



Compensation for Occupational Injuries and Diseases in Special Populations: Farmers and Soldiers

Young-Jun Kwon¹ and Soo-Jin Lee²

¹Department of Occupational and Environmental Medicine, Hallym University Sacred Heart Hospital, Anyang; ²Department of Occupational and Environmental Medicine, Hanyang University College of Medicine, Seoul, Korea

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Address for Correspondence:

Soo-Jin Lee, MD

Department of Occupational and Environmental Medicine, Hanyang University College of Medicine, 222 Wangsimni-ro, Seongdong-gu, Seoul 133-791, Korea
Tel: +82.2-2290-9292, Fax: +82.2-2220-0664
E-mail: sjlee@hanyang.ac.kr

Some types of workers such as farmers and soldiers are at a higher risk of work-related injury and illness than workers from other occupations. Despite this fact, they are not covered under the Industrial Safety Health (ISH) Act or the Industrial Accident Compensation Insurance (IACI) Act. The Safety Aid System for Farmers (SASF) is a voluntary insurance scheme, and it is the only public compensation plan for self-employed farmers. Fifty percent of SASF premiums are subsidized by the Korean government. Soldiers are compensated by the Veterans' Pension (VP) Act. The approval standard of and procedure for the VP Act are provided in the Decree of VP Act, and the Council for VP Benefits determines work-relatedness in the claimed cases. Meanwhile, SASF applies the insurance clause automatically without any expert advice or additional procedures. Furthermore, compared with IACI, these programs pay fewer benefits to workers. Thus, a stronger institutional strategy is needed to maintain a safe work environment, to protect workers' health in unavoidably hazardous environments, and to compensate for work-related injuries and diseases.

Keywords: Compensation; Occupational Diseases; Farmers; Soldiers

INTRODUCTION

In Korea, almost all businesses and workplaces with one or more workers have a comprehensive occupational safety and health system (OSH system) for preventing industrial accidents and establishing a healthy and safe work environment. The key points of the OSH system in Korea are based on the Labor Standards Act (LSA), the Industrial Safety and Health (ISH) Act, and the Industrial Accident Compensation Insurance (IACI) Act.

Since the LSA, IACI, and ISH Acts were established in 1953, 1963, and 1982, respectively, Korea has made remarkable improvement in the area of occupational safety and health. These laws have benefited workers through improved regulation of the working environment, monitoring of work-related injuries and diseases, and ensuring regular medical examinations and compensation for industrial accidents.

Unfortunately, some workers have been excluded from eligibility under the current ISH and IACI Acts. Workers employed by businesses in the fields of agriculture, forestry, fishery, and hunting that are run by non-corporate entities with less than five full-time workers are not covered by these laws nor are those working in construction on a project valued at less than KRW 20 million (US\$17,300.00, 1,150 KRW equivalent to 1 US\$). In addition, self-employed farmers, civil servants, teachers, soldiers, and self-employed, unpaid family workers are not included in either act (Article 3, Enforcement Decree of the IACI

Act). Those workers not covered by IACI may be covered for accident compensation under the Civil Servant Pension Act, Veterans' Pension (VP) Act, Seamen's Act, Accident Compensation for Fishermen and Fishing Vessels Act, or Private School Faculty and Personnel Pension Act. They are not compensated for any industrial accident; however, they are compensated following a different approval standard and procedure than those for workers eligible under the IACI Act.

This article reviews the current system of occupational safety and health for farmers and soldiers in Korea, including the worker compensation system and potential future challenges.

OCCUPATIONAL DISEASE COMPENSATION FOR FARMERS

Occupational safety and health system in the agricultural sector

In 2011, 2,962,000 individuals from 1,163,000 households, with an average of 2.55 members per household, were involved in agriculture; of these, only 1.4% (40,017) were covered under IACI (Table 1) (1), while the remaining 98.6% (2,921,983) were ineligible (2). As mentioned above, IACI is not applicable to agricultural households (self-employed farmers).

