

The Current Status and the Future of Occupational Safety and Health in Korea

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Abstract: From the 1970s to 2000, the occupational accident rate in Korea showed a continuous decline. However, the rate has remained stagnant since 2000 even when the fatal injury rate has decreased 40% from that year. Injuries caused by being caught in objects have decreased while those caused by slips and falls on same level and falls from the height have increased. In 2010, the non-fatal injury rate per 100 employees was 0.63 while the fatal injury rate per 100,000 employees was 9.74. The construction industry accounted for 40.2% of all fatal injuries, and falls from the height caused 54.3% of the fatality. Musculoskeletal diseases accounted for 78.8% of the non-fatal occupational diseases while cardio-cerebrovascular diseases and pneumoconiosis are the two major fatal occupational diseases. Occupational diseases caused by chemical agents have decreased to 0.6% of all cases. However, there were several social disputes related to occupational diseases caused by low level of chemicals such as leukemia in a semiconductor company. Korea planned to reduce the fatal injury rate and total workday loss by 30% by 2015. In order to achieve this goal, the government will focus on vulnerable groups in collaboration with allies such as professional associations or organizations.

Key words: Korea, Occupational accident rate, Fatal injury, Occupational disease, Leukemia, Semiconductor, Vulnerable workers

Introduction

The Republic of Korea (Korea) is located in the southern part of the Korean peninsula, and is neighbored by China to the northwest. As of 2009, Korea has a total population of 48.9 million people – the world's 26th populous nation - with an area of 99,000 square kilometers. According to the World Bank in 2010, the Gross Domestic Product (GDP) was 1.014 trillion US dollars (USD), which ranked it the 13th in the world and the Gross National Income (GNI) per capita was 19,890 USD. The share of Korea in the global trade volume was 2.7%, which positioned Korea the 9th largest trading nation in the world.

In 2010, the number of economically active population was 24.5 million and 17.1 million people were wage earners. Of these wage earners, 61.2% were regular workers, 17.7% were time-limited contractors, 12.7% were atypical workers, and 8.7% were part-time contractors¹. The Industrial Accident Compensation Insurance (IACI) covered 14.2 million workers that include all paid workers as well as atypical workers, such as insurance salespeople, caddies, self-owned ready-mix truck drivers, and visiting teachers specializing in home-school materials². Other social security systems cover 1.5 million workers, including government employees, private teachers, and military personnel.

The proportion of employment in the manufacturing industry increased from 6.8% in 1960 to 19.7% in 2005 while that in the agriculture industry decreased from

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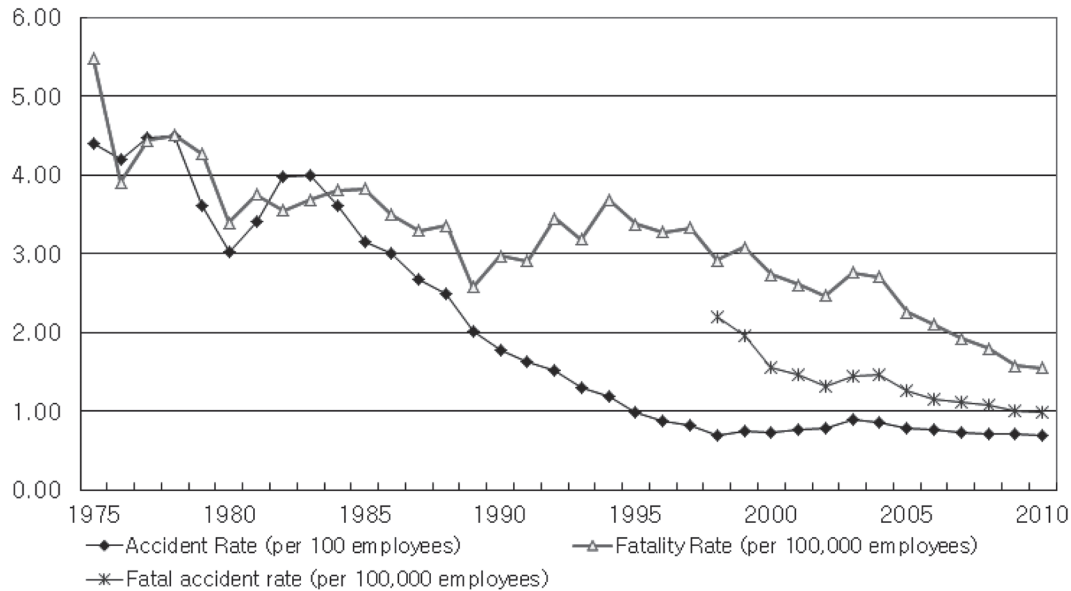


