RESEARCH ARTICLE

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Work Performance Among Workers without Disabilities after Industrial Accidents: A Longitudinal Study

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Abstract:

Background: Industrial accidents are work-related accidents and these accidents can result in disability. However, if workers receive appropriate treatment after an accident, they often recover without disability. Most of them return to their daily lives and work. When they return to work, they are expected to perform at the same level asbefore the accident.

Aim: This study was to identify the factors affecting the performance of workers resuming work without disability after industrial accidents.

Methods: This study was designed as a longitudinal study. Among workers who completed their industrial accident care, 2000 stratified random samples were investigated through a cohort survey by the Korea Workers' Compensation & Welfare Service, Labor Welfare Research Institute. The analysis of this study was conducted using data from 264 subjects without disabilities selected from among 2000 subjects. This study analyzed the data of the following variables: age, gender, education, marital status, health status before an industrial accident, occupational classification, claim duration, chronic disease, work performance, current health status, daily life satisfaction, self-esteem, and self-efficacy of the subjects.

Results: The current health status, having a chronic disease, daily life satisfaction,overall life, and claim duration of less than 3 months accounted for 39.9% influence on work performance (F = 42.972, p ≤ 0.001), and the current health status influenced work performance the most.

Conclusions: It is important to support the workers so they can accomplish their work without failing. A system should be established to manage workers' health and chronic diseases. This may reduce health-threatening risks and prevent further industrial accidents and improve the work performance of workers resuming work after an industrial accident.

Keywords: Accident, Occupational, Chronic disease, Health status, Work performance, Workplace.

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1. INTRODUCTION

An industrial accident is a work-related accident involving injuries, disease, disability, or even death while performing duties [1]; it can be called an occupational or workplace accident. According to the Ministry of Employ-ment and Labor, the industrial accident rate from 2001 to 2013 in Korea was 0.59%–0.9% [2], which decreased to 0.48–0.54% from 2014 to 2018 [2]. However, it increased to 0.58% in 2019 and 0.57% in 2020, and the total number of workers who suffered an industrial acci-dent was

108,379 in 2020 [3]. Industrial accidents greatly impact the physical, social, mental, and economic aspects of workers [4, 5], as well as quality of life [6]. They also affect their participation in the labor market by partially or completely compromising their work capacity [7].

According to the Enforcement Decree of the Industrial Accident Compensation Insurance Act [8], if any disability occurs from an industrial accident, it is classified on a disability scale of 1–14, with smaller numbers reflecting higher levels of physical disability. If there is a disability, workers may need assistance with activities of daily life, and if health is compromised to this extent, they may lose labor ability. In the case of a disability scale score of 14, the working capacity was only mildly compromised. As the disability scale score moves toward 1, the loss of labor capacity becomes severe, and at a score of 1, 90%–100% of the labor ability is lost [9]. However, there are many cases wherein workers have no disability after proper post-accident treatment. In 2012, 50,340 out of 82,493 workers, amounting to 61%, had no disability after industrial accidents [10]. Most of them return to their daily lives and work.

The industrial accident compensation insurance system helps workers who have suffered an industrial accident in Korea. According to the Industrial Accident Compensation Insurance Act article 1 [1], the system is designed to ensure that adequate care is provided when workers are injured or sick from occupational accidents so that they can eventually return to work. It should help workers resume work and minimize any compromise in their working ability after industrial accidents. If and when they return to work, they also need help getting reacquainted with their job and displaying their ability at work.

Workers who have suffered industrial accidents may have difficulty returning to work, therefore, it is important to provide support to help them regain their work performance. However, there is limited literature available on factors influencing the work ability of workers who have experienced industrial accidents, making it challenging to explore strategies for enhancing their work performance. Therefore, this study aimed to identify the effect of variables on the work performance of industrial accident victims who resumed work with no disability.

