1,240 to 1,349. In 2022, 588,823 occupational accidents occurred, and fatal occupational accidents increased by approximately 8.82% from 1,349 to 1,517 (Table 2) (Sosyal Güvenlik Kurumu, 2024).

Regarding occupational health and safety, evaluations based only on the number of occupational accidents may be misleading because the number of occupational accidents may increase in parallel with the number of employees and workplaces. For this reason, using the frequency and severity rates of occupational accidents in evaluations will allow more accurate evaluations to be made.

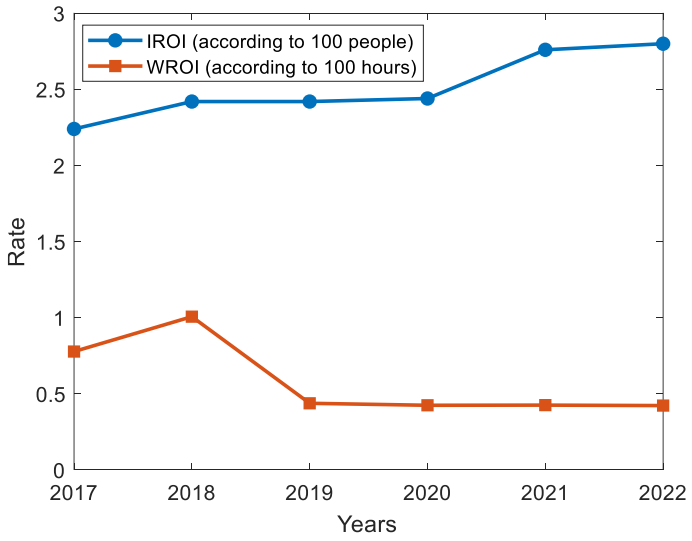

Figure 1. Occupational accident severity and frequency rates by years.

When the frequency rates of occupational accidents by years are examined, according to the calculation made for each 100 people in 2017, the frequency rate of occupational accidents was 2.24. It increased in 2018 and 2019 and reached 2.42. 2020 the occupational accident frequency rate was 2.44, increasing to 2.76 in 2021. When the weighted rate of occupational accidents, which shows how many hours are lost in every 100 hours worked, is analysed, the weighted rate of occupational accidents, calculated as 0.778 in 2017, was 1.007 in 2018. This rate decreased to 0.438 in 2019. 2019, it showed a downward trend, with 0.425 increasing to 0.426 in 2021 and decreasing to 0.423 in 2022 (Figure 1) (Sosyal Güvenlik Kurumu, 2017-2022).

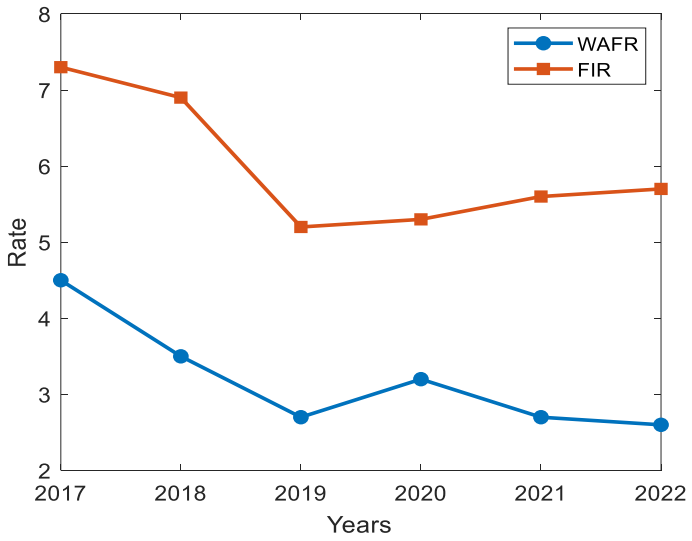

Figure 2. Occupational accident fatalities and occupational accident fatal injury rates by years.

