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The Influence of Healthy Workplace on Health
of Employees and Productivity among the
Migrant Workers in Korea

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The Influence of Healthy Workplace on Health
of Employees and Productivity among the
Migrant Workers in Korea

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and the Graduate School of Yonsei University

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This certifies that the dissertation of **Su Jeong Lee** is approved.



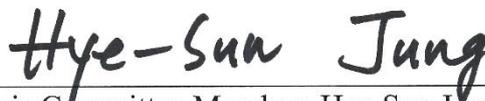
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<ABSTRACT>

The Influence of a Healthy Workplace on the Health of Employees and Productivity among the Migrant Workers in Korea

A healthy workplace is defined as one that “maximizes the integration of worker goals for well-being and company objectives for profitability and productivity.” With the announcement of the concept of a “healthy workplace” by the World Health Organization (WHO) in 2010, the idea has rapidly garnered interest from many areas. Therefore, there is a great need for research that determines the factors affecting the health and organizational productivity of workers in South Korea.

This study focuses on the migrant workers in South Korea in particular. Due to the current low birth rate, aging society, and the tendencies to avoid 3-D (dirty, dangerous, and difficult) jobs, many migrant workers are engaged in areas of manufacturing, construction, agriculture, and fisheries. The number of migrant workers is increasing yearly, and they are being exposed to the most vulnerable working environment in South Korea. It is therefore necessary to identify the factors that affect their health and organizational productivity in order to create a healthy workplace and to resolve the issue of health inequality prevalent among migrant workers within this multicultural society.

Based on Shain's Health Promotion in the Workplace theoretical framework, this descriptive correlation study was conducted to identify the factors affecting the health of

migrant workers and organizational productivity, and determine the degree of direct or indirect effects of personal practice behavior, resource, and other factors of a healthy workplace on organizational productivity.

The participants of this study were migrant workers from 10 countries with E-9 visas, residing in Seoul and Gyeonggi-do, and working in companies with less than 99 employees. The study collected self-reported surveys from 250 participants from June to August 2019, and data from a final total of 240 participants was analyzed using multiple regression analysis using the SPSS 25.0 program, and for measurement and verification of the parameters and effects using the SPSS Process Macro 3.4. The results are shown as follows.

First, health promotion behavior ($\beta = -.25, p = .001$), psychosocial work environment ($\beta = -.19, p = .005$), physical work environment ($\beta = -.18, p = .009$), subjective health status ($\beta = -.15, p = .026$), age ($\beta = -.15, p = .026$), and religion ($\beta = .24, p = .003$) were found to affect health status.

Second, the productivity of the migrant workers was evaluated after dividing the items into work performance, absence rate, and presenteeism to identify the factors that affect each of these items. Work performance was affected by work-related self-efficacy ($\beta = .27, p < .001$), health promotion behavior ($\beta = .18, p = .007$), psychosocial work environment ($\beta = .18, p = .006$), and physical work environment ($\beta = .13, p = .050$). For absence rate, psychosocial ($\beta = -.14, p = .043$) and subjective health status ($\beta = -.13, p = .050$), and for presenteeism, age ($\beta = -.28, p < .001$) and salary ($\beta = .41, p = .016$) were revealed to be the main factors.

Finally, we examined whether the health of migrant workers is a significant mediator in the relationship between personal health behavior, resources, healthy workplace, and organizational productivity. The health of migrant workers was identified as a mediator in the relationship between health promotion behavior ($p < .001$) and psychosocial work environment ($p = .014$) variables and work performance. For the absence rate, the health of migrant workers showed indirect effects on health promotion behavior (effect = -.023, LLCI, ULCI; -.237-.047), psychosocial work environment (effect = -.031, LLCI, ULCI; -.012-.000), and physical work environment (effect = -.004, LLCI, ULCI; -.015-.001).

Based on these results, it is necessary to develop health promotion programs to improve the health of migrant workers and physical and psychosocial work environments, which should also be definitely considered in terms of organizational productivity. When establishing healthcare policies for migrant workers, the focus should be on improving the healthcare system and the environment. In addition, since this study comprehensively explored the aspects of the health and organizational productivity of migrant workers which had not yet been examined in South Korea, its results can be used as basic data for future research on workplaces of migrant workers.

Keywords: migrant worker, healthy workplace, productivity, health promotion behavior

I. INTRODUCTION

1. Background

Over the past decade, much attention has been given to the concept of a healthy workplace and its impact on employees. The 8th goal of Sustainable Development Goals (SDGs), Decent Work and Economic Growth, focuses on the reception of decent employment for all people in the current world, including migrants, refugees, females, and males. Sustainable economic growth requires societies to create conditions that allow people to have quality jobs that stimulate the economy while also making sure that it does not harm the environment. The 3rd goal (good health)—reduce the number of deaths and illnesses from hazardous environment, and the 16th goal (peace and justice)—to develop conditions of work for sustainable and peaceful societies, is related to healthy workplace (ILO, 2019).