2. MATERIALS AND METHODS

2.1. Design and Sample

This study used data from the Industrial Accident Compensation Panel Survey [(1st–5th)] conducted by the Korea Workers' Compensation & Welfare Service, Labor Welfare Research Institute. The Industrial Accident Compensation Panel Survey was a cohort survey conducted annually. The first survey started in 2013, and the fifth survey was conducted in 2017. Data collection were conducted by a professional interviewer who visited the subjects and performed a computer-assisted personal interview after obtaining written consent from them. Two thousand subjects were randomly sampled out of 89,921 workers who completed their industrial accident care program in 2012. The subjects were selected using stratified random sampling based on their disability scale score, residential area, age, gender, and use of rehabilitation services. The data from subjects with incomplete data collection over 4 years were excluded from the analysis of this study. The analysis was conducted using data from 264 subjects without disabilities. The sample size was determined based on a power analysis using G*Power software. With an anticipated effect size of 0.15, a significance level (alpha) of 0.05, and power (1-beta) set at 0.95, the required sample size was calculated to be 172 participants. It was confirmed that the sample size for this study was appropriate.

The data of the Industrial Accident Compensation Panel Survey had obtained the National Statistical Office approval statistical qualification, and its approval number was 439001. Regarding ethical considerations, this study received an IRB review exemption (ewha-201907-0010-01) before commencing the study.

2.2. Measures

In this study, the following variables were analyzed: age, gender, education, marital status, health status before the industrial accident, occupational classification, claim duration, chronic disease, work performance, current health status, daily life satisfaction, self-esteem, and self-efficacy of the subjects. The details for the last six elements of the above-mentioned list are as follows:

2.2.1. Chronic Disease

Subjects were asked to answer yes or no to whether they had any of the following diseases: Cancer, arthritis, back pain, sciatic pain, slip disc, gastritis, gastric ulcer, duodenal ulcer, chronic hepatitis, cirrhosis, diabetes, thyroid disease, hypertension, hypotension, stroke, cerebrovascular disease, myocardial infarction, angina, chronic bronchitis, tuberculosis, asthma, cataract, glaucoma, chronic otitis media, chronic renal failure, chronic kidney disease, fracture, dislocation and aftermath of accident, osteoporosis, and any other disease.

2.2.2. Work Performance

The subjects were asked to answer the following on a scale of 1–10: "If your work performance just before an industrial accident was '10', how much do you think your current work performance is?"

2.2.3. Current Health status

The subjects were asked, "How is your health condition?" and had to score their health status as 1 (very bad), 2 (bad), 3 (good), and 4 (very good).

2.2.4. Self-esteem

For measuring self-esteem, the scale described by Jeon [11] was used, which was a revised form of the Rosenberg self-esteem [12]. This scale comprised 10 items, each scored on a four-point Likert scale. Higher scores indicated higher self-esteem. The reliability of this scale was Cronbach's α = 0.768–0.800 in this study.

2.2.5. Self-efficacy

The scale of Hong [13] was used to measure self-efficacy in this study. The scale of Hong (1995) was a revised form of the self-efficacy scale (SES) by Sherer *et al*. [14]. The scale included 23 items, and it was rated on a five-point Likert scale. Higher scores indicated higher self-efficacy. The reliability of this scale in this study was Cronbach's α = 0.906–0.920.

2.2.6. Daily Life Satisfaction

Daily life satisfaction was measured by asking, "How satisfied are you with ____?" and the following seven items were placed in the blank: overall life, family income, leisure life, residential environment, family relationships, relative relationships, and social relationships. The satisfaction level of daily life was 1: "very satisfied," 2: "satisfied," 3: "undecided," 4: "not satisfied," and 5: "not very satisfied." Lower scores indicated higher daily life satisfaction.

2.3. Analytic Strategy

The data were analyzed using the SPSS 27.0 program in this study. It utilized frequency and percentage to describe demographic characteristics and the morbidity of chronic disease annually. Mean and standard deviation were used to explore work performance, current health status, self-esteem, self-efficacy, and daily life satisfaction. Multiple regression analysis, including the assessment of multicollinearity, was conducted to identify the impact variables on work performance. The level of statistical significance was set at $p < 0.05$.

3. RESULTS

3.1. General Characteristics

The subjects of this study were 264, as shown in Fig. (**1**). General characteristics of the subjects are shown in Table **1**. There were 198 men (75%) and 66 women (25%). Regarding the question about health conditions before the industrial accident, 79.5% of the respondents responded that they were "healthy" or "very healthy."