Korea has three major insurance programs to cover farmers' injuries and diseases: IACI, Safety Aid System for Farmers (SASF), and National Health Insurance (NHI) Program. IACI is the only

Table 1. Coverage of industrial accident compensation insurance by year and industry (2010-2011)

Industries	2010		2011	
	Workplaces	Workers	Workplaces	Workers
Total	1,608,361	14,198,748	1,738,196	14,362,372
Finance and insurance	35,257	579,275	36,812	624,816
Mining	1,117	12,548	1,029	12,088
Manufacturing	269,630	3,196,182	285,993	3,333,131
Electricity, gas, and water supply	1,173	54,080	1,485	54,759
Construction	221,617	3,200,645	283,861	3,087,131
Transport, warehouse, and communications	46,264	711,094	48,640	719,488
Forestry	7,540	77,232	8,715	93,814
Fishery	942	3,212	1,046	3,378
Agriculture	5,462	46,663	6,311	40,017
Others	1,018,621	6,295,455	1,064,304	6,393,750

Data from Ministry of Employment and Labor. 2011 Annual Report on Industrial Accident Compensation Insurance (Reference: 1).

Table 2. Comparison between Safety Aid System for Farmers and Industrial Accident Compensation Insurance for Workers

	Safety Aid System	Industrial Accident Compensation Insurance
Subject for application	Farmers in the age group of 15-84 yr	Employed workers
Forcibleness for insurance	Voluntary insurance	Compulsory insurance
No. of members in 2011	816,000	1,738,196 workplaces, 14,362,372 workers
Financial burden	50% by the government and 50% by farmers	100% by employer
Benefits	Treatment benefits: up to the maximum ₩1.5 million with deduction of ₩100,000 Hospitalization benefit: ₩20,000 a day up to a maximum of 120 days Operation benefits: only for WMSDs with ₩300,000 per case Diagnosis benefits: only for certain infectious diseases with ₩300,000 per case Survivors' benefits: ₩50 million in case of death Disability benefits: up to a maximum of ₩50 million	Medical care benefits, Wage replacement benefits, Disability benefits, Nursing benefits, Survivors' benefits, Injury-disease compensation annuity, Funeral expenses, Vocational rehabilitation benefits

worker compensation system available to almost all citizens with the exception of special populations such as government officials, soldiers, educational staff members at private schools, self-employed individuals, and temporary contract workers. Insurance premiums are paid by the employers. This insurance program covers eight types of medical and indemnity costs for work-related injuries and illnesses sustained by workers, including wage replacement, nursing, disability, and funeral expenses. However, this insurance program is applicable only to large businesses or workplaces with five or more employees. As a result, self-employed Korean farmers are not eligible under IACI (Table 2).

SASF is a supplemental insurance system for farmers. The Korean national government subsidizes 50% of the insurance premium for this program and pays medical expenses for work-related injuries and illnesses. Despite government subsidy, the majority of farmers do not have this insurance due to economic privation or perceived lack of necessity. In 2011, approximately 816,000 farmers (27.5% of the agricultural population) joined this program. In comparison with IACI, however, SASF pays a lower amount or, in some cases, provides no insurance benefit for work-related injury and illness to farmers covered by the program. For instance, SASF pays four types of medical costs.

The first type includes medical care costs due to occupational diseases (ODs). It only pays for expenses not exceeding KRW 1.5 million, and it deducts an amount of KRW 100,000. The second is hospitalization costs, wherein SASF pays KRW 20,000/day up to a maximum of 120 days. The third covers operation costs of up to KRW 300,000 per case for work-related musculoskeletal disorders only. The fourth covers costs of up to KRW 300,000 per case for the diagnosis of specific infectious diseases prevalent among farmers, such as the tsutsugamushi disease, leptospirosis, and hemorrhagic fever with renal syndrome. Furthermore, SASF pays KRW 50 million to designated beneficiaries in the case of a worker's untimely demise and up to a maximum of KRW 50 million as disability benefits. However, the level of coverage is relatively lower than that under IACI. Furthermore, SASF does not pay wage replacement benefits or benefits for expenses associated with nursing or rehabilitation, both of which are covered under IACI (Table 2).

Finally, the NHI program covers all Korean citizens, including farmers. This program pays approximately half of all medical expenses for any injury or illness to eligible program participants. Although this program plays an important role as a social safety net, many farmers suffering from injuries and illnesses are burdened by medical costs that exceed NHI's coverage limit.