When the occupational accident fatalities rate, which expresses the lethality rate of occupational accidents, is analysed, while this rate was 4.5 in 2017, it decreased to 3.5 in 2018. While this decline continued in 2019 and was realised as 2.7, it increased to 3.2 in 2020 and decreased to 2.7 in 2021 and 2.6 in 2022. In the fatal injury rate, the value of 7.3 in 2017 decreased to 6.9 in 2018

and decreased to 5.2 in 2019. In 2020, the fatal injury rate decreased to 5.2, again to 5.6 in 2021, and increased to 5.7 in 2022 (Figure 2) (Sosyal Güvenlik Kurumu, 2017-2022)

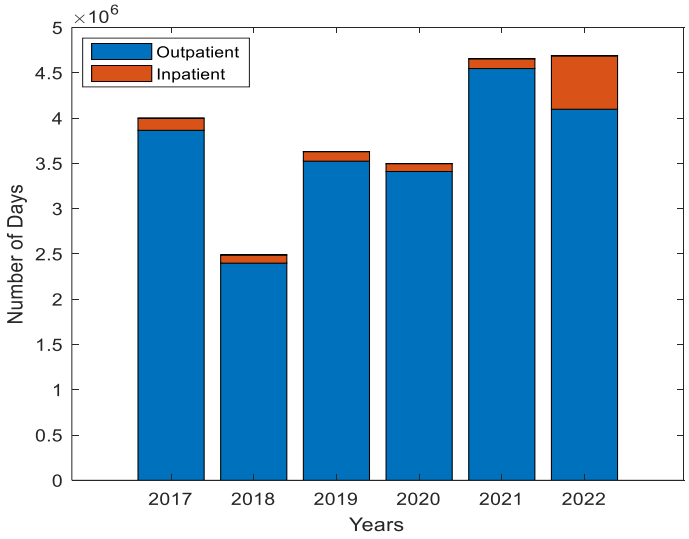

Figure 3. Number of days of temporary incapacity due to work accidents by years.

When the number of days of temporary incapacity for work, which refers to the loss of working days during inpatient or outpatient treatment in a hospital as a result of occupational accidents, is analysed, these numbers were 3,997,742 days in 2017, of which 132,593 days were inpatient and 3,865,149 days were outpatient, in 2018, they decreased by 37.75% compared to the previous year. They decreased to 2,488,401 days, of which 89,979 were inpatient, and 2,398,422 were outpatient. In 2019, the number of days of incapacity for work increased by 45.83% compared to the previous year to 3,628,803 days, of which 104,279 days were hospitalised and 3,524,524 days were outpatient treatment. In 2020, the number of days of incapacity for work due to occupational accidents was 3,496,169 days in total, of which 86,326 days were inpatient in hospital and 3,409,843 days were outpatient treatment, increased by 45.83% in 2021, with 107,953 days in hospital and 4,546,567 days outpatient treatment. Five hundred sixty-seven days of outpatient treatment, with an increase of 33.13% compared to the previous year, totalling 4,654,520 days and

in 2022, with an increase of 0.70% compared to the previous year, with 589,055 days of inpatient treatment and 4,098,024 days of outpatient treatment, totalling 4,687,079 days. The total number of days of temporary incapacity due to occupational accidents for six years is 21,842,529 (Figure 3) (Sosyal Güvenlik Kurumu, 2017-2022).