Fig. 1. The trend of occupational accident and fatality rate.

*Data from the Ministry of Employment and Labor, Korea.

65.9% to 10.4% in the same period¹⁾. It is interesting to note that the service industry has shown significant growth in recent years. In fact, the service sector has become the largest industry and accounted for 44.3% of the total employment in 2010²⁾. This was followed by construction and manufacturing industries, which accounted for 22.5% of employment each. Transportation, warehousing and information altogether made up 5% of the employment, while finance and insurance came next with 4.2%. Agriculture, forestry and fishing were responsible for 0.9%, utilities, gas and water supply made up 0.4%, and 0.9% came from the mining industry. The proportion of agricultural industry is relatively low because many workers in this industry are family-run and self-employed workers who are not covered by the IACI. In the service sector, the employees were comprised of health care workers at 6.2%, and building maintenance workers at 3.9%. Korea has a diverse manufacturing industry, which is comprised of electronics at 15.2%, machinery at 12.5%, automobiles at 11.7%, chemicals at 9.1%, non-metal products at 7.0%, metal products at 6.8%, food at 6.2%, shipbuilding at 5.6%, textiles at 5.5%, and electricity at 4.8%²⁾.

Occupational Injuries and Diseases in 2010

The official data for occupational injuries and diseases comes from claims of workers' compensation and reports

to the local authority of the Ministry of Employment and Labor (MOEL)³⁾. The proportion of reports from the local authority is usually less than 1% of all cases. The accident rate including occupational diseases decreased since 1970s. However, the rate remains stagnant since 2000, although the fatal accident rate excluding occupational diseases has continuously decreased (Fig. 1).

There were 89,459 cases of non-fatal injuries and 1,383 cases of fatal injuries including those caused by commuting accidents. As for occupational diseases, there were 6,896 cases of non-fatal and 817 cases of fatal cases²⁾. Injuries are divided into three categories: traumatic injuries (86.8%), non-traumatic injuries (8.4%) and injuries by traffic accidents including commuting (4.6%)⁴⁾. The types of events were slips and falls on same level (23.4%), being caught in objects (18.6%), falls from the height (15.5%), collisions (9.5%), cuts (8.8%), and being struck by flying or falling objects (8.7%). Non-traumatic injuries include burns (2.8%), injuries by overexertion (2.6%), injuries by sports activities (1.7%), asphyxias, animal bites, drownings, and violence. For non-fatal injuries, 34.1% of the cases occurred in the manufacturing industry, 34.3% in the service sector and 23.8% in the construction industry. For fatal injuries, falls from the height (32.8%) and traffic accidents (16.7%) were two major causes of fatal accidents. The construction industry accounted for 40.2% of all fatal injuries, and falls from the height caused 54.3% of the fatality²⁾.