The term “healthy workplace” is used in occupational health areas to focus on health promotion intervention programs and illness/injury prevention intervention programs for employees (Kohler & Munz, 2006). A healthy workplace, as defined by Sauter, Lim, and Murphy (1996), is any organization that “maximizes the integration of worker goals for well-being and company objectives for profitability and productivity.” It meant that a healthy workplace should be considered the organization and employees. Since then, many researchers have begun to define a healthy workplace, including organizations and individuals (Grawitch, Gottschalk, & Munz, 2006). Moreover, the World Health

Organization (WHO) defines a healthy workplace as one wherein the workers and managers collaborate, making use of a continuous process of improvement to protect and promote the health, safety, and well-being of workers; and the sustainability of the workplace by considering their physical work environment, psychosocial work environment, personal health resources, and ways of participating in the community (WHO, 2010).

In identifying a healthy work environment, one of the most important concepts to understand is the relationship between health of employees and organizational outcome. (Chen et al., 2015; Grawitch, Trares, & Kohler, 2007; Kirsten, 2010). In particular, Grawitch et.al. (2007) described that healthy workplace practices involving workers affected turnover, organizational commitment, and emotional exhaustion, as well as the well-being of workers (Grawitch, Trares, & Kohler, 2007). Mark, Lisa, & Clifton's studies found the leader-member relationship and vision alignment, one of the components of a healthy workplace, were associated with job satisfaction, work engagement, and overall life satisfaction (Mark, Lisa, & Clifton, 2019).

The studies conducted in Korea on the correlation between work environment, the health of employees, and their related productivity have acknowledged a variety of issues in terms of health level, productivity, stress, depression, absenteeism and presenteeism (Jeong & Jeon, 2015; Kim, 2011; Lee, 2009).

According to the United Nations, 244 million people, or 3.3% of the world's population (UNFPA, 2017), were living outside their country of origin in 2015. Migrant workers are recognized to be among the most vulnerable populations of society.

Migration is a complex issue that currently challenges the guaranteed equal protection of the laws to the migrant worker, particularly concerning occupational health and safety. They face issues such as with low-wages, occupational hazards, long working hours, as well as poor working conditions as opposed to native-born workers and are often subject to discrimination, abuse, human trafficking, and violence (ILO, 2018). Recently, there has been an increase in industrial accidents; costs of occupational injuries and deaths have been attributed mostly to migrant workers, reflecting the increased burden of occupational injuries and fatalities by migrant workers (Flynn, 2014). They are often engaged in what is known as 3 -D jobs (Dirty, Dangerous, and Demanding), which means they are high risk groups working at unhealthy workplaces. Due to a low birth rate and an aging population, there were more than 2 million migrant workers in Korea in 2016.

Studies have been carried out in Korea, mostly focusing on personal health problems related to migrant workers' job stress, depression, working conditions, differences in jobs, and health status of migrant workers (Jo et al., 2009; Jung et al., 2008; Lee et al., 2009; Yi, Jung, Yi, Hyun, & Kim, 2009). However, there has been no integrated study of the relationship between the health and productivity of migrant workers and the effect of the work environment on productivity through health promotion behavior.

Therefore, it is necessary to conduct a study to examine the status of the work environment and other associated factors in relation to migrant workers in Korea. The study can be used as a basis for developing a new health management system for them. The results of this study will provide a basis for the development of an intervention program to promote a healthy workplace, which thereby will address the health inequality faced by migrant workers in a multicultural society.

2. Purpose

The purpose of this study is both to understand the socio-demographic characteristics of migrant workers in Korea and their perceptions of healthy workplace, and to analyze the influence of healthy workplace on the health of employees, and productivity among migrant workers. The specific goals of this study are as follows:

- 1) To describe the status of personal health practices and resources, healthy workplace, the health of employees, and productivity of migrant workers
- 2) To identify the relationships between personal health practices and resources, healthy workplace, the health of employees, and productivity of migrant workers
- 3) To estimate the direct and indirect effects of the personal health practices and resources and healthy workplace on the health of employees and productivity of migrant workers

3. Definitions of terms

3.1 Healthy workplace

Healthy workplace is defined as one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety, and well-being of workers and the sustainability of the workplace by considering the physical environment, the psychosocial work environment, personal health resources, and ways of participating in the community (WHO, 2010).

In this study, a healthy workplace specifically refers to the components of physical work environment and psychosocial work environment mentioned by WHO (WHO, 2010) in the above definition. The physical work environment was measured by the Work Design Questionnaire (WDQ) instrument developed by Morgeson and Humphrey; the psychosocial work environment was measured by the Copenhagen Psychosocial Questionnaire (the short version) (Kristensen, Hannerz, Høgh, & Borg, 2005; Morgeson & Humphrey, 2006).