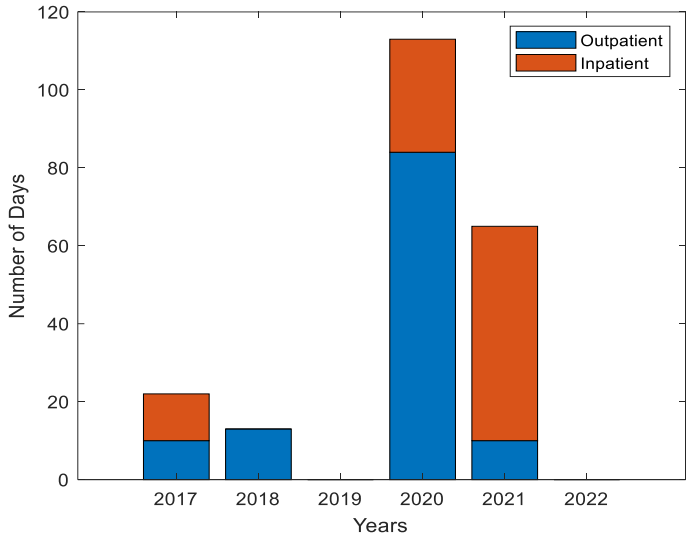

Figure 4. Number of days of temporary incapacity for work due to occupational diseases by years.

When the loss of working days during inpatient or outpatient treatment due to occupational diseases is analysed, these numbers decreased by 40.91% compared to the previous year. They decreased by 40.91% to 13 days in 2018, 0 days inpatient and 13 days outpatient, while 22 days in 2017, 12 days inpatient and 10 days outpatient.

In 2019, while there was no temporary incapacity for work due to occupational diseases, the number of days of incapacity for work due to occupational diseases which was 113 days in total, including 29 days in hospital and 84 days of outpatient treatment in 2020, increased by 42.48% compared to the previous year and reached 65 days in total, including 55 days in the hospital and ten days outpatient treatment in 2021, while in 2022, there were no days of incapacity for work as

a result of occupational diseases, either outpatient treatment or inpatient treatment in hospital. The total number of temporary incapacity days from occupational accidents for six years is 213 (Figure 4) (Sosyal Güvenlik Kurumu, 2017-2022).

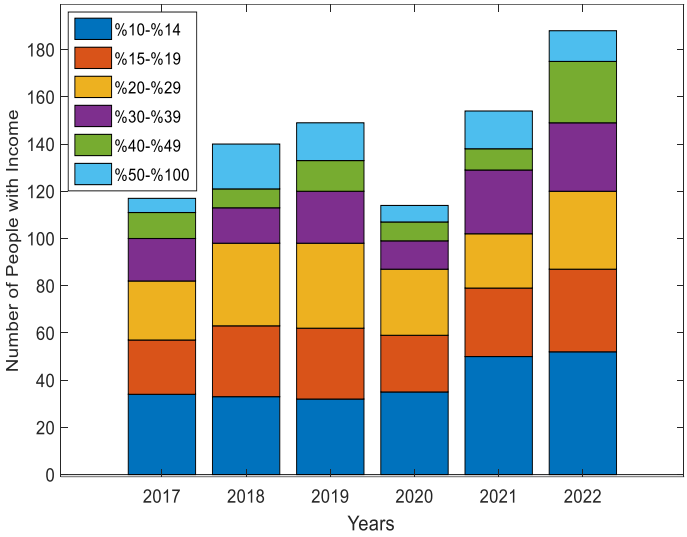

Figure 5. Number of persistent incapacity income beneficiaries according to degree due to occupational accidents and diseases by years.

Between 2017 and 2022, 862 employees whose earning capacity decreased by at least 10% as a result of occupational accidents and occupational diseases became permanently incapacitated from work. The total number of days of permanent incapacity for work calculated for the six years is 862x7,500= 6,465,000 (Figure 5) (Sosyal Güvenlik Kurumu, 2017-2022).