The respondents' occupational classification showed that 34.7% were skilled workers and 24.6% were manual laborers. The claim duration was less than 3 months at 54.2% and 3 to 6 months at 31.4%.

3.2. Chronic Disease Morbidity

The proportion of subjects who reported having chronic disease was 15.9% (42 people) in the first survey; however, the rate gradually increased with the years, and in the fifth survey, it showed values as high as 34.1% (90 people), as shown in Table **2** and Fig. (**2**). Among the respondents who said they had a chronic disease in the fifth survey, hypertension and hypotension were the most prevalent, with a combined occurrence rate of 41.1%. Furthermore, the occurrence rate was 25.6% for diabetes and 30% for arthritis, back pain, sciatic pain, and slip disc combined.

Table 1. The general characteristics of the subjects (n = 264).

-	-	1st Survey 2013		2nd Survey 2014		3rd Survey 2015		4th Survey 2016		5th Survey 2017	
		n	%	n	%	n	%	n	%	n	%
Gender	Male	198	75	same							
	Female	66	25								
Age, Year	≤29	26	9.8	22	8.3	19	7.2	16	6.1	12	4.5
	30–39	49	18.6	48	18.2	43	16.3	40	15.2	40	15.2
	40–49	64	24.2	60	22.7	60	22.7	55	20.8	53	20.1
	50–59	81	30.7	87	33.0	80	30.3	77	29.2	78	29.5
	≥60	44	16.7	47	17.8	62	23.5	76	28.8	81	30.7
Education	Uneducated	9	3.4	9	3.4	9	3.4	9	3.4	9	3.4
	Elementary school	43	16.3	43	16.3	44	16.7	44	16.7	44	16.7
	Middle school	45	17.0	45	17.0	44	16.7	44	16.7	44	16.7
	High school	114	43.2	114	43.2	114	43.2	114	43.2	113	42.8
	College and above	53	20.1	53	20.1	53	20.1	53	20.1	54	20.5
Marital status	Unmarried	53	20.1	51	19.3	47	17.8	47	17.8	45	17.0
	Married	179	67.8	179	67.8	183	69.3	180	68.2	184	69.7
	Separated	2	0.8	2	0.8	4	1.5	4	1.5	3	1.1
	Divorced	18	6.8	19	7.2	19	7.2	21	8.0	20	7.6
	Bereaved	12	4.5	13	4.9	11	4.2	12	4.5	12	4.5
Health status before an accident	Very healthy	80	30.3	-							
	Healthy	130	49.2								
	Moderate	43	16.3								
	Not healthy	11	4.2								