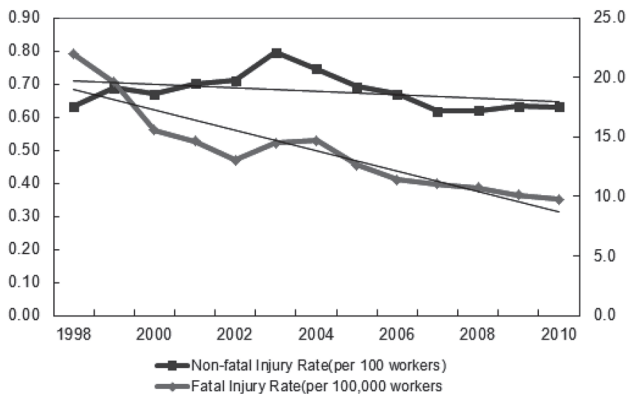


Fig. 2. The fatal and non-fatal injury rates by year in Korea.
Modified the figure of Kang and Kwon in Safe Health Work (2010).

Among non-fatal occupational diseases, musculoskeletal diseases (MSD) accounted for 78.8%. The share of pneumoconiosis was still at 7.6%, although most mines have already been closed. There were 266 cases of noise-induced hearing loss and 211 cases of infectious diseases. Occupational diseases caused by chemical agents have decreased to 0.6% of all cases. For fatal occupational diseases, most cases were pneumoconiosis (54.7%) and cerebro-cardiovascular diseases (CVD) (43.3%)². MSD and CVD have been the most common diseases compensated as work-related ones since the late 1990s^{3, 5}.

The limitation of the statistics based on workers' compensation data is the missing of possible cases that were not claimed for compensation, especially those of minor injuries and work-related diseases⁴. We believe that most cases of fatal injuries were filed because employers should bear extremely high expense for compensation unless the compensation claims were filed⁶. There are several evidences to explain this phenomenon. The non-fatal injury rate per 100 employees was 0.63 while the fatal injury rate per 100,000 employees was 9.74⁶. The non-fatal injury rate is too low compared to many European countries while the fatal injury rate was too high⁷. The phenomenon is also reflected in the period of treatment as more than 85% of the cases required treatments for more than 30 d³. This means that many cases of minor injuries were not filed.

Action for Improving Statistics

The major problem of the existing accident rate is that it does not reflect the effect of prevention activities. The accident rate has been stagnant for the last 10 yr although

the fatal injury rate has decreased 35% in the same period (Fig. 2)⁶.

Korea has taken two-pronged action to cover the limitation. One is adopting diverse injury statistics in order to focus on the prevention of severe injuries such as from a single index of the accident rate to more indices of fatal injury rate, total loss by days away from work, and non-fatal injury rate⁴. For occupational diseases, new indicators will be developed for the purpose of prevention. The other is to get more accurate injury rate using a survey or surveillance system⁴. The actual injury rate can be estimated as 1.9 per 100 employees from the 2nd Working Condition Survey⁸) and 1.9 from the 4th Korean National Health and Nutrition Examination Survey⁹). They are nationwide household surveys, which can avoid the reluctant tendency of workers for describing their injuries as work-relatedness. The injury rates have been reported approximately 2.0 per 100 employees, which is 3 times higher than the official statistics. A surveillance system through emergency care unit has established since 2010 to get information of work-related injuries because most injuries are being managed at the emergency room. The disease-oriented surveillance system has been performed since 2000, in order to improve the report of occupational diseases, such as asthma, occupational cancer, mesothelioma and cerebro-cardiovascular diseases¹⁰.

Organizations and Activities for OSH

The responsibility for OSH in Korea belongs to MOEL. The MOEL has the Office of Prevention and Compensation for Occupational Accidents and Diseases, with five subsidiary departments. Apart from the MOEL, there are two semi-government agencies for prevention and compensation. The Korea Occupational Safety and Health Agency (KOSHA) is responsible for the prevention and the Korea Labor Welfare Corporation (COMWEL) is responsible for the compensation⁶. KOSHA was established under the KOSHA Act and is funded by the Prevention Fund, which was raised from 8% of the compensation fund by the law.