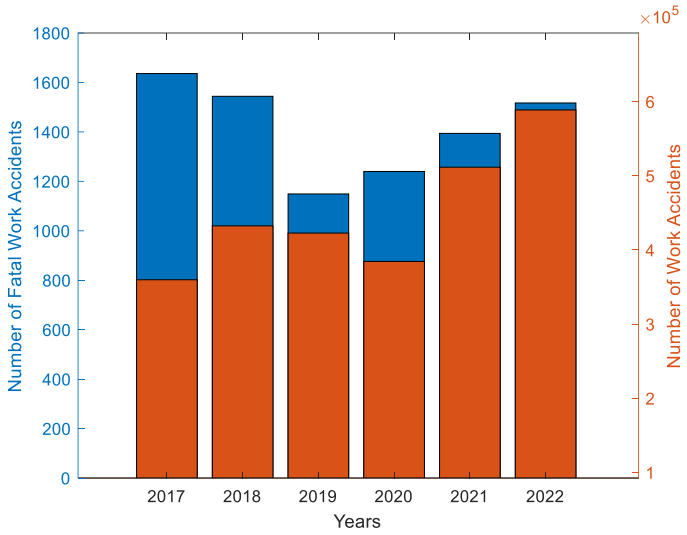

Figure 6. Number of work accidents and fatal work accidents by years.

When the total number of work accidents and fatal work accidents are analysed, 359,866 work accidents occurred in 2017, and 1,636 of them resulted in death. In 2018, work accidents increased by 20.19% to 432,526, but fatal work accidents decreased by 5.62% to 1,544. In 2019, the number of work accidents decreased to 422,837, and the number of fatalities decreased to 1,149. In 2020, the number of work accidents decreased by 9.04% compared to the previous year to 384,605, and the number of fatal work accidents decreased to 1,240. In 2021, occupational accidents increased by 33.03% compared to the previous year to 511,639, and the number of fatalities increased to 1,394, while in 2022, occupational accidents increased by 15.09% compared to the previous year to 588,823 and the number of fatalities increased to 1,517. A total of 8,480 workers lost their lives due to occupational accidents in the six years (Figure 6) (Sosyal Güvenlik Kurumu, 2017-2022).

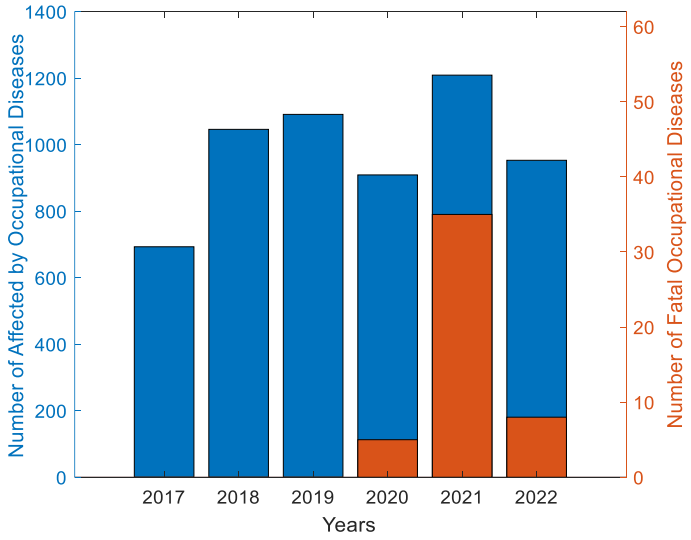

Figure 7. Number of occupational diseases and fatal occupational diseases by years.

The total number of employees suffering from occupational diseases between 2017 and 2022 is 5,901, and 48 employees lost their lives due to these occupational diseases. The number of occupational diseases, which was 693 in 2017, increased to 1,046 in 2018, and the increase continued in 2019, reaching 1,091. In 2020, there was a 16.68% decrease in the number of employees suffering from occupational diseases, and the number decreased to 909; in 2021, it increased to 1,209 with an increase of 33% compared to the previous year, and in 2022, the number of cases decreased to 953 with a 21.17% decrease in the number of occupational diseases (Figure 7) (Sosyal Güvenlik Kurumu, 2017-2022).

Table 3. Total unemployment day numbers according to types between 2017-2022.