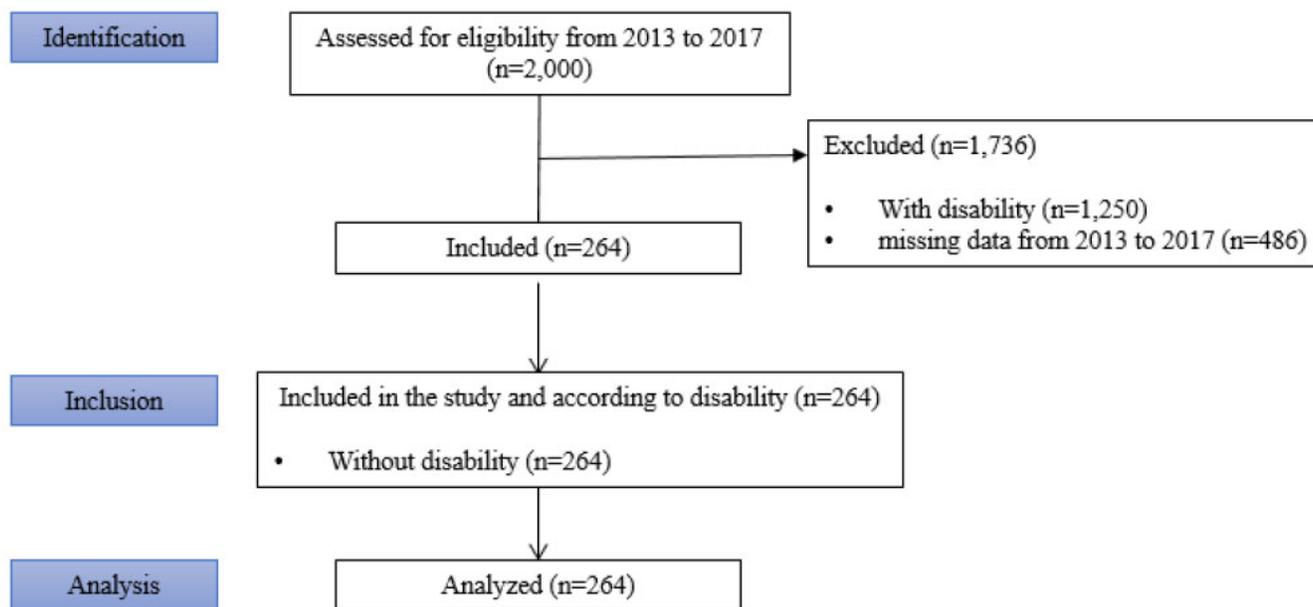| -	-	1st Survey 2013		2nd Survey 2014		3rd Survey 2015		4th Survey 2016		5th Survey 2017	
		n	%	n	%	n	%	n	%	n	%
Occupational classification	Manager	9	3.4				-				
	Professional	16	6.1				-				
	Clerical staff	8	3.0				-				
	Service sector worker	29	11.0				-				
	Salesperson	8	3.0				-				
	Agricultural skilled worker	6	2.3				-				
	Skilled worker (Manufacturing or Construction, *etc.*)	90	34.1				-				
	Machine Operators	33	12.5				-				
	Manual laborer	65	24.6				-				
Claim duration	Less than 3 months	143	54.2				-				
	3 to 6 month	83	31.4				-				
	6 to 9 month	22	8.3				-				
	9 to 12 month	5	1.9				-				
	More than 1 year	11	4.2				-				

Fig. (1). Study flow diagram.

3.3. Work Performance, Current Health Status, Self-esteem, Self-efficacy, and Daily Life Satisfaction

The changes in scores of the variables from the first to the fifth survey are shown in Table **3**.

3.4. Factors Affecting Work Performance

Considering age, occupational classification, claim duration, current health status, having a chronic disease, self-esteem, self-efficacy, and daily life satisfaction as independent variables, multiple regression analysis was

Table 2. Chronic disease morbidity (n = 264).

-	1st Survey 2013		2nd Survey 2014		3rd Survey 2015		4th Survey 2016		5th Survey 2017	
	n	%	n	%	n	%	n	%	n	%
Presence of chronic disease	42	15.9	53	20.1	66	25.0	73	27.7	90	34.1

conducted to identify factors that affect work performance. This analysis was performed with data from the fifth and last survey conducted in 2017. Daily life satisfaction in terms of overall life, family income, leisure life, residential environment, family relationship, relative relationship, and social relationship were included in daily life satisfaction, and they were separately set as seven independent variables.

Consequently, current health status, having a chronic disease, daily life satisfaction_overall life, and claim duration of less than 3 months accounted for 39.9% of work performance (F = 42.972, p ≤ 0.001), as shown in Tables **4** and **5**. The current health status was the most influential factor in work performance.

The best-fit model was represented by the equation:

Work Performance = 5.615 + 1.293(Current health status) − 0.654(Having a chronic disease) − 0.409(Daily life satisfaction_overall life) + 0.375 (Claim duration of less than 3 months)

Table 3. Scores of work performance, current health status, self-esteem, self-efficacy, and daily life satisfaction (n = 264).