Work-related injuries and diseases among farmers

Agriculture is considered as one of the most hazardous industries for workers all over the world. Farmers have a higher risk of work-related injury and illness than workers of most other occupations (3).

Work-related injury and fatality

Work-related injury is one of the most important health issues that workers have to deal with nowadays. Furthermore, thus far, the injury rate among farmers in Korea has not been given appropriate attention because most farmers had no insurance plans or were covered by a different compensation system (e.g., SASF), thus leading to a lack of regional or national data. Only a few studies have been conducted on farming-related injuries in Korea using different data sources, which provided incomprehensible and unreliable information on the true number of injuries.

Depending on the source of statistics, Korea's agricultural injury rate varies from 16.7 to 43.0 per 1,000 persons or person-years, and the fatal injury rate ranges from 30.6 to 33.0 per 100,000 persons (Table 3) (4, 5).

In 2011, the IACI program for industrial accidents compensated claimants for 93,292 industrial accidents, which included 84,662 injuries, 6,516 diseases, and 2,114 deaths. The incidence and mortality rates were 0.65%, and 14.7/100,000 persons, respectively. Work-related accidents in the agricultural industry occurred at a rate of 22.8 per 1,000 persons, which was 3.5 times higher than that of all industries in 2011. It was considered the second highest after mining (91.3), followed by forestry (21.2), fishery (14.4), and manufacturing (9.7). In addition, in 2011, the severity rate in agriculture was 8.3, which was 4.6 times higher than 1.8, the overall accident rate across industries. These data show that work-related accidents are a common occurrence among farmers, and farmers suffer more serious and fatal accidents than workers of other occupations (Fig. 1) (1).

In addition, IACI data from 1998 to 2001 showed that the fatal

occupational injury rate for agriculture, forestry, and fishing employees was 33.0 cases per 100,000 persons. This rate was 1.5 times higher than that in the United States (6).

IACI data have some limitations: they cover only a limited number of farms with five employees or more, which includes 40,017 farmers, or approximately 1.4% of the 2011 Korean agricultural population (1). This suggests that large-scale farms with relatively good working conditions are more likely to be included in the compensation data. As a result, the frequency of farm-related injuries may be underestimated because small workplaces generally have relatively poor working conditions and a higher OD risk.

Data from the 4th Korea National Health and Nutrition Examination Survey (KNHANES IV), which was conducted from 2007 to 2009, revealed that the annual injury rate among agricultural and fishery workers was 4.3%, which ranked as the second highest among all occupations after industrial plant and machine operators (6.2%) (7).

A study conducted by the National Institute of Agriculture Engineering (NIAE) reported a machinery-related injury rate of 0.33 per 100 machines. The NIAE data included 20,102 farmers from 300 rural villages across the country; they were selected via stratified cluster sampling. The most common machines in-

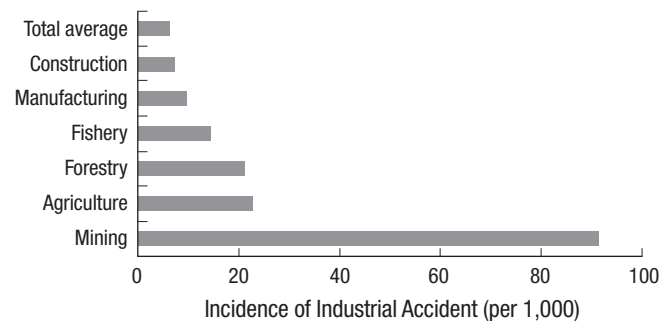


Fig. 1. Incidence rate for industrial accidents in leading industries in 2011. Data from Ministry of Employment and Labor 2011 Annual Report on Industrial Accident Compensation Insurance (Reference: 1).

