

Original Article

A Policy Intervention Study to Identify High-Risk Groups to Prevent Industrial Accidents in Republic of Korea

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ARTICLE INFO

Article history:

Received 2 September 2015

Received in revised form

26 November 2015

Accepted 21 December 2015

Available online 5 January 2016

Keywords:

fatality

high risk

industrial accident

occupational

prevention

ABSTRACT

Background: The objective of this study is to identify high-risk groups for industrial accidents by setting up 2003 as the base year and conducting an in-depth analysis of the trends of major industrial accident indexes the index of industrial accident rate, the index of occupational injury rate, the index of occupational illness and disease rate per 10,000 people, and the index of occupational injury fatality rate per 10,000 people for the past 10 years.

Methods: This study selected industrial accident victims, who died or received more than 4 days of medical care benefits, due to occupational accidents and diseases occurring at workplaces, subject to the Industrial Accident Compensation Insurance Act, as the study population.

Results: According to the trends of four major indexes by workplace characteristics, the whole industry has shown a decreasing tendency in all four major indexes since the base year (2003); as of 2012, the index of industrial accident rate was 67, while the index of occupational injury fatality rate per 10,000 people was 59.

Conclusion: The manufacturing industry, age over 50 years and workplaces with more than 50 employees showed a high severity level of occupational accidents. Male workers showed a higher severity level of occupational accidents than female workers. The employment period of < 3 years and newly hired workers with a relatively shorter working period are likely to have more occupational accidents than others. Overall, an industrial accident prevention policy must be established by concentrating all available resources and capacities of these high-risk groups.

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1. Introduction

According to the report on the status of industrial accidents in Korea, the industrial accident rate has shown a steady decrease since 2004. It had stayed at 0.7% for 12 years since the International Monetary Fund crisis, but it fell to 0.69% in 2010 [1] and then to 0.59% in 2012. To be more specific, the number of industrial accident victims who required more than 4 days of medical care benefits was estimated at 92,256 (deaths, 1,864; injuries, 83,349; occupational illness patients, 6,742), among 15,548,423 persons who worked at 1,825,296 workplaces, subject to the Industrial Accident Compensation Insurance Act. The previous year, the number of workplaces

and workers increased by 5.01% and 8.26%, respectively, from the previous year. Despite that, the number of industrial accident victims declined by 1.11%, while the industrial accident rate fell by 0.06% compared with those in the previous year [2].

According to the report on industry accident fatality, 1,864 persons died of industrial accidents in 2012: occupational injury fatality accounting for 1,134 deaths and occupational illness and disease fatality for 730 deaths. With regard to occupational accidents, 373 people lost their lives due to fall (fall of persons from height) and another 136 persons died of compression (compressed by equipment or object). In regard to occupational illness and disease fatality, 333 workers died of pneumoconiosis and another 301

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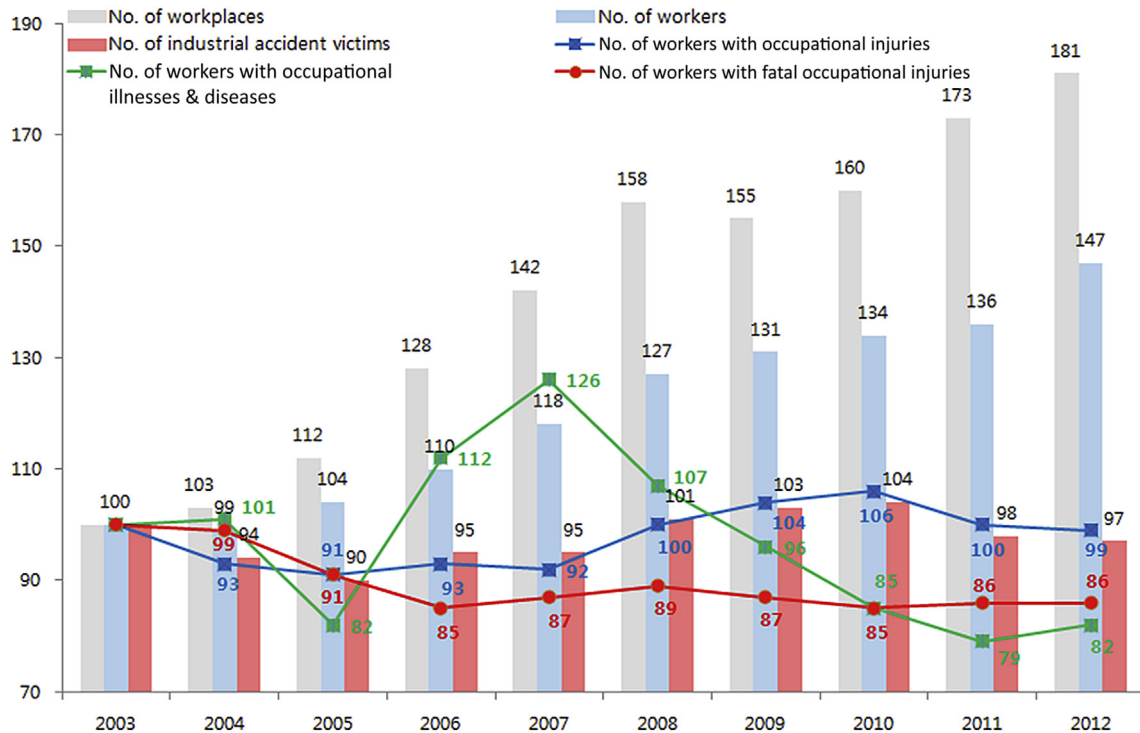