| -	1st Survey 2013	2nd Survey 2014	3rd Survey 2015	4th Survey 2016	5th Survey 2017	Possible Range
	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	-
Work performance	7.29±2.35	7.95±2.12	8.16±1.92	8.29±1.76	8.25±1.83	0–10
Current health status	2.79±0.70	2.78±0.67	2.80±0.64	2.83±0.64	2.84±0.63	1–4
Self-esteem	30.47±4.44	30.45±4.53	30.7±4.13	31.23±4.00	30.99±4.06	10–40
Self-efficacy	80.71±11.33	81.15±11.00	81.03±10.59	80.38±11.32	80.00±10.61	23–115
Daily life satisfaction_ overall life	-	2.58 ± 0.62	2.48 ± 0.55	2.43 ± 0.55	2.5 ± 0.62	1–5
Daily life satisfaction_ family income	3.15±0.82	3.18±0.87	3.08±0.82	2.99±0.76	3.09±0.78	1–5
Daily life satisfaction_ leisure life	2.92±0.76	2.87±0.77	2.88±0.66	2.82±0.65	2.85±0.75	1–5
Daily life satisfaction_ residential environment	2.68±0.73	2.68±0.77	2.59±0.66	2.61±0.69	2.24±0.68	1–5
Daily life satisfaction_ family relationship	2.28±0.73	2.31±0.70	2.28±0.61	2.22±0.60	2.24±0.68	1–5
Daily life satisfaction_ relative relationship	2.42±0.66	2.43±0.69	2.39±0.62	2.36±0.62	2.41±0.66	1–5
Daily life satisfaction_ social relationship	2.42±0.61	2.42±0.61	2.40±0.56	2.33±0.59	2.39±0.64	1–5
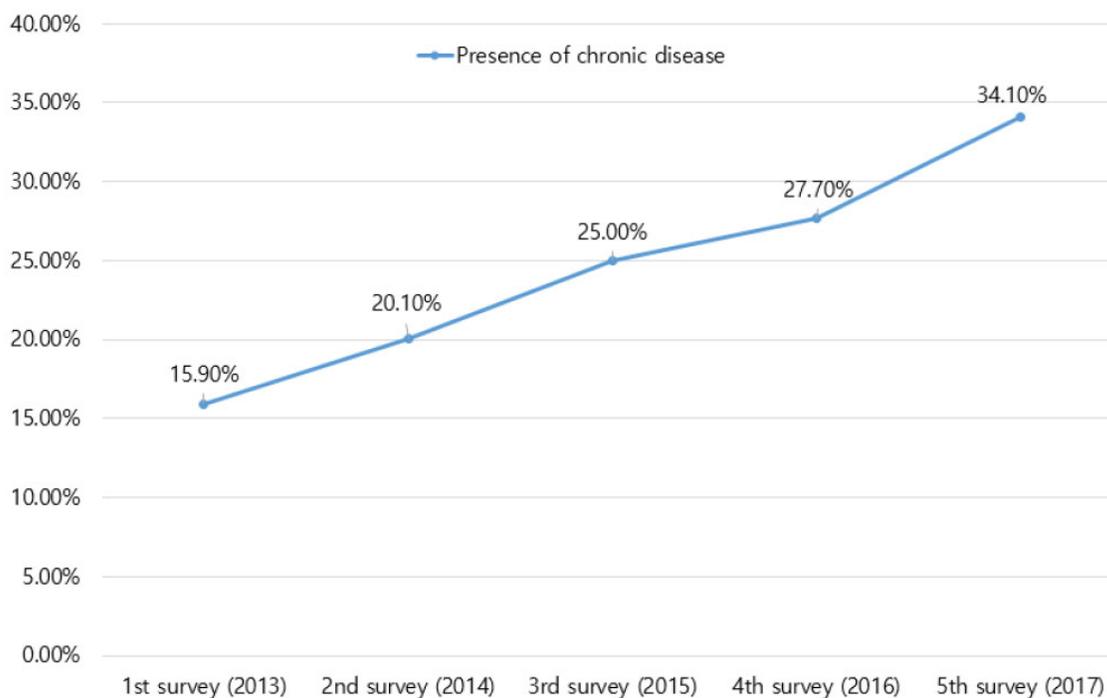
Fig. (2). Prevalence of chronic diseases.

Table 4. Predictors of Work Performance: Stepwise Multiple Regression Analysis (n = 264).