Table 3. Incidence rate of work-related injuries and mortality among farmers in Korea

Author (yr)	Study design	Study population	Findings
MEL (2012)	Analysis of claim data	Data from Industrial Accidents Compensation Insurance (IACI) claims, 2011.	Accident rate of total industries: 6.50 per 1,000 persons, Accident rate in agriculture: 22.79 per 1,000 persons
Lee et al. (2012)	Analysis of claim data	Data from the Safety Aid System for Farmers (SASF). 702, 000 farmers in 2005	Agricultural injury rate: 16.67 per 1,000 person-years (male: 18.06; female: 12.76) in 2005 Agricultural mortality rate: 30.59 per 100,000 person-years (male: 38.27; female: 9.04) in 2005
Jung et al. (2011)	Cross-sectional, Stratified multistage probability sample	Data from the KNHANES IV*: 1,632 agricultural & fishery workers among 10,062 workers	Occupational injury rate: 4.3%
NIAE (2009)	Cross-sectional, Stratified cluster sample	20,102 farmers (9,656 males and 10,446 females) from 300 villages across the country in 2008	Farming-machinery injury rate: 0.33 per 100 machines (power tillers: 0.82; combine harvesters: 0.37; tractors: 0.31)
Ahn et al. (2004)	Analysis of claim data	Data from National Industrial Compensation Insurance (NICI) claims, 1998-2001.	Unintentional fatality rate: 33.0 per 100,000 persons in the industries of agriculture, forestry, and fishing

*The 4th Korea National Health and Nutrition Examination Survey (2007-2009). MEL, Ministry of Employment and Labor; NIAE, National Institute of Agriculture Engineering.

volved in these accidents were power tillers (0.82 per 100 machines), followed by combine harvesters (0.37), and tractors (0.31). The injury rate among older farmers was higher than that among younger farmers. Furthermore, 70.7% of all accidents involved farmers aged 60 yr or more. The highest number of injuries (52%) occurred during spring (April-July), followed by the harvesting season (October-November). Approximately 49% of all accidents were caused by operator negligence, 26% by unskilled operators, and 17% by conducting farm work in unsuitable locations such as a driving a tractor on a narrow, winding, or steeply inclined farm road (5).

In addition, machines with insufficient safety devices were considered one of the underlying risk factors for farm-related injuries. In addition, unsafe behaviors among Korean farmers such as a high rate of driving while drunk and the lack of safety helmet or seatbelt use have been indicated as an important risk factor. Other characteristics of Korean agriculture including a high proportion of older farmers, low levels of education and self-employed farmers, and smaller farm sizes have also been identified as important risk factors (8, 9).

Lee et al. (10) reported a 2005 agricultural injury rate based on data from SASF, which was the only public compensation plan for self-employed farmers in Korea. In this report, the annual incidence of agricultural injuries and fatalities was 16.67 and 30.59 per 100,000 person-years, respectively. The leading cause of death was farm machinery accidents for males (35.6%) and transport accidents by non-farm vehicles for females (23.5%). Transport accidents by a farm vehicle were the second most common cause of death for males (23.3%) and females (17.7%). Other common causes of death for females were machinery-related incidents (17.7%) and fall-related injuries such as slipping, tripping, or falling from a higher ground or falling while being carried or supported by other persons (17.7%). The top leading causes of non-fatal injuries were farm machinery accidents (45.3%) and fall-related injuries (21.1%) for males, and fall-related injuries (45.4%) and farm machinery accidents (25.1%)

for females (Table 4).

The SASF data are also limited in that they account for only work-related injuries involving compensation costs greater than KRW 100,000 (about USD 90) or those that require hospitalization for four days or more. This suggests that only severe injuries incurring higher medical costs such as large lacerations or fractures were included in this data. Therefore, the frequency of farm-related injuries may be underestimated in the SASF data.

Work-related disease

Farmers are at a high risk for a variety of work-related diseases such as musculoskeletal disorders, pesticide poisoning, respiratory diseases, dermatologic diseases, infectious diseases, and certain cancers associated with chemical use and sun exposure. Many of these diseases are caused by the nature of farm work, condition of tools and equipment, type of production method, or exposure to chemicals (11-14).

There are quite a few accurate statistics on the compensated cases of work-related diseases among Korean farmers. Therefore, the magnitude and the nature of these diseases are remotely obscured in Korea.