3.2 Personal health practices and resources

In this study, personal health practices and resources include health promotion behavior, work-related self-efficacy, and work place social support.

3.2.1 Health promotion behavior

Health promotion behavior refers to the individual's health care management of risk factors (diet, exercise, sleep, drinking, smoking, stress management) for disability and illness (Shain & Kramer, 2004).

Health promotion behavior of the study was measured by the Health Promotion Lifestyle Profile II (HPLP II), developed by Walker (Walker & Hill-Polerecky, 1996).

3.2.2 Work-related self-efficacy

Work-related self-efficacy is defined as the capability of mobilizing job resources and generating more engagement, better performance, and outcomes (Lorente, Salanova, & Martínez, 2011).

Work-related self-efficacy of the study was measured by Job-related self-efficacy, developed by Lorente et al. (Lorente, Salanova, & Martínez, 2011).

3.2.3 Work place social support

Work place social support refers to the availability or actual receipt of assistance provided to an employee by one or more individuals (Beehr, 1995).

Work place social support of the study was measured by Work place Social Support, developed by Johnson and Hall (Johnson & Hall, 1988).

3.3 Health of employees

The health of employees is defined by WHO as a state of physical, mental, and social wellbeing in which disease and infirmity are absent (WHO, 2006).

The health of employees of the study was measured by the Patient Health Questionnaire 15 (PHQ-15), by Kroenke (Kristensen et al., 2005).

3.4 Productivity

In this study, productivity included work performance, absenteeism, and presenteeism.

3.4.1 Work performance

Work performance is defined as “behaviors or actions that are relevant to the organization” by Campbell (Campbell, 1990).

Work performance of the study was measured by the Individual Work Performance questionnaire instrument, developed by Koopmans (Koopmans, Bernaards, Hildebrandt, de Vet, & van der Beek, 2014).

3.4.2 Absenteeism

Absenteeism is defined as “the respondent missed a day of work because of illness” by Kessler et al. (Kessler et al., 2003).

Absenteeism in the study was measured by the Health and Work Performance Questionnaire (Kessler et al., 2003).

3.4.3 Presenteeism

Presenteeism is defined as “inadequate work performance” by Kessler et al. (Kessler et al., 2003).

Presenteeism in the study was measured by the Health and Work Performance Questionnaire (Kessler et al., 2003).

II. LITERATURE REVIEW

1. Migrant workers

The International Labor Organization (ILO) defines “migrant worker” as a person who migrates from one country to another in search of employment (Back, Hong, & Lim, 2018). This group is one of the most important features of globalization, indicating the expansion of the international labor force. Nowadays, most of the international migrant workers move from developing countries to developed countries, between developing countries, or between developed countries. Furthermore, migrant workers have a significant influence on demographic situations all over the world. There is an increase in the number of countries in the migration process and the number of illegal migrant workers (Chernyak & Chernyak, 2019).

In the case of Korea, Article 2 of the Act on the Employment of Migrant Workers defines a migrant worker as a person who does not have the nationality of the Republic of Korea and has been hired or will be hired in Korea.

In Korea, migrant workers can be categorized into four types of workers: 1) professional workers, 2) industrial trainees who eliminate labor shortages of domestic workplaces, 3) non-professional workers who engage in manual tasks and get employment visas from the government, and 4) illegal workers who work even after expiration of their visa period. In particular, migrant workers holding non-professional visas (E-9 visas) enter the country through the Employment Permit System of Korea.

A migrant worker can be hired directly by Korean companies if the worker is from a country with whom the Korean government has signed a Memorandum of Understanding (MoU) (Lee, 2018).

As of 2017, about 2.55 million migrant workers holding non-professional employment visas (E-9 visas) live in Korea. Most of them are in their twenties and are residents in Incheon Metropolitan City and Gyeonggi provinces. Most migrant workers holding E-9 visas are Vietnamese (14.5%), followed by Cambodians (13.2%), Indonesians (11.4%), and Nepalis (10.6%). According to a report, the reason for seeking employment in Korea was primarily linked to a higher salary (73.1%) compared to other countries. On the other hand, difficulties occur in the work environment in Korea due to the custom of fast working speeds (8.1%), injuries during work (6.1%), and face-to-face insults (5.2%). In particular, the leading causes of migrant workers' suffering from injuries during work include mistakes at work (70.1%) and language problems (11.5%). According to the law on the employment of migrant workers (Justice, 2019), they cannot be discriminated against on the grounds of being migrant workers.