Explanatory Variables	Model 1		Model 2		Model 3		Model 4	
	B	p	B	p	B	p	B	p
Current health status	1.704	0.000	1.506	0.000	1.311	0.000	1.293	<0.001
Having a chronic disease	-	-	-0.645	0.002	-0.635	0.002	−0.654	0.001
Daily life satisfaction_ overall life	-	-	-	-	-0.468	0.004	−0.409	0.012
Claim duration of less than 3 months	-	-	-	-	-	-	0.375	0.039
R ^{2}	0.345		0.369		0.389		0.399	
adj.R ^{2}	0.343		0.364		0.382		0.390	

Table 5. Multiple regression analysis of predictors of work performance (n = 264).

Explanatory Variables	Unstandardized Coefficient		Standardized Coefficient	t	p	Durbin-Watson
	B	SE	Beta			
Current health status	1.293	0.167	0.446	7.755	<0.001	
Having a chronic disease	−0.654	0.203	−0.170	−3.218	0.001	
Daily life satisfaction_ overall life	−0.409	0.161	−0.138	−2.540	0.012	2.108
Claim duration of less than 3 months	0.375	0.181	0.102	2.074	0.039	
Constant	5.615	0.766	-	7.327	<0.001	

Note: R^2(adj.R^2) = 0.399 (0.390).

In this equation, the unstandardized coefficients for the explanatory variables were as follows:

(1) For current health status (X1), the coefficient was 1.293.

(2) For having a chronic disease (X2), the coefficient was -0.654.

(3) For daily life satisfaction_overall life (X3), the coefficient was -0.409.

(4) For a claim duration of less than 3 months (X4), the coefficient was 0.375. Additionally, the constant term in the equation was 5.615.

4. DISCUSSION

We examined the factors affecting the work performance of industrial accident victims who resumed work with no disabilities.

After finishing the treatment of the injury caused by industrial accidents, workers without disabilities must return to work and engage in economic activities. In this case, it is important to maintain their ability to perform as they did before the industrial accident. According to the results of this study, factors influencing work performance were overall current health status, having a chronic disease, overall satisfaction with daily life, and a claim duration of less than 3 months. In addition, the current health status was the most influential factor in work performance. This result suggests the significance of proper health in performing workers' tasks. However, when treatment is completed after an industrial accident, it is not easy to encounter a system that can manage their health at work [15, 16]. Some companies hire an occupational health nurse [17, 18]; however, it is possible when the company has the economic capacity to afford it

[19]. Having a dedicated department or staff to manage the health of workers at work would certainly be helpful; however, many companies are small-sized and cannot sustain this due to the financial burden.

In addition, this study found that having a chronic disease was a factor that affected working ability. Based on this result, the system to manage chronic diseases for workers may also contribute to improving their work performance. Moreover, the morbidity of chronic disease increased from 15.9% in 2013 to 34.1% in 2017, showing a two-fold increase in four years in this study. Although the rate of 15.9% in 2013 was not too high, it increased to a markedly higher rate of 34.1% in four years, which is a drastic increase even considering the increase in the age of subjects over this period. Furthermore, because chronic health conditions may increase the risk of occupational accidents in a workplace [20], a system should be established to manage chronic diseases of industrial accident victims returning to work; this system may reduce the threat to the subject's health and prevent the recurrence of industrial accidents.

Many workers may not meet healthcare professionals in the workplace. In addition, it is not easy for workers to take out time and schedule an appointment with healthcare professionals to address any discomfort in their body or promote their health during working hours. In these cases, telemedicine can help manage proper health among workers [21]. However, the use of telemedicine in Korea is not widespread due to situational and legal restrictions [22, 23]. The introduction of telemedicine, which can systematically and regularly manage workers' health, will lead to more efficient improvements in health and help manage and prevent chronic diseases. The implementation of such a system would greatly improve

their performance.

This study found that the "daily life satisfaction_ overall life" of the subjects affected the improvement of job performance. If they were satisfied with this parameter, they were less likely to be distracted by another problem and could concentrate on their work and improve their working performance. This study recommends forming peer groups that are organized and operated according to the common interests of workers. Through such groups, they can share information about any specific experience they have had, and they will be able to consult among themselves when problems or concerns arise.

In conclusion, the significance of this study lies in its investigation of the impact of variables on the work performance of industrial accident victims who were re-employed. By exploring factors that influence work performance, this study contributes to the development of strategies to help workers after accidents and provides valuable insights to health professionals.