Years	NTWDD[1]	NPWDD[2]	NDLDD[3]	TNWDO[4]
2017	3,997,764	877,500	12,270,000	17,145,264
2018	2,488,414	1,050,000	11,580,000	15,118,414
2019	3,628,803	1,117,500	8,617,500	13,363,803
2020	3,496,282	855,000	9,337,500	13,688,782

2021	4,654,585	1,155,000	10,717,500	16,527,085
2022	4,808,409	1,410,000	9,088,200	15,306,609

[1] Number of Temporary Work Disability Days, [2] Number of Permanent Work Disability Days (Those who have suffered at least a 10% loss of workforce * 7,500), [3] Number of Days Lost Due to Death (Number of fatal work accidents or occupational diseases*7,500), [4] Total Number of Work Disability Days

Between 2017 and 2022, 23,074,257 days of temporary incapacity for work occurred due to occupational accidents and occupational diseases, 862 employees lost at least 10% of their earning capacity and became permanently incapacitated for a total of 6,465,000 days, and 61,610,700 days of working days were lost as a result of occupational accidents or occupational diseases resulting in death. In the six years, the total number of days of incapacity for work was 91,149,957 (Table 3) (Sosyal Güvenlik Kurumu, 2017-2022).

Table 4. Average daily earnings by year.

Years	**Average Daily Earnings (₺)**	**Exchange Rate for the Respective Year ($-₺)**	**Average Daily Earnings ($)**
2017	97.15	3.64	26.66
2018	113.41	4.83	23.48
2019	138.88	5.67	24.49
2020	165.06	7.00	23.57
2021	204.39	8.86	23.08
2022	378.55	16.58	22.83

Table 5. The financial burden of work accidents and occupational diseases on the national economy by years.

Years	Total Work Disability Days (A)	Average Daily Earnings ($) (B)	Visible Financial Burden ($) (C)=(A)*(B)	Hidden Financial Burden ($) (D)=(C)*(8)	Total Financial Burden ($) (E)=(C)+(D)
2017	17,145,264	26,66	457,092,738	3,656,741,906	4,113,834,644
2018	15,118,414	23,48	354,980,361	2,839,842,886	3,194,823,246
2019	13,363,803	24,49	327,279,535	2,618,236,284	2,945,515,819
2020	13,688,782	23,57	322,644,592	2,581,156,734	2,903,801,326
2021	16,527,085	23,08	381,445,122	3,051,560,974	3,433,006,096
2022	15,306,609	22,83	349,449,883	2,795,599,068	3,145,048,951

When we examine the apparent financial burden, which we calculated by multiplying the total number of days of incapacity for work by the figures obtained from the Central Bank Turkish Lira (TL) - US Dollar (USD) average exchange rates (Table 3) in the relevant year of the average daily earnings of the employees taken from the SSI data in the relevant year, we see that in 2017 it was 4. 113,834,644 in 2017, decreased steadily until 2020 to $2,903,801,326, increased by 33% in 2021 compared to the previous year to $3,433,006,096, and decreased by 8.39% in 2022 compared to the previous year to $3,145,048,951. When the hidden costs, which are accepted as eight times the visible cost, are added, the total financial burden on the national economy due to occupational accidents and occupational diseases for the six years between 2017 and 2022 is calculated as $19,736,030,083 (Table 5) (Sosyal Güvenlik Kurumu, 2017-2022).

CONCLUSIONS

Between 2017 and 2022, a total of 2,700,296 occupational accidents occurred in Türkiye, and 8,480 employees lost their lives as a result of these accidents, while 5,901 employees were

diagnosed with occupational diseases in the same period, and 48 employees lost their lives due to these occupational diseases. Accordingly, considering the SSI data for the year 2022, in which 588,823 work accidents and 1,517 fatal work accidents occurred, approximately one work accident occurs every 60 seconds in Türkiye, and four employees lose their lives every day due to these work accidents.