However, they face discrimination based on their abilities and productivity. Above all, under the Labor Standards Act, the right of relief through the Labor Committee can be sought for unfair dismissal. Regarding the period of work for migrant workers, they are entitled to three years of employment and this can be extended to less than two years at a time. However, regulations on working hours, holidays, rests, etc. did not apply to fishery, agriculture, and stockbreeding workers. In addition to this, migrant workers were covered

by four major insurance policies in Korea. Insurance (ex-term pension insurance, trust, and return home insurance) is granted to migrant workers in order to protect their rights and interests. If a migrant worker wants to change his or her workplace, he or she can arrange for new employment through one of the migrant workers' support centers.

Most migrant workers are employed at low-wage workplaces, where they work at very low-level positions such as a cleaner, manual laborer (Schenker, 2010; Smith, Hviid, Frydendall, & Flyvholm, 2013). Concerning their work environment, two concepts can be considered—the physical work environment and the psychosocial work environment. The psychosocial work environment is often related to simple tasks, time pressure (extremely fast-paced work), changes in working hours (work shifts), the lack of work development, and the lack of social support (Kumar & Kumar, 2008).

Additionally, for migrant workers, psychosocial work environment stress is related to social stress, to be more specific, stress caused by interaction with customers, managers, and co-workers, which can be considered as part of occupational health problems (Hoppe, 2011). In studying the relationship between the psychosocial work environment and the health of migrant workers (De Castro, Gee, & Takeuchi, 2008), researchers reported that laborers and female migrant workers are exposed to vulnerable psychosocial work environments, and that the psychosocial work environments lead to smoking and induce hypertension (Font et al., 2012; Olesen et al., 2012; Rugulies, Scherzer, & Krause, 2008; Smith et al., 2013).

Migrant workers are employed in jobs that expose them to major physical risks in the work environment, like those in construction, manufacturing, and manual work. This type of work often requires the workers to lift heavy objects and perform simple repetitive motions; they are exposed to dust, fumes, or noise, and also handle harmful chemicals. Sometimes they have to handle machines despite having received insufficient safety training. When a literature review was conducted regarding the physical work environment and hazards faced by migrant workers in their workplaces, qualitative research rather than quantitative research was conducted to show their experiences. The studies showed that migrant workers faced physical, chemical, and biological hazards in their working environments and that they were working without sufficient safety training, safe communication, and personal protective equipment. These circumstances have consequently been reported as factors that impede the performance of the organization (De Castro, Fujishiro, Sweitzer, & Oliva, 2006). Also, symptoms of ill health such as back pain, muscular pain, fatigue or exhaustion, and headache were recurrent amongst migrant workers (Eduardo & Jansen, 2012).

In other words, migrant workers were more exposed to workplace hazards as well as other factors affecting physical and mental health. Occupational injuries of migrant workers, in particular, recently increased due to the lack of employment contracts and safety education, inappropriate safety equipment, and economic difficulties stemming from unstable employment, language barriers, and cultural differences (Eduardo & Jansen, 2012; Schenker, 2010).

In addition to occupational health problems, migrant workers also face non- occupational health problems related to types of housing, nutrition, health-related behaviors, and healthcare delivery systems (Bethel & Schenker, 2005).

Furthermore, perceived discrimination can predict psychological well-being and health status (Dzurova & Drbohlav, 2014). As a variable related to the health of migrant workers, it also affects psychosocial stress symptoms and health problems (Jasinskaja-Lahti, Liebkind, & Perhoniemi, 2006). According to reports, the determinants of health promotion behaviors are also related to perceived self-efficacy, acculturation, social support, and demographic factors for migrant workers (Aqtash & Van Servellen, 2013).

2. A healthy workplace

2.1 Concept of a healthy workplace

Many studies have indicated the direct and indirect effects of healthy work environments, both for employees and organizations.

The concept of a healthy workplace focuses not only on the individual's health but also on the organization being influenced by the promotion of health at the workplace. Therefore, the notion of a healthy workplace consists of three components: the effects of work on health, the effects of good or ill health on an individual's capacity to work, and the opportunity for health promotions by the employer through a range of activities that encourage employees to adopt healthier lifestyles. Within these components, there are two

key concepts: the prevention of work-related diseases and injuries, and the promotion of positive healthy lifestyle behaviors (Addley, 1999).

The work environment is a particularly important factor in promoting a healthy workplace. From the perspective of health promotion, work in a work environment should include such elements as self-control, encouragement, opportunities for skill enhancement, social support, influence, and participation (Arwedson, Roos, & Bjorklund, 2007).

Studies have shown that this concept explains health promotion activities in the workplace from two philosophical perspectives. The first presents health as the product of individual behavior and as an individual responsibility. It focuses on individual behaviors and characterizes the workplace primarily as a place through which various programs such as stress management, smoking cessation education, and musculoskeletal disorders prevention can be delivered. The other views health as being influenced by various factors, a significant amount of which is outside the individual's control. While acknowledging the individual's responsibilities for his or her health, these perspectives also focused on the role of the environment.