This study has the following limitations and suggestions. First, work types are classified into various types observed in the current modern industry. However, this aspect was not considered in this study. The data used in this study were obtained from the stratified random sampling survey on the total number of industrial accident victims in 2012 in Korea; thus, the types of jobs and injuries included were diverse and varied. Accordingly, it was very difficult to find patterns between job types and injuries from the data. However, a study on industrial accidents based on injury type and occupational group is essential. Further studies incorporating these aspects should be conducted. Second, this study was analyzed using data obtained from Koreans. Therefore, it is unclear whether the results of this study can be generalized to subjects of other nationalities than Korea. Therefore, additional research is needed to determine whether the results of this study can be applied to population groups or regions other than Korea. Third, we propose that developing a system that can help those who return to work would be greatly helpful; it is important that its effectiveness should be evaluated so that more efficient systems can be implemented in workplaces. To achieve this, positive and active discussions on the introduction of telemedicine should be advanced for more efficient healthcare workers.

CONCLUSION

The purpose of this study was to determine the influence of variables on the work performance of industrial accident victims who returned to work without disability. The subjects of this study were 264 individuals without disabilities selected from the Industrial Accident Compensation Panel Survey[1st-5th] out of 2,000 who recovered after industrial accidents. As a result of this study, the morbidity rate of subjects with chronic diseases increased from 15.9% to 34.1% during four years. In addition, "current health status," "having a chronic disease," "daily life satisfaction_overall life," and "claim

duration of less than 3 months" affected the work performance. The most influential factor in work performance was the current health status. Age, occupational classification, self-esteem, and self-efficacy were not factors that affected the subjects' work performance. This result is meaningful as it helps workers adapt to their work when they resume after experiencing an industrial accident.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The data of the Industrial Accident Compensation Panel Survey had obtained the National Statistical Office approval statistical qualification, and its approval number was 439001. Regarding ethical considerations, this study received an IRB review exemption (ewha-201907-0010-01) before commencing the study.

HUMAN AND ANIMAL RIGHTS

The study was conducted in accordance with the Declaration of Helsinki.

CONSENT FOR PUBLICATION

Written consent was obtained from all participants in this study.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data and supportive information are available within the article.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

REFERENCES

[1] Industrial accident compensation insurance act of 2023. Act No. 18928, Republic of Korea. 2023. Available from: https://www.law.go.kr/lsSc.do?section=&menuId=1&subMenuId=15&tabMenuId=81&eventGubun=060101&query=%EC%82%B0%EC%97%85%EC%9E%AC%ED%95%B4%EB%B3%B4%EC%83%81%EB%B3%B4%ED%97%98%EB%B2%95#undefined

[2] Ministry of employment and labor.analysis of the status of industrial accidents: Focused on occupational accidents caused by industrial accident compensation act. 2018. Available from: http://www.moel.go.kr/policy/policydata/view.do?bbs_seq=201903 00037

[3] Ministry of employment and labor. Analysis of the status of industrial accidents: Focused on occupational accidents caused by

industrial accident compensation act. 2020. Available from: http://www.moel.go.kr/policy/policydata/view.do?bbs_seq=202112 01899

[4] Tompa E, Mofidi A, van den Heuvel S, *et al.* Economic burden of work injuries and diseases: A framework and application in five European Union countries. BMC Public Health 2021; 21(1): 49. http://dx.doi.org/10.1186/s12889-020-10050-7 PMID: 33407315

[5] Kim S, Kim E. Factors affecting the quality of life among injured workers: Focusing on the psychosocial factors. J Institute Soc Sci 2015; 26(4): 389-411. http://dx.doi.org/10.16881/jss.2015.10.26.4.389

[6] Lee WT, Lim SS, Kim MS, Baek SU, Yoon JH, Won JU. Analyzing decline in quality of life by examining employment status changes of occupationally injured workers post medical care. Ann Occup Environ Med 2022; 34(1): e17. http://dx.doi.org/10.35371/aoem.2022.34.e17 PMID: 36093268

[7] Ahn JK, Oh SM. What happens after the injury? Self-esteem and change in employment status of occupationally injured workers. Korean Soc Secur Stud 2015; 31(1): 109-35.