Data from the Workers' Compensation and Welfare Service (COMWEL), which operates the IACI program, showed that 667 cases of work-related diseases among agricultural and forestry workers were compensated under the IACI program from 1998 to 2005. Of these, 445 cases were reported by forest workers and only 181 cases (27.1%) were reported by farmers. The most common diseases among farmers were musculoskeletal disorders (44.8%, 81 cases), including lumbar intervertebral disk herniation (36 cases), lumbar sprain (26 cases), various types of shoulder diseases (6 cases), and carpal tunnel syndrome (4 cases). There were 42 cases of cerebro-cardiovascular diseases, which were listed as the second most common work-related diseases. Among ODs, the most common was infectious disease (24 cases), which included scrub typhus (19 cases), hemorrhagic fever with renal syndrome (3 cases), and leptospirosis

Table 4. Causes of agricultural deaths and injuries

Causes	Death		Injury	
	Male	Female	Male	Female
	No. %	No. %	No. %	No. %
Injuries to body parts	0 (0.00)	0 (0.00)	329 (3.45)	115 (4.79)
Transport accidents by agricultural vehicles	47 (23.27)	3 (17.65)	785 (8.24)	103 (4.29)
Other transport accidents	34 (16.83)	4 (23.53)	695 (7.29)	148 (6.17)
Falls	26 (12.87)	3 (17.65)	2,010 (21.09)	1,089 (45.39)
Machinery	72 (35.64)	3 (17.65)	4,321 (45.33)	601 (25.05)
Various animals	3 (0.15)	2 (11.76)	279 (2.93)	90 (3.75)
Struck, crushed, or injured by the entry of a foreign body	5 (2.48)	0 (0.00)	690 (7.24)	139 (5.79)
Poisoning	3 (1.49)	0 (0.00)	37 (0.39)	8 (0.33)
Other accidents	12 (5.94)	2 (11.76)	386 (4.05)	106 (4.42)
Total	202 (100.00)	17 (100.00)	95.32 (100.00)	2,399 (100.00)

Reference: 10.

(1 case). This was followed by skin diseases (20 cases) and chemical intoxication (4 cases). The most frequently reported skin disease was contact dermatitis (80%, 12 cases), and the most common causative agents were animal allergens (45%, 9 cases), including bees or other insects, and plant allergens (10%, 2 cases) such as Rhus or lacquer trees (15).

Future challenges for occupational safety and health development in the agricultural sector

Currently, limited information is available on compensated work-related injuries and diseases among farmers in Korea. It seems clear that most Korean farmers have suffered or are suffering from a number of occupational health problems. In addition, many farmers in Korea are self-employed and are not eligible for coverage under ISH and IACI. This suggests that approximately 98% of Korean farmers do not benefit from a number of regulations concerning the management of the working environment, monitoring of occupational injury and disease, regular health examinations, and compensation for work-related accidents. Although a few farmers who joined SASF have been compensated for work-related accidents, their occupational safety and health service benefits are minimal compared with the benefits provided to workers covered by IACI.

There is an urgent need for an institutional strategy for improving farmer safety and health in Korea. First, the ISH Act needs to be extended to all farmers. Second, farmers suffering from work-related injury or disease must be compensated by workers' compensation insurance. This means that rather than being covered or compensated under pre-existing standards or acts such as the ISH and IACI, farmers should be covered by a new or modified compensation system that considers the unique characteristics of Korean farmers and their work. Third, a nationwide monitoring system with up-to-date reports of any major work-related injuries and diseases should be established.

Some important points to consider while developing a new compensation system for work-related injuries and diseases among Korean farmers are as follows: First, most farms in Korea are run by self-employed farmers or members of family farms. In other words, almost all Korean farmers are employers as well as self-employed employees. As a result, there are questions regarding the payer of insurance premiums and the beneficiary of compensation. This makes it difficult to directly apply the IACI compensation rule when creating a new insurance system for farmers. In the IACI program, employees suffering from a work-related injury or disease are compensated according to the principle of liability without fault, and the employers or the owners pay for all the insurance premiums.