Fig. 1. Trends of indexes of workplaces, workers, and industrial accident victims in the whole industry for the past 10 years. No., number.

people lost their lives because of cerebrovascular or cardiovascular diseases. The index of occupational injury fatality rate per 10,000 people (IOIFR) fell by 0.10‰ compared with that in the previous year and has showed a declining tendency since 2003. The direct and indirect losses caused by industrial accidents were estimated at 19,256,435 million Won, an increase of 6.23% from the previous year. An increase in economic losses despite a decline in the number of industrial accident victims can be ascribed to a higher severity level of industrial accidents [2]. The industrial accident rate fell to the 0.5% range in 2010 from the 0.6% range in 2010. This improvement was possible thanks to a remarkable achievement in industrial accident prevention activities [3].

According to the distribution of industrial accidents by industry, the “other industries” accounted for 34.7% (32,033 people), which was the highest percentage, followed by the manufacturing industry (34.3%; 31,666 people) and the construction industry (25.3%; 23,349 people). These industries combined accounted for almost all industrial accidents throughout the whole spectrum of industries [2]. In terms of industrial accidents according to the scale of workforce or projects, the manufacturing industry showed a relatively higher occurrence rate in a workplace with less than 50 full-time employees, while the construction industry had a higher industrial accident occurrence rate in a project worth < 2 billion Won [4–7]. If we look at the distribution of industrial accident fatality tolls, the manufacturing industry accounted for 29.1% among a total of 1,864 people, followed by the construction industry (26.6%), the other industries (19.5%), the mining industry (17.2%), and the transportation, warehousing, and telecommunication industry (7.5%). In terms of IOIFR, the mining industry showed the highest occurrence rate of 243.87‰, followed by the construction industry (1.78‰); the transportation, warehousing, and telecommunication industry (1.73‰); the manufacturing industry (1.44‰); and the other industries (0.45‰) [2].

After a review of the previous studies, it can be expected that the service industry with a relatively high level of occupational

diversification had a higher industrial accident occurrence rate than the manufacturing and construction industries because of the occupational diversification due to changes in industry and employment structures [8–11]. To reduce industrial accidents, this study aimed to identify the high-risk groups, which are the target points of prevention efforts. To that end, we collected and analyzed data of the past 10 years (2003–2012) in relation to the number of workplaces subject to the Industrial Accident Compensation Insurance, workforce, and industrial accident victims. The objective of this study is to find out high-risk groups by industry type, workplace scale, gender, and working period, where industrial accident prevention efforts must be concentrated, by setting up 2003 as the base year (index 100) by analyzing major industrial accident indexes such as the index of industrial accident rate (IAR), index of occupational injury rate (IOIR), index of occupational illness and disease rate per 10,000 people (IOIDR), and IOIFR. We conducted a comparative analysis of the trends by workplace characteristics (the type of industry and the scale of workforce) and by individual characteristics (gender, age, and employment period). This study is expected to contribute to reducing industrial accidents by identifying high-risk groups, which requires concentration of resources to reduce industrial accidents.

2. Materials and methods

As the source of data used for analyzing the trends of major industrial accident indexes, those industrial accident victims who were diagnosed to die of occupational incidents or occupational diseases among industrial accidents and those who received more than 4 days of medical care benefits were counted. Those workplaces that did not subscribe to the Industrial Accident Compensation Insurance were excluded from the study. In this study, the major industrial accident indexes were compiled by collecting data from medical care benefit applications submitted to Korea Workers’ Compensation and Welfare Service and from industrial accident

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