Consequently, the workplace was seen to have an influence on health in its right. However, in the early 2000s, more studies surrounding individual health behaviors have been conducted than studies conducted at an organizational level, and there have been few studies on the health and safety of physical and mental work environments.

In Shain's study, it was reported that the physical and psychosocial aspects of a workplace affect an individual's ability to take care of their own well-being and maintain

their “personal resources.” This concept included self-efficacy, resilience, social support, and beliefs. Furthermore, the study described work organization as including both physical and psychological aspects of the work environment, which was related to the health and productivity of workers (Shain & Kramer, 2004).

Grawitch et al. noted that a healthy workplace emphasized the health and productivities through health and wellness programs (Grawich et al., 2006).

Arwedson et al. described a model of Demand/Control/Support. This focused on the psychological working environment, which included decision-making, social support, quantitative and qualitative needs for work, which improved organizational mediation as an environmental component of the workplace (Arwedson et al., 2007).

WHO (2010) also described a healthy workplace as a place where everyone works together to achieve an agreed vision for the health and well-being of workers, and the surrounding community (WHO, 2010).

2.2 Theoretical background of a healthy workplace

The term “healthy workplace”, as defined by Sauter, Lim and Murphy (1996), means any organization that “maximizes the integration of worker goals for well-being and company objectives for profitability and productivity,” (p 250) including the performance of the organization and the health of the workers (Grawitch et al., 2006).

In addition to this, Schmid (2000) reported a healthy workplace could be identified through the working environment so that it can maximize the organization's goal of increasing productivity (Schmidt et al., 2000).

About 80 years ago, the goal of organizations was to avoid being unhealthy as opposed to optimizing health, whereas in contemporary society, many workplaces provide programs designed towards the promotion of health (Aldana, 2001).

Over the past 25 years, the theory has focused on psychological health in the workplace, which has offered a new paradigm to the methods of measuring the influence of a healthy workplace as well as conceptualizing it (Grawitch et al., 2006).

The theories of a healthy workplace were as follows:

Firstly, Peterson and Wilson (2002) explained the quality of work in relation to organizational culture, work, and health through a culture-work-health model, in which the quality of work is associated with organizational health and personal health aspects, and this association is linked with the organization's management system, structure, and behaviors. There are three domains here, namely, organizational culture, organizational health, and employee health. This theory explicitly stated that organizational health could be measured in terms of productivity, performance, and quality (Peterson & Wilson, 2002).

Secondly, Grawitch et al. (2006) developed the theory "Practices for the Achievement of Total Health theory." The explanation of this theory needed confirmation of the four guiding principles that Adkins, Quick, and Moe (2000) noted in defining the term "healthy workplace", and the four principles of organizational health.

The principles were as follows:

The first principle proposed that health exists on a continuum from mortality to vibrant well-being. The purpose of this principle was to focus on promoting positive health and not

to prevent negative results. The second principle proposed that organizational health was a continuous process and not merely obtained. Therefore, organizational health required constant attention, action, and evaluation of optimal health. The third principle proposed that organizational health was the result of interconnections between multiple factors. Finally, organizational health heavily relied on relationships that were (Adkins, Quick, & Moe, 2000). Based on this principle, a PATH (Practices for the Achievement of Total Health) model was developed. It explained five domains of the healthy workplace: work-life balance, employee growth and development, health and safety, recognition, and employee involvement. This theory was related to the well-being of the employee and the improvement of the organization (Grawitch et al., 2006).

Thirdly, the World Health Organization (WHO) has established a healthy workplace model, following the given steps:

The WHO formed a joint committee on occupational health with the International Labour Organization (ILO) in 1950 to create a healthy workplace, and so far, two agencies have been working together on this project. After the 1978 “Declaration of Alma-Ata,” primary health care was given to where they lived and worked rather than only in hospitals. Provisions of occupational health and safety were made for development and growth, and in 1985, the ILO Convention 161 was approved. Occupational health services included surveillance of hazardous situations in the environment, surveillance of workers’ health, advice, and promotion about workers’ health, and vocational rehabilitation. In 1986, WHO's first international conference on health promotion in Ottawa, Canada, introduced

the “setting approach.” This approach viewed the workplace as one of the key settings for health promotion and suggested that the workplace is a space where a supportive environment for health must be created. In 1994, the “Global Declaration on Occupational Health for All” called for the prevention of accidents and psychosocial stress and proposed to increase occupational health activities. In addition to this, the 2002 “Barcelona Declaration on the Development of Health Practices in a Good Workplace” emphasized a deterioration in public health due to the lack of health promotion at workplace. Since the 2005 “Bangkok Charter for Health Promotion in a Globalized World”, most companies began emphasizing the necessity to practice health promotion in the workplace. In response to this, the WHO developed and recommended a healthy workplace model. The model highlighted topics such as working together to promote health care in the physical work environment (health and safety), psychosocial work environment, personal health resources in the workplace, and enterprise community involvement. This model encompassed all aspects of occupational health as defined by WHO. It maintained both that a healthy workplace, in the broadest sense, can be seen as a good organization and that a healthy workplace must include health protection and health promotion (WHO, 2010).