Second, the agricultural industry in Korea is composed mainly of low-income individuals working on small-scale farms. Thus, some farmers cannot afford to pay insurance premiums for industrial accidents. Moreover, many farmers are not interested

in getting insurance for industrial accidents. Therefore, it is important to consider issues such as eligibility of the person getting insurance (i.e., compulsory versus voluntary insurance) and affordable insurance premium. Considering that agriculture is one of the most hazardous occupations and that most Korean farmers are low-income workers vulnerable to work-related safety and health issues, the authors believe that compensation for work-related injuries and diseases should be viewed as social insurance with compulsory subscription and it should be subsidized financially by the government. In order to lessen the associated moral hazards, farmers should share a designated percentage of the insurance costs within reasonable and affordable limits.

Third, the scope and specific criteria for OD recognition among farmers may differ from those for OD recognition among workers of other occupations under IACI. The International Labor Organization (ILO) defines OD as a disease contracted because of exposure to risk factors arising from work activity. IACI defines the work capable of causing OD as any work under employer control, except for a few controversial cases (e.g., commuting accidents). When an employee sustains an injury or disease from an accident or mishap during the course of normal work duties or within the premises of a workplace, IACI readily approves it as an industrial accident caused by work performed under employer control. An OD in farmers can be defined as a disease that arises from or is aggravated by farm work. However, when determining whether a farmer's disease is work-related, the time and place in which the farmer performed the associated tasks should be given greater consideration. Farmhouses are very close to farms, and many farm activities such as maintenance and repair of farm machines and storage of agricultural products are performed in a backyard or warehouse adjacent to or within a farmhouse. Therefore, it is often difficult to define a farmer's working hours, unlike employees who are under the control of an employer.

OCCUPATIONAL DISEASE COMPENSATION AMONG SOLDIERS

Occupational safety and health system of military sector

Military personnel are employed in all occupations normally seen in the industrial setting but are also exposed to uniquely stressful situations, including increased workload and unusual work cycles. Because of this, many standard industrial hazards are combined with stressors that are unique to the military. These stressors may also contribute to increasing the severity of toxicants normally considered low risk (16). This unique work environment creates a need for a safety and health system specific to military personnel. As a rule, the IHS Act has been applied to civil servants and military personnel. However, depending on the type and size of the business and taking into account the

Table 5. Comparison criteria for recognition of work-related injuries and diseases

Categories	IACIA	POPA	AHTS	VPA
Definition of work-related injuries and diseases	○	×	○	×
Work-relatedness: Proximate causal relationship	○	○	○	×
Injuries and diseases are divided	○	○	○	×
Standard for recognition of injuries due to self-harm	○	×	○	×
List of work-related diseases	○	×	○	×
Specific standard for recognition of work-related diseases	○	×	×	×

Data from Ministry of National Defense. A study on occupational diseases recognized standards of veterans' pension act. (Reference: 18). IACIA, Industrial accident compensation insurance act; POPA, Public officials' pension act; AHTS, Act on the honorable treatment and support of persons, etc. of distinguished services to the state; VPA, Veterans' pension act.

level of risk, only some provisions are applicable. Recently, a military safety and health directive instructed the Ministry of National Defense to revise (17), which included changes to the working environment, medical examinations, and health education. The military safety and health system is still in the early stages, and an accurate evaluation is thus not possible.

Compensation system for work-related injuries and diseases in the military sector

The compensation of military personnel for work-related injuries and diseases is regulated by the Veterans' Pension (VP) Act. The VP Act is intended for voluntary officers ranking higher than a petty officer; soldiers and military cadets are excluded. The compensation includes disability benefits, survivor benefits, and expenses for medical care if wounded in the line of duty. The VP Act is similar to the IACI, except that the VP Act does not include vocational rehabilitation and nursing benefits.

The specific criteria for the recognition of injuries and diseases among soldiers on public duty are regulated by the Decree of VP Act, Article 4. Injuries and diseases are classified into one of the following eight categories: radiation exposure, burns, frostbite, exposure to noise, disease due to ingestion of toxic substances, disease caused by an accident, disease caused when on special duty, and previously existing diseases exacerbated by performance of duties. These criteria only include certain types of exposure encountered while on duty and do not consider various other types of exposure. It is also difficult to apply these criteria to the exacerbation of a previously existing disease due to the use of ambiguous terms such as special duty, consecutive night shift, and other official overtime work. In addition, there are no criteria for general diseases without any clear medical cause for pathogenesis, such as chronic diseases and malignant neoplasms. The decree states that detailed criteria will be set by the Ministry of National Defense, but there are no other ordinances (Table 5) (18).

