

# Analysis of Work Accidents and Work Accident Benefits in 2016 in East Java

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## ABSTRACT

**Introduction:** According to data from the Ministry of Manpower of the Republic of Indonesia in 2016, it shows that there were 16,880 work accidents that occurred in East Java, which were classified as an OHS emergency. This study aims to analyze the incidence of work accidents and the amount of work accident insurance benefits received by the participants of Employment Insurance and Social Security in East Java Province. **Methods:** This study used non-reactive research and secondary data, namely gender, age, accident location, time of accident, number of work accidents and data on the number of benefits received by the participants of Employment Insurance and Social Security in East Java in 2016. The number of samples was 4,700 respondents. The analysis was conducted by comparing the number of work accidents with the amount of benefits received by workers participating in the Employment Insurance and Social Security. **Results:** The results showed that based on gender, the highest occupational accident cases occurred in male workers (80%), most of the occupational accident cases occurred at the age <25 years old- 35 years old (56%), the location of the accident mostly occurred at work locations (70%), and most of the accidents occurred at 06.01-12.00 (46%). **Conclusion:** The case of work accidents in 2016 in East Java when compared to the number of work safety benefit recipients was 0.77% and the ratio of the number of work accident cases with the highest work safety benefit amount was in permanent total disability (1: 4,800,000).

**Keywords:** benefits, employment insurance and social security, work accident insurance, work accident

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## INTRODUCTION

An accident is an unexpected or unplanned event that could lead to the disruption of the production/operation process, damage property/assets, injury to humans, or damage to the environment (Waluyo and Gunawan, 2015). Until now, workplace accidents still become a major problem at work, with more than 1.8 million deaths due to work accidents occur each year in the Asia and Pacific region. Two-thirds of work-related deaths in the world occur in Asia. Globally, more than 2.78 million people die each year from occupational accidents or diseases. In addition, there are approximately 374 million injuries and non-fatal occupational illnesses each year, many of which result in absenteeism (International Labour Organization, 2018).

In Indonesia, according to the Ministry of Manpower in 2017, there were 101,367 cases of work accidents throughout 2016. However, East Java was included in the category of OHS emergency where there were 16,880 cases of work accidents

over the period of 2016. The number increased by about 300 cases compared to the previous year, accounting for 16,551 cases (Jajeli, 2018). The work accident cases resulted in 768 workers experiencing disabilities, 3,329 in medical treatment, 10,354 recovered, and as many as 101 died. Moreover, there were 5,234 traffic accidents of people going to and from work. A total of 194 were disabled, 2,497 were in medical treatment, 2,452 were recovered and 181 died. Furthermore, work accidents outside of work were 1,755 cases. A total of 87 had disabilities, 648 were in medical treatment, 972 were recovered and 48 died (Hakum, 2018).

Every worker has the right to protection for their safety in doing his job, which is regulated in the Law of the Republic of Indonesia Number 40 of 2004 concerning the National Social Security System which states that everyone who is entitled to social security should be able to fulfill the basic needs of a decent life and increase their dignity towards the realization of a just and prosperous society (Government of the Republic of Indonesia, 2004). In order to realize the objectives of the national social security system, it is necessary to establish an organizing body in the form of a legal entity, whose one of the principles is compulsory

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membership. It is explained that participation is mandatory but in fact, it is not entirely registered in the field (Hapsari, Natassia and Riniasih, 2019). Therefore, the Government Regulation of the Republic of Indonesia Number 86 of 2013 concerning Procedures for Imposing Administrative Sanctions to Non-State Officials Employers and Everyone, Apart from Employers, Workers and Contribution Assistance Recipients Social Security Administration states that a non-state official employer is obliged to register himself and his workers as participants of the Insurance and Social Security (Badan Penyelenggara Jaminan Sosial) in stages according to the social security program that he participates in. Non-state official employers who violate the provisions referred to are subject to administrative sanctions in the form of written warnings, fines, and/or loss of certain public services (Republic of Indonesia Government, 2013).