In Türkiye, especially in recent years, studies on occupational health and safety have contributed significantly to the understanding of the importance of this issue at the national level, and the number of occupational accidents and diseases has decreased significantly. However, it is an indisputable fact that we are behind in terms of occupational health and safety in terms of both the number of occupational accidents and occupational accidents resulting in death compared to developed countries.

With the entry into force of the Occupational Health and Safety Law No. 6331 in working life, some significant changes have occurred, and all kinds of activities to be carried out regarding occupational health and safety have covered all employees, both private workplaces and public workplaces. The previously set limit of 50 employees for providing occupational health services has been cancelled, and it has been obligatory to provide this service and carry out risk assessments even if there is one employee. At the same time, Joint Health and Safety Units have been opened, and administrative fines and inspections have been increased for workplaces that do not comply with occupational health and safety rules.

Although occupational diseases are generally seen at high rates in countries with high occupational accidents, there is a disproportion between occupational accidents and occupational diseases in Türkiye between 2017 and 2022. It is assessed that the reason for the high number of occupational

accidents but the deficient number of occupational diseases is due to the deficiencies in diagnosing them.

According to Law No. 5510 on Social Insurance and General Health Insurance, the insured person with an occupational accident is entitled to temporary or permanent incapacity income, depending on the incapacity for work. Suppose a disease and disability occurs in the employee due to a work accident, and the employee's earning capacity decreases by at least 10%. In that case, he/she is entitled to permanent incapacity income. Suppose the insured who is incapacitated as a result of a work accident or occupational disease has a rest report. In that case, this employee is given a temporary incapacity allowance for each day. If the insured dies due to an occupational accident, 70% of his/her monthly earnings are paid as income to his/her beneficiaries, who are the insured's spouse, child, mother, and father and are entitled to payment.

Occupational accidents and occupational diseases cause injury, severe injury, loss of limb, death, etc., as well as considerable financial costs. These costs are directly measurable in monetary terms, and indirect costs cannot be measured in money. Moreover, indirect costs can be ten times more than direct costs. The costs arising from occupational accidents or occupational diseases are also considerably higher than the expenditures made for occupational health and safety.

The main objective of occupational health and safety is not to impose penalties or pay compensation but to minimise and, if possible, eliminate the factors that will affect their occurrence. Experience in occupational health and safety has shown that occupational accidents and diseases can be reduced if adequate measures are taken in this regard (Muzaffer and Akbıyık, 2011).

In order to prevent occupational accidents and occupational diseases, the following solutions can be offered:

- Occupational health and safety should be considered as a state policy.
- Gaps in inspection, sanctions and legislation should be eliminated, and inspection staff should be adequate in quantity and quality.
- Inspections should be both deterrent, guiding and preventive and risk-orientated.
- The employer must provide all necessary protective equipment in full. Workers should not be employed without providing a safe working environment at the workplace.
- The state, employers, employees, trade unions, universities and other non-governmental organisations should act together and with an ordinary mind (Salmen and Schulte, 2022).
- Advanced risk assessment methods should be used to solve problems related to occupational health and safety.
- Both workers and employers should receive adequate and continuous occupational health and safety training appropriate to the work being done.
- Universities should concentrate on scientific studies on occupational health and safety.
- In order to create a safety culture, awareness of occupational health and safety should be created by providing training starting in primary schools.
- Investment incentives, tax reductions, etc., should be provided to workplaces that comply with the necessary rules by attaching importance to occupational health and safety measures.

Data Availability Statement

The data used in this study were taken from the official statistics published annually by the Social Security Institution of the Republic of Turkey, known as the Social Security Institution Statistical Yearbooks. These data can be accessed and utilized from the following link: https://www.sgk.gov.tr/Istatistik/Yillik/fcd5e59b-6af9-4d90-a451-ee7500eb1cb4.

Conflicts of Interest

The authors declare no conflict of interest.

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