The Council for VP Benefits decides whether an injury or disease occurred while on public duty. The Council consists of a maximum of seven members, all of whom are employees of the Ministry of National Defense and are appointed by the Secretary of Defense. External specialists were not appointed until

Table 6. Retired soldiers and pension entitlements in recent 5 yr (Unit: person)

Year	Retired soldiers	Retired pensioner	Survivor pensioner	Disability pensioner	Total pension entitlements (KRW million)
2008	19,122	53,713	15,417	1,129	1,938,916
2009	16,944	55,766	16,019	1,149	2,056,942
2010	20,776	57,906	16,590	1,181	2,206,821
2011	18,172	59,648	17,271	1,184	2,354,500
2012	19,936	61,200	17,881	1,181	2,545,008

Data from Ministry of National Defense. Annual Report of Statistics on Veterans' Pension 2012. (Reference: 19).

2011, despite regulations stating that the Minister can appoint external specialists from the medical or legal fields if necessary. However, external specialists were appointed starting from 2012, and the Council currently includes three external members. In the Workers' Compensation Insurance (WCI) system, ODs are approved through deliberation meetings of the Committee on Occupational Disease Judgment (CODJ), and with the exception of the Chairman, all members are external specialists. Thus, there is a clear difference between the Council for Veterans' Pension Benefits and CODJ.

During the last five years, approximately 20,000 soldiers have retired. The number of recipients of survivor benefits, those compensated when a retired beneficiary dies and those compensated when a beneficiary dies of accident or disease on public duty, is increasing, with 17,881 recipients in 2012. In addition, in 2012, there were 1,181 recipients of disability benefits, i.e., those compensated due to a disability resulting from injury or disease while on public duty. In 2012, the total pension entitlement was KRW 2.54 trillion, government subsidies were KRW 1.25 trillion, and the ratio of government subsidies to total pension entitlement was 49.1% (Table 6) (19).

Compensated work-related injuries and diseases among soldiers

The number of cases seeking compensation for injury or disease incurred during public duty peaked in 2010 with 661 cases. After 2010, this number declined to 397 cases in 2012. In 2012, there were 209 cases (52.7%) of compensation related to medical benefits, which was higher than compensation related to

Table 7. Approval status according to the type of benefits

(Unit: No., %)

Year	Survivor pensions			Disability pensions			Medical care costs			Total		
	Judge	App.	App. rate	Judge	App.	App. rate	Judge	App.	App. rate	Judge	App.	App. rate
2008	44	33	75.0	83	74	89.2	295	280	94.9	422	387	91.7
2009	40	30	75.0	54	46	85.2	416	404	97.1	510	480	94.1
2010	63	52	82.5	77	67	87.0	521	516	99.0	661	635	96.1
2011	48	36	75.0	57	38	66.7	461	356	77.2	566	430	76.0
2012	79	45	57.0	109	51	46.8	209	94	45.0	397	190	47.9

Data from Ministry of National Defense. Annual Report of Statistics on Veterans' Pension 2012. (Reference: 19). App., Approval; App. Rate, Approval rate (%).

Table 8. Approval status according to the diseases

Disease	2010			2011		
	Judge	App.	App. rate	Judge	App.	App. rate
Liver	11	11	100.0	9	4	44.4
Br hemo	14	14	100.0	15	10	66.7
Diabetes	6	6	100.0	4	1	25.0
MI	21	21	100.0	18	14	77.8
Cancer	151	151	100.0	112	78	69.6
GI	19	19	100.0	19	13	68.4

Data from Ministry of National Defense. A study on occupational diseases recognized standards of veterans' pension act (Reference: 18). App., Approval; App. Rate, Approval rate; Br hemo, Brain hemorrhage; MI, Myocardial infarction; GI, Gastrointestinal disease.

disability benefits or survivor benefits. The approval rate for all benefits peaked in 2010 at 96.1%, up from 90% in the previous years. However, this same rate then decreased dramatically to 76.0% in 2011 and 47.9% in 2012. This decrease in the overall approval rate was primarily due to a large decrease in the approval rate for medical benefits. Approval rates for survivor benefits and disability benefits decreased at a rate equal to each other, but at a less dramatic rate than the approval rate for medical benefits (Table 7) (19).