[8] Enforcement decree of the industrial accident compensation insurance act of 2023. Decree No.33593, Republic of Korea. 2023. Available from: https://www.law.go.kr/lsSc.do?menuId=1&subMenuId=15&tabM enuId=81&query=%EC%82%B0%EC%97%85%EC%9E%AC%ED %95%B4%EB%B3%B4%EC%83%81%EB%B3%B4%ED%97%98% EB%B2%95#undefined

[9] Ministry of employment and labor. A study on the evaluation method of disability from industrial accidents according to the change of disability evaluation criteria. 2016. Available from: http://www.prism.go.kr/homepage/entire/retrieveEntireDetail.do?r esearch_id=1490000-201600122

[10] Korea workers' compensation & welfare service labor welfare research institute. User guide to the 1st industrial accident compensation panel survey. 2014. Available from: http://www.kcomwel.or.kr/Researchinstitute/lay1/bbs/S1T22C198/ A/38/view.do?article_seq=15497&cpage=&rows=&condition=&k eyword=

[11] Jeon B-J. Self-esteem: A test of its measurability. Yonsei Nonchong 1974; 11(1): 107-30.

[12] Rosenberg M. Society and the adolescent self-image. Princeton, N.J.: Princeton University Press 1965. http://dx.doi.org/10.1515/9781400876136

[13] Hong HY. The relationship of perfectionism, self-efficacy and

depression. master's thesis 1995.

[14] Sherer M, Maddux JE, Mercandante B, Prentice-Dunn S, Jacobs B, Rogers RW. The self-efficacy scale: Construction and validation. Psychol Rep 1982; 51(2): 663-71. http://dx.doi.org/10.2466/pr0.1982.51.2.663 PMID: 7089151

[15] World health organization. Protecting workers' health. 2017. Available from: https://www.who.int/news-room/fact-sheets/detail/protecting-work ers'-health

[16] da Silva SLC, Amaral FG. Critical factors of success and barriers to the implementation of occupational health and safety management systems: A systematic review of literature. Saf Sci 2019; 117: 123-32. http://dx.doi.org/10.1016/j.ssci.2019.03.026

[17] Mahé A. Occupational health nurse: Prevention of workplace risks in a multidisciplinary team. Care; The Nursing Reference Review 2021; 852: 50-2.

[18] Aristide S, Daniels-Jerome L, Cadet MJ. Healthy people 2030: Occupational health nurse understanding osteoporosis objective of prevention and treatment. Workplace Health Saf 2021; 69(7): 344-4. http://dx.doi.org/10.1177/21650799211017328 PMID: 34128750

[19] Lee B. Overview of occupational health management system in Korea. Korean J Occup Health Nurs 2020; 29(4): 219-27. http://dx.doi.org/10.5807/kjohn.2020.29.4.219

[20] Lee S, Kim YJ, Kim Y, Kang D, Kim SC, Kim SY. Incidence rates of injury, musculoskeletal, skin, pulmonary and chronic diseases among construction workers by classification of occupations in South Korea: A 1,027 subject-based cohort of the Korean Construction Worker's Cohort (KCWC). Ann Occup Environ Med 2023; 35(1): e26. http://dx.doi.org/10.35371/aoem.2023.35.e26 PMID: 37614337

[21] Vaughan EM, Naik AD, Lewis CM, Foreyt JP, Samson SL, Hyman DJ. Telemedicine training and support for community health workers: Improving knowledge of diabetes. Telemed J E Health 2020; 26(2): 244-50. http://dx.doi.org/10.1089/tmj.2018.0313 PMID: 30839244

[22] Shin WC, Baek KH. Legal status of telemedicine, non-face-to-face treatment, and digital healthcare in the republic of Korea. Asia-Pac J Converg Res Interchange 2023; 9(3): 193-202. http://dx.doi.org/10.47116/apjcri.2023.03.16

[23] Kim JS, Oh SH. A comparative analysis on current status of telemedicine policy: Focused on United States, Japan, Korea. Korean Journal of Health Economics and Policy 2018; 24(1): 1-35.