The number of workers in East Java in was 19,306,508 people in 2014 (East Java Central Bureau of Statistics, 2015). In 2015 it increased to 19,367,777 but there was a decrease in 2016 to 19,114,563 people and increased again in 2017 to 20,099,220 people (East Java Central Bureau of Statistics, 2018). However, not all workers were registered with the Employment Insurance and Social Security (Badan Penyelenggara Jaminan Sosial Ketenagakerjaan) (Pambudi, 2019). In 2014, there were 1,600,704 workers registered, and the number increased to 1,927,608 workers in 2015, 2,199,668 workers in 2016, and went up to 3,028,849 workers in 2017 (Employment Insurance and Social Security, 2018). This indicates that it is possible that there are cases of work accidents that are not reported. According to the government regulation of the Republic of Indonesia Number 82 of 2019 concerning the implementation of work accident and death insurance programs, workers who are registered as BPJS Ketenagakerjaan participants will get many benefits of work accident insurance in the form of services according to medical needs, compensation in the form of money, and scholarships for participant children who are given periodically every year according to their education (President of the Republic of Indonesia, 2017). Participation in the Employment Insurance and Social Security (BPJS Ketenagakerjaan) is divided into three segments, namely Wages (W), Non-Receiver of Wages (NRW), and Construction Services (CW) (Employment Insurance and Social Security, 2017).

Employment Insurance and Social Security (BPJS Ketenagakerjaan) was fully operated in July 2015 with 4 programs, namely Old Age Security (OAS), Death Security (DS), Work Accident Security (WAS) and Pension Security (PS), each of which has benefits, including OAS in the form of cash with the value of the accumulated contributions and income development. DS benefits are cash given to the heirs when the worker dies not due to a work accident. Furthermore, the WAS benefits are protection for the risk of accidents that occur in the work environment, including accidents that occur on the way from home to the workplace. Lastly, the pension benefit is given to maintain a proper standard of life for participants and/or their heirs by providing income after the worker enters retirement age or experience disabilities (Institution of Social Security employment, 2015).

For workers who are included in the Employment Insurance and Social Security (BPJS Ketenagakerjaan), they are entitled to a Work Accident Guarantee (WAG). Referring to the Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia Number 609 of 2012 concerning Guidelines for the Settlement of Occupational Accidents and Diseases Due to Work, it is stated that work accidents are accidents that occur in connection with work relationships, including diseases arising from work relations, as well as accidents that occur on the way from home to work and vice versa passing through the usual or reasonable way to go. Meanwhile, an Occupational Disease (OD) is a disease caused by work or work environment.

WAG is a benefit in the form of cash and/or health services provided when a participant experiences a work accident or OD in the form of health services; compensation in the form of money covering transportation costs; Temporary Disability to Work (TDW); compensation for anatomical disabilities, functional disabilities, and permanent disabilities; compensation for death and funeral costs; periodic compensation paid at once in the event of death or permanent disability; rehabilitation costs for replacement of tools (orthoses) and/or replacement tools (prosthesis); reimbursement of denture costs; and scholarships for children's education (Regulation of Ministry of Manpower of the Republic of Indonesia, 2017). Many cases of work accidents are recorded in East Java, and not a few workers experience disabilities due to work accidents. From the data obtained, many workers

in East Java are not registered as participants in the Social Security and Labor (BPJS Ketenagakerjaan). This does not rule out the possibility of unreported work accidents. Therefore, this study aims to analyze the incidence of work accidents and the amount of work accident insurance benefits received by the Employment Insurance and Social Security (BPJS Ketenagakerjaan) participants in East Java Province.

## METHODS

This research was conducted in January-April 2019 using a non-reactive research method. The researcher did not use the research subject's responses (Kholil, 2015). In this study, secondary data were obtained in the form of data on gender, age, accident location, time of accident, number of work accidents and data on the number of benefits received by the workforce participating in the Employment Insurance and Social Security (BPJS Ketenagakerjaan). Work accident cases in 1 year were divided into 4 quarters, namely: TW 1 (Triwulan 1), TW 2 (Triwulan 2), TW 3 (Triwulan 3), and TW 4 (Triwulan 4).