The activities of KOSHA are divided into three categories: direct activities at workplace, subsidies to OSH agencies for supporting their prevention activities and to enterprises for installing safety devices and changing work environment, and loans for purchasing safety system and equipment.

Direct activities are accident investigations, programs for supporting risk assessment, technical assistants, cer-

tification of OSH management system, and providing information with multi-media materials, leaflets, pamphlets, and etc. Education to workers and OSH professionals is also provided upon request. Efforts for increasing awareness on OSH and safety culture are being done through TV campaign, advertisement and posters. KOSHA's activities focus on small-sized enterprises with less than 50 employees, where the requirement of hiring OSH professionals is exempted by the law, especially workplaces with vulnerable people such as aged, women, migrant, irregular workers and workers with risk factors. OSHRI, a research institute, not only conducts its own research but also provides funding to academia. OSHRI performs epidemiologic investigation for occupational diseases, the quality control programs for occupational health service agencies, testing and certification for safety machine and equipment, while producing OSH statistics and providing specialized training and education for professionals.

Challenges

The activities for preventing occupational injuries and diseases have been successful in Korea⁴. The accident rate and fatality rate decreased dramatically in the last two decades. However, the recent achievement is not visible because of the inaccuracy of the accident rate⁶. The fatal occupational injury rate is still higher than that of most EU countries⁷. New statistic indicators will be substituted to provide the information on the achievement of prevention activities.

OSH activities have been concentrated exceedingly on the manufacturing industry until 2010. Most budget and staff have been allocated to the manufacturing industry for a long time⁴. However, as of 2010, more than 40% of occupational injuries and diseases occur in the service sector. The fatal injury rate is especially high in the construction industry². Thus, the activities for the construction and service industries were reinforced. The organization structures of front-line agencies were re-structured from a function-based one to sector-based one.

There were several social disputes related to occupational diseases caused by exposures to low level of chemicals. The deaths by cardiovascular disease increased in a tire manufacturing company. Chemicals and nanoparticles were suspected as causative agents, but there was no possible association between increased deaths and the exposure¹¹. It was probably caused by inadequate management of workers who had pre-existing health conditions such as hypertension and/or hyperlipidemia.

Leukemia occurred in a semiconductor manufacturing site grabbed the attention of national and international professionals for its work-relatedness¹². However, the incidence of leukemia did not statistically increase in workers of semiconductor industry in a large scaled epidemiology study¹³. The detailed work environment measurement did not find any significant exposure to carcinogens¹⁴. It is a problem of the insecure social security system rather than work-relatedness, although NGOs still insist the relationship between leukemia and the work.

The Future

Several action plans are being conducted to improve OSH. The high rate of fatal occupational injury is to be firstly overcome within the next few years. Special attention will be given to the construction and transportation industries where fatal injuries are common. Also, it is planned to reduce the fatal injury rate and total workday loss by 30% by 2015. The voluntary action for risk assessment is highly recommended to reduce danger and hazard at work. The technical services and subsidies will be focused on enterprises where voluntary risk assessment is taken. The current work environment is very different from the past. High exposure to chemicals or hazardous agents is extremely rare. Thus, the major concerns are preventing health effects caused by low level, long-term exposure, work stress or new hazards, and improving working conditions of vulnerable population such as aged, women, migrants and atypical workers. The Workers' Health Center where OSH service is provided to workers in small-scaled enterprises will be expanded from 3 centers in 2011 up to 23 ones by 2015.

The achievement on OSH in the enterprise level will be included in the evaluation process of public agencies. The occupational injury rate of the agencies including subcontractors will be added to calculate the annual corporate performance score by the government. We anticipate that this will enhance the OSH activities of public corporations. OSH services by the public agencies cannot be reached to all enterprises that are more than one and a half millions because of limited human resources. Therefore, KOSHA has taken a strategy to make an agreement with employers', workers' and professional associations, local governments, conglomerates, and the headquarters of corporates to reach all of them.

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