Fourthly, there were three domains in the Regional Health Authority (RHA) workplace model: 1) practice, culture, and environment; 2) health and lifestyle, health and organizational culture; and 3) the achievement of corporate goals. This model focused on the relationship between the well-being of individuals, and their health and current lifestyles (Seymour & Dupre, 2008).

Fifth, the Integrated Healthy Workplace model (2012) was proposed to solve health problems at workplaces in India. This model dealt with physical work environment, psychological work environment, and health promotion behavior.

Finally, the recently proposed Occupational Safety and Health Management Framework (2015) explained the relationship between life and the workplace and the social environment. It categorized physical, electrical, ergonomic, and psychological aspects as factors that threaten health in the workplace (Manimaran, Rajalakshmi, & Bhagyalakshmi, 2015).

The domains of these theories on a healthy workplace were categorized differently in each model, as shown in Table 1.

Table 1. Summary of the main domains for a healthy workplace

Reference sources	Key domains
Peterson and Wilson (2002)	Organizational culture, organizational health, employee health
Grawitch et al. (2006)	Healthy workplace practices, employee well-being, organizational improvement
Seymour and Dupre (2008)	The organization with information on personal health needs of employees, a positive picture of organizational culture and the factors that influence psychological culture and wellbeing
WHO (2010)	Physical work environment, personal health resources, enterprise community involvement, psychosocial work environment
Thakur et al. (2012)	Psychosocial work environment, physical work environment, promoting healthy practices
Manimaran et al. (2015)	Hazard, health, safety, management

3. Previous studies associated with healthy workplace, health of employees, and productivity of migrant workers

Most of the outcome variables identified in the study of migrant workers were described in terms of health problems, work-related injuries and illnesses, or organizational productivity.

Firstly, female migrant workers, who had the lowest education level, were at risk of psychosocial stress and susceptible to chemical, ergonomic, physical, and psychosocial job hazards without being equipped with any safety education; all of these factors increased health problems (Dzurova & Drbohlav, 2014; Eduardo & Jansen, 2012).

Secondly, female migrant workers faced discrimination in the workplace. They were exposed to occupational hazards, and part-time workers suffered from work-related injuries and illnesses (Marín et al., 2009; Seixas, Blecker, Camp, & Neitzel, 2008).

Finally, presenteeism was measured as an outcome variable in order to measure organizational productivity, and it was linked to the length of residence in the country, salary, and mental health (Galon et al., 2014).

However, outcome variables in association with healthy workplaces in many studies were related to lack of job control, stress, interpersonal relationships, job satisfaction, leadership, good working environment, individual responsibility, personal health problems, teamwork, communication. All these factors were connected to productivity, absenteeism, and employee performance (Arwedson et al., 2007; Lindberg & Vingård, 2012; Lowe, 2003; Schultz & Edington, 2007; Shain & Kramer, 2004).

Through a literature review, significant variables were identified in the relationship between organizational productivity and a healthy workplace. Furthermore, the variables measuring productivity were confirmed among migrant workers through the systematic literature review.

A systematic review was performed using the terms “Emigrant & Immigrant [Mesh]” or “Migrants” or “immigrant,” and “Organizational productivity” or “Absenteeism” or “Presenteeism” or “Work performance” in the databases PubMed, Web of Science, Scopus, and CINAHL. The period of analysis was from January 1, 1970 to August 19, 2019. Peer-reviewed English articles, which excluded non-immigrant workers such as children, adolescents, students, and refugees were included in the analysis.

Through a broad search strategy and a partially overlapping database, 1,263 publications were found. After excluding duplicates, 1,028 publications remained. Further excluding 40 publications in other languages, 988 publications remained. From these, only abstract and non-relevant publications were excluded. Finally, eight publications remained (Figure 1).