Regarding the approval rate for diseases, almost all diseases were compensated in 2010. In 2011, the approval rates were as follows: 25.0% for diabetes, 44.4% for liver diseases, 66.7% for non-traumatic intracranial hemorrhage, 69.6% for malignant neoplasm, 68.4% for gastrointestinal disease, and 77.8% for ischemic heart disease, indicating that the number of unapproved cases is increasing. As of the date of publication of this paper, the approval rates for 2012 are not available. However, because the overall approval rate decreased in 2012, it is likely that the approval rates of individual diseases also decreased (Table 8) (18).

Issues and improvements related to the military sector compensation system

Retirement pension beneficiaries comprise a large portion of the overall pension beneficiaries, but beneficiaries of survivor pensions and disability pensions are increasing as well, as is the total number of pension entitlements. This current rate of increase is expected to be higher than that in the past. In addition,

the ratio of government subsidies to total pension entitlements has reached almost 50%, thus increasing the public burden.

The approval rate of compensation for injury and disease while on public duty was greater than 90% until 2010. This is likely because the standards cover all cases that occur while on public duty. Therefore, diseases that occurred while on public duty were approved without considering whether they were related to military service. In 2012, the approval rate of compensation for injury and disease while on public duty decreased to 47.9%. This type of decrease is typically due to changes in the criteria of recognition or changes in the deliberation system. The criteria of recognition have not changed recently, which suggests that the decreased rate of approval is probably because of the changes in the deliberation system due to the addition of external specialists. Although the participation of external specialists can have a positive impact, special circumstances such as the working conditions in military service and training must be considered during deliberation; this will only happen if it is specifically mandated in the detailed criteria. As with the IACI Act and other related laws, the VP Act should be amended and supplemented as follows: define official accidents of military officers; define the degree of work relatedness; clearly differentiate between accidents and diseases; add articles against intentional incidents, self-injury, and criminal acts; and provide specific criteria for diseases that may be contracted while on duty.

SUMMARY

All industrial sectors in Korea, with the exception of a few special populations such as farmers, have comprehensive occupational safety and health plans. Health and safety plans for non-agricultural workers and workplaces have been instrumental in preventing work-related injuries and illnesses and in creating healthy and safe work environments in Korea. Unfortunately, the agricultural sector is often excluded from these health and safety plans.

Agriculture is considered one of the most hazardous industries in the world, and farmers are at a higher risk of work-related injury and illness than people from many other occupations. Most work-related injuries and illnesses among Korean farmers are not under the jurisdiction of the ISH and IACI. Consequent-

ly, many farmers suffer from work-related injuries and illnesses leading to physical pain, financial hardship, and loss of work. The agricultural sector clearly needs an improved management and supervision system for ensuring the occupational safety and health of farmers and their workplaces. The situation calls for an institutional strategy for maintaining a safe working environment, protecting farmers' health, and compensating for work-related injuries and diseases, similar to the strategy already in place under the ISH and the IACI Acts. Korean agricultural workers typically work in smaller workplaces, and they are older, less educated, and poorer, and have a lower income than workers from other industries. In addition, farmers are typically self-employed and lack awareness regarding occupational safety and health. These features are unique to Korean agriculture and should be considered when developing new occupational and safety plans that include compensation for farming-related injuries and diseases.

Until 2010, the approval rate for soldiers suffering from injury or disease while on public duty was greater than 90%. This is likely because the current standards cover all cases that occur on public duty. Therefore, diseases that occurred on public duty were approved without considering whether they were related to military service. As with the IACI Act and other related laws, the VP Act should be amended and supplemented as follows: define the official accidents of military officers; define work-relatedness; clearly differentiate between accidents and diseases; add articles against intentional incidents, self-injury, and criminal acts; and provide specific criteria for diseases that may be contracted while on duty.

DISCLOSURE

The authors declare that they have no potential conflicts of interest.

ORCID

Young-Jun Kwon <http://orcid.org/0000-0002-2718-8870>

Soo-Jin Lee <http://orcid.org/0000-0002-4938-1700>

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