The data were obtained through the licensing process through a letter from the East Java Regional Worker's Insurance and Social Security (BPJS Ketenagakerjaan) Office. The data were then processed according to the procedure so that data on the number of work accidents and the amount of work accident benefits in East Java in 2016 were obtained.

The data were then analyzed by comparing the number of work accidents that occurred in East Java Province with the number of participants who received work accident insurance benefits, and by analyzing the frequency distribution of occupational accidents. The results of the analysis were then compared with the work accident insurance benefits in which the number of work accidents was divided by the number of work accident beneficiaries, and the result was multiplied by 100%.

## RESULTS

### Frequency Distribution of Work Accidents in East Java in 2016 based on Gender and Age

Table 1 shows that the number of work accidents among male workers was higher than that of female workers. Male workers were four times

more likely to have work accidents than female workers, accounting for 3,774 cases. Work accidents was more prevalent among workers aged less than 25 years old up to 35 years old compared to workers aged more than 35 years old, accounting for 2,625 cases.

### Distribution of the Frequency of Work Accidents in East Java in 2016 based on the Location of the Accident and Time of Occurrence

Table 2 shows that most work accidents occurred inside the workplace, with 3,297 cases. Meanwhile, the least occurrence was outside the workplace, and traffic accidents accounted for 354 cases. The cases of work accidents based on the time of the incident mostly occurred at 06.01-12.00, accounting for 2,105 cases.

### Analysis of the Number of Work Accident Cases and the Number of Work Accident Beneficiaries in East Java in 2016

Table 3 shows that the ratio of the number of work accident cases to the number of work accident insurance beneficiaries was 0.77%.

**Table 1.** Work Accident Cases in East Java Province by Gender and Age in 2016

	TW 1	TW 2	TW 3	TW 4	Total
<b>Sex</b>					
Male	1,510	790	987	487	3,774
Female	401	173	239	113	926
<b>Age</b>					
<25 -35 years	1,036	538	682	369	2,625
>35 years	875	425	544	231	2,075

**Table 2.** Work Accident Cases in East Java Province by the Accident Location in 2016

	TW 1	TW 2	TW 3	TW 4	Total
<b>Location</b>					
Inside	1,325	663	880	429	3,297
Traffic	451	219	248	131	1,049
Outside	135	81	98	40	354
<b>Time of Occurrence</b>					
00.00-06.00	197	87	97	41	422
06.01-12.00	782	434	611	278	2,105
12.01-18.00	570	300	349	180	1,399
18.01-24.00	212	142	169	101	624

### Comparative Analysis of Work Accident Frequency and the Amount of Work Accident Benefit in East Java 2016

Table 5 shows the comparison between the frequency of work accidents and the amount of work accident benefit. The highest rate was in the permanent total disability, which was 1: 4,800,000 and the lowest rate was in the transportation cost of 1:158,566.633.

## DISCUSSION

### Cases of Work Accidents in East Java in 2016 based on Gender

Based on the worker's gender, more than half of the cases of work accidents occurred in males with the total number of cases in 2016 was 3,774 cases. Meanwhile, for females there were 926 cases. This is consistent with previous research stating that male workers experienced more work accidents than female workers (Yulianti, 2017). Based on previous research, it was also stated that work accidents occurred more frequently in males (75.2%) than in females (24.8%) (Darwis *et al.*, 2020). In East Jakarta, the most occupational accidents during 2014-2016 occurred in males, accounting for 557 cases in 2016.