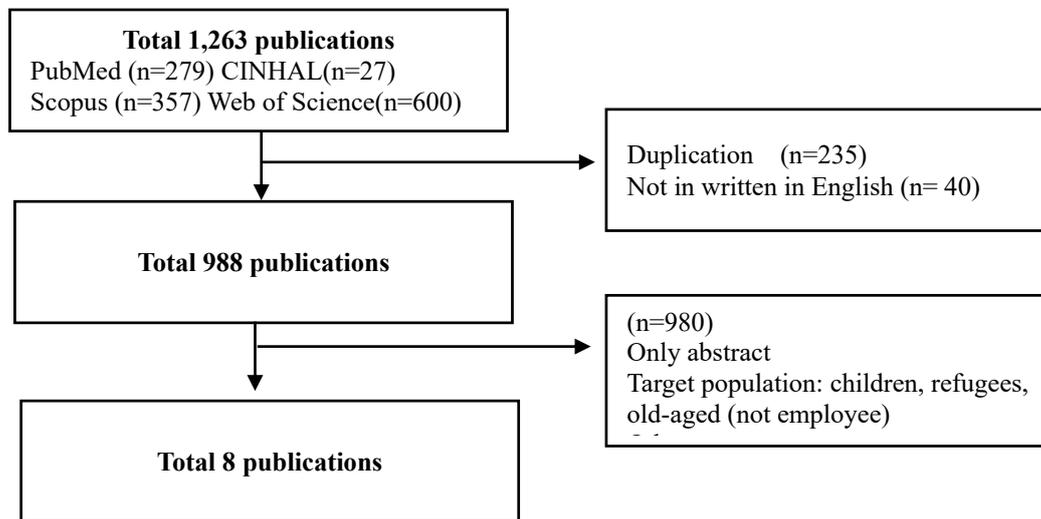


Figure 1. Systematic literature review process

In the final eight publications that were analyzed, six (75%) of the eight were studies conducted in Europe, and two (25%) in the United States. The two studies in the United States were conducted either for Latino migrant workers or Asian migrant workers. In Europe, the studies were more focused on multiple countries rather than one country. The variables associated with productivity were identified, and the issue of absenteeism or presenteeism was studied in five out of the eight publications, and weekly work, hours of work, employment, hourly wage, or work injuries were used as variables.

Other variables engaged health indicators such as BMI, general health, muscle pain, mental health as well as language skills and social support. The study discovered that the physical and mental health of migrant workers were related to productivity. The detailed explanation of the eight publications selected for the final study is shown in Table 2.

Table 2. Systematic literature review of productivity among migrant workers

No	Author (Year)	Nationality	Research Design	Migrant Nationality	Job of migrant	Number	Productivity related variable	Independent variable	Result	Remark
1	Chatterji (2007)	USA	Secondary data analysis	Latino / Asian	Unclassified	4,073	- Out of labor force - Unemployed - Weekly work - Absent in past month	- Psychiatric disorders - Mental distress	Psychiatric disorders, Mental distress: being employed (-), absences for Latino immigrants (+)	
2	Agudelo-Suarez (2010)	Spain	Cross-sectional study	Unclassified	Unclassified	1,617	-Sickness Presenteeism	- Self-reported health - Mental health	Immigrant workers: sickness presenteeism - OR: 1.77(95%CI 1.24-2.53)	Native: 442
3	Carneiro (2010)	Denmark	Secondary data analysis	Poland, German, Norway, Bosnia, Turkey	Health care workers	290	-Sickness Absence	- General health - Back pain - Sleeping Problems	The relationship between an immigrant and sickness absence differs according to health status	Native: 2,831

No	Author (Year)	Nationality	Research Design	Migrant Nationality	Job of migrant	Number	Productivity related variable	Independent variable	Result	Remark
4	Carneiro (2013)	Denmark	Cross-sectional study	Non-western countries	Cleaner	132	- Sickness Absence	- Self-reported health - Total body pain - One or more diagnosed chronic diseases - BMI - Blood pressure	High occurrence of sickness: Body pain (+), one or more diagnosed chronic diseases (+)	Native: 144
5	Galon (2014)	Spain	Qualitative Study	Colombia Ecuador Morocco	Unclassified	44	- Presenteeism		Factors associated with presenteeism - poor employment conditions - Fear of unemployment - Employer/employee relationship - Difficulties in finding temporary worker replacement	

No	Author (Year)	Nationality	Research Design	Migrant Nationality	Job of migrant	Number	Productivity related variable	Independent variable	Result	Remark
6	Yao (2015)	Netherlands	Secondary Data analysis	Turkey, Morocco, Indonesia, Non-western countries, western countries	Any type of paid work (including family business, self-employment)	435	- Employment - Hours of work - Hourly wages	Language skill	Language problem: hourly wages(-)	
7	Tsai (2015)	USA	Cross-sectional study	China	Food service worker	194	- Quantity and quality of work execution - Work injuries	-Social discrimination - Job/employment concerns -Social Support -Mental health problem	Job and employment concerns: mental health problems (+) mental health problems: work performance (-)	
8	Helgesson (2016)	Sweden	Secondary data analysis	Unclassified	Unclassified	14,423	- Period of Sick Leave - Subsequent work absence		Periods of sick leave: subsequent work absence (+)	Native: 121,084 fir immigrant

III. CONCEPTUAL FRAMEWORK

1. Conceptual framework

To ensure that a healthy workplace improves the health of employees as well as productivity at the workplace, theories and models surrounding the notion of a healthy workplace were reviewed. This led to the formation of Shain's conceptual framework (Figure 2).

It consisted of four elements: personal health practices and personal resources, organization of work, the health of employees, and their influence on productivity.

'Personal health practices and resources' was a factor that affected the health of employees and productivity at work directly or indirectly. Personal health practices (e.g., eating, sleeping, drinking, exercising, smoking) were associated with risk factors for various diseases, incapacities, as well as absenteeism and health care costs. 'Personal resources' included an individual's efficacy, resilience, hardiness, and social support. These were affected by both the work and health of employees directly or indirectly. 'Organization of work' referred to both physical and psychosocial work environments. Shain's model explained that 'Organization of work' had a direct and indirect effect on the health of employees and productivity. 'Health of employees' was not included the burden of injuries and occupational illness; it was affected by the physical environment, the psychosocial environment, and productivity. Shain and Kramer explained that employee stress (psychosocial work environment) affected both health and productivity. 'Productivity'

included well-being, absenteeism, health care cost in this framework. All elements were linked directly or indirectly to productivity (Shain & Kramer, 2004).

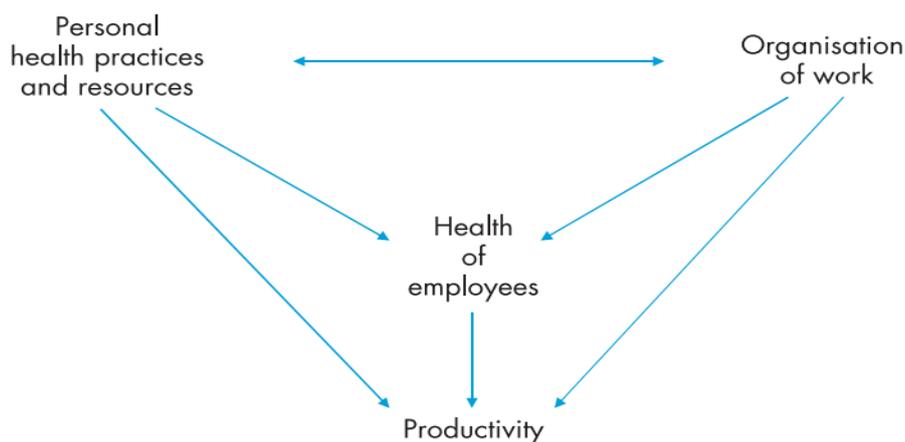


Figure 2. Shain's health promotion in the workplace conceptual framework

The conceptual framework in this study is founded on the following three key pillars: 1) Shain's Health Promotion in the Workplace theoretical framework, 2) the WHO healthy workplace concepts, and 3) the literature review on healthy workplaces and migrant workers, as shown in Figure 3.

According to the WHO Healthy Workplace Model, a healthy workplace is defined as one being continually improved on the cooperation necessary for the protection and promotion of the health, safety, and well-being of workers in accordance with their necessities. The physical work environment includes the structure, air, furniture, products, chemicals, as well as the processes that are present or that occur in the workplace. Many hazards in the

physical work environment affect the employee's health and safety. The psychosocial work environment includes organization of the work culture characterized by the attitudes, values, and beliefs which affect the mental and physical well-being of workers. Psychosocial hazards include the following issues: poor work organization (work demands, time pressure, workload, etc.), hostile organizational culture (lack of policies and practices, discrimination, lack of support for healthy lifestyles), unsympathetic command and control management style (lack of consultation, two-way communication), shift issues, and lack of support for work-life balance.

Personal health resources in the workplace refers to a supportive environment, and health services and information; health resources for employees include fitness provisions, healthy food, or a 'no smoking' policy in the workplace. Finally, enterprise community involvement includes activities such as reducing air pollution, keeping a check on the health of employee's families, and funding for NGOs or communities (WHO, 2010). This study excluded the domains of personal health resources and enterprise community involvement because it is difficult to collect accurate data from migrant workers for these domains. Therefore, this study included only the physical and psychosocial work environment domains out of the four domains presented by WHO.

Through the literature reviews on personal resources, work-related self-efficacy and work place social support were found as important factors for migrants, so the conceptual framework of this study was composed of these domains (Kumar & Kumar, 2008; Ra, Huh, Finch, & Cho, 2019; Ramos, Su, Correa, & Trinidad, 2018; Titzmann & Jugert, 2017).

Personal health practice includes health promotion behavior as an essential concept. Health promotion behavior can be behavior aimed at enhancing well-being, self-realization, and satisfaction; it can be a significant factor in the health and productivity of migrant workers (Pender et al. 2010, Cho, 2017). A conceptual framework was developed through the systematic literature review on the productivity of migrant workers, and there were three domains: work performance, absenteeism, and presenteeism.