**Table 3.** Comparison of the Number of Work Accident Cases and the Number of Work Accident Beneficiaries in East Java in 2016

Year	Number of Work Accident	Number of Work Accident Beneficiaries	Percentage
2016	16,880	2,199,668	0.77%

**Table 4.** Comparison of the frequency of work accidents with the amount of work accident benefit in East Java in 2016

	Case	Nominal	Comparison
Health services	17,503	49,779,812,303.00	1:2,844,074
Temporary Unable to Work	8,778	8,546,063,234.77	1:973,575.215
Defects in function	0	0	0
Anatomical defects	0	0	0
Permanent total disability	1	4,800,000.00	1:4,800,000
Compensation for death	338	46,598,812,229.00	1:137,866,308.37
Transportation fee	6,375	1,010,862,282.16	1:158,566.633
Scholarship	956	1,863,096,000.00	1:1,948,845.188
Prothese/ Orthose	86	225,713,360.00	1:2,624,573.954

Based on research of Park *et al.*, (2018), accidents in the industry were more common in males (27.7%) compared to women (13.4%). Meanwhile, according to Stergiou-Kita *et al.* (2015) the number of male workers who work in high-risk industries is higher than the number of women, such as in the construction industry, mining, fire fighting, military, agriculture, fisheries, and other risky jobs.

There are more male workers who experience work accidents, and therefore company managers need to pay more attention to workplace safety for male workers, especially in high-risk jobs by providing training and certification according to the work performed by workers. This is done so that the number of occupational accidents among male workers can be reduced.

### Cases of Work Accidents in East Java in 2016 based on Age

The highest number of work accident cases in Surabaya in 2016 based on age occurred at the age of <25 years old - 35 years old, while the least occurred in workers aged more than 35 years old. The results of this study indicate that many cases of work accidents occurred in workers aged <25 years old - 35 years old, accounting for 2,625 cases.

This result is in accordance with the results of research conducted by López *et al.* (2018) stating that workers aged 30-35 years old had the largest percentage of each type of accident, which is possible because the age group between 30-35 years feel that they have sufficient work experience. On the other hand, it shows that people over 45 years old commit unsafe actions at work, which can lead to work accidents due to the increasing age which can reduce physical ability and performance (Pratama, 2015). They also sometimes forget the operating standards and underestimate the details, and thus

the attitude of being careless and not prioritizing safety at work has an impact on the greater risk of accidents that may occur.

Moreover, according to Kristiawan and Abdullah (2020), age has an important influence on the incidence of occupational accidents. The young age group has a higher tendency to experience occupational accidents than the old age group (Hanvold *et al.*, 2019). This may be due to carelessness, lack of attention, lack of discipline, tendencies to indulge in conscience and a hasty attitude of younger workers (López *et al.*, 2018).

### **Cases of Work Accidents in East Java in 2016 based on the Location of the Accident**

According to the location of accidents, work accident cases in East Java in 2016 occurred mostly in the workplace, accounting for 3,297 cases. Compared to work accidents that occur in traffic and outside the workplace, there were 1,049 cases and 354 cases respectively. These results are consistent with the results of research conducted by Nuryanti and Transiska (2015) stating that the work environment affects the occurrence of work accidents. Workers want the conditions around their work to be good because these conditions lead to physical enjoyment and pleasure. For example, too little lighting can cause physical discomfort, and dirty air or poor ventilation can endanger the health of workers (Alves *et al.*, 2018).

### **Cases of the Frequency of Work Accidents in East Java in 2016 based on the Time of Occurrence**

Based on the results of the study, the time of work accidents in East Java in 2016 mostly occurred at 06.01-12.00, accounting for 2105 cases, and the least work accident cases occurred at 00.00-06.00, accounting for 422 cases.

Several studies have suggested that workers who work on the morning shift or start their work before 7 am tend to have shorter sleep times at night, and feel more sleepy at work (Wickwire *et al.*, 2017). Previous research have also suggested that the trend of work accidents occurred at 06.01-12.00 because this time is a vulnerable time to have a decrease in concentration and morale so it can cause fatigue, drowsiness and work stress (Sinaga, 2017). Meanwhile, according to Yulianti (2017), the high number of accidents at 12.01-18.00 can occur due to fatigue. Fatigue from work contributes 50% to the occurrence of work accidents (Abdalla *et al.*, 2017).

Furthermore, in the United States, there are 4 major nuclear power center accidents caused by human factors that occurred at the start of the morning shift. Most of these were caused by fatigue and sleep disorder (Caldwell *et al.*, 2019).

Fatigue can be caused by physical causes or mental stress. One of the causes of fatigue is sleep disorder which, among others, can be influenced by lack of sleep and disruption to the circadian rhythm which can be caused by work shift (Ferri *et al.*, 2016).

### **Analysis of the Number of Work Accident Cases and the Number of Work Accident Beneficiaries in East Java in 2016**

The number of work accident cases compared with the number of work accident insurance beneficiaries in East Java in 2016 was 0.77%. This is in accordance with research conducted by Riyadi (2018), which stated that work agencies must provide workers with a sense of security by registering workers as members of work accident insurance. In this way, work agencies have helped improve the welfare of workers not only for the present but also for their future.

Based on Law No. 24 of 2011, the government should pay more attention to work protection and work safety with the aim of not only protecting and paying attention to work safety and workers who are generally weak but also indirectly protecting companies (President of the Republic of Indonesia, 2011). In order for a company to be able to develop, it is important to provide humane treatment towards the workers by making sure that their health, welfare, dedication, and discipline are maintained. In the end, the workforce under the management of the company will be recognized for their services as the developers of the company itself (Sima *et al.*, 2020).

Labor legal protection by the Employment Insurance and Social Security (BPJS Ketenagakerjaan) has 4 programs, namely: Work Accident Security Program, Old Age Security, Pension Security, and Death Security. Each program has two registration categories, namely for employees who are registered by the company and the second is for independent workers who applied to the program themselves. Employment Insurance and Social Security (BPJS Ketenagakerjaan) aims to provide a sense of security and comfort for workers and maintain a decent life for the participants and/or their heirs.

### Comparative Analysis of Work Accident Frequency and the Amount of Work Accident Benefit in East Java 2016

The highest ratio of the frequency of work accidents with the amount of work accident insurance benefit in East Java in 2016 was in total permanent disability, which was 1: 4,800,000 and the lowest was in the transport costs of 1: 158,566.633. From the results of this study, it can be concluded that a worker who has a work accident with a total disability will receive compensation of Rp. 4,800,000. This is because workers with total permanent disabilities are no longer able to work optimally (Davidescu *et al.*, 2020).

DS benefits are defined as cash given to the heirs when the participant dies not due to a work accident. Furthermore, WAS benefits are protection for the risk of accidents that occur in work relationships, including accidents that occur on the way from home to work (Abdalla *et al.*, 2017). Moreover, pension benefits are given to maintain a proper standard of living for workers and/or their heirs by providing income after participants enter retirement age or are disabled (Pilipiec, Groot and Pavlova, 2020).

Workers who are included in the Employment Insurance and Social Security (BPJS Ketenagakerjaan) are entitled to a Work Accident Security (WAS). Referring to the Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia Number 609 of 2012 concerning Guidelines for the Settlement of Occupational Accidents and Diseases, it is explained that work accidents are accidents that occur in connection with work, including diseases arising from work relations, as well as accidents that occur on the way from home to work and back home passing through the usual or reasonable way to go (Ministry of Manpower and Transmigration of the Republic of Indonesia, 2012). Meanwhile, Occupational Disease (OD) is a disease caused by work or work environment (Lee and Kim, 2014).

WAS is a benefit in the form of cash and/or health services provided when a participant experiences a work accident or occupational disease in the form of health services; compensation in the form of money covering transportation costs; Temporary Disability to Work (TDW); compensation for anatomical disabilities, functional disabilities, and total disabilities; compensation for death and funeral costs; periodic compensation to be paid at once in the event of death or permanent total

disability; rehabilitation costs for orthoses and/or prothese; reimbursement of denture costs; and children's education scholarships (Employment Insurance and Social Security, 2017).

### CONCLUSION

To conclude, the highest number of work accidents in East Java occurred in male workers compared to female workers. Most of the workers who had work accidents were aged <25-35, was accounting for 2,625 cases, and most of the cases of work accidents occurred in the workplace between at 06.00-12.00. Moreover, the number of work accident cases when compared to the number of recipients of work safety benefits was 0.77% and the number of work accident cases with the highest amount of work safety benefit was in permanent total disability, namely 1: 4,800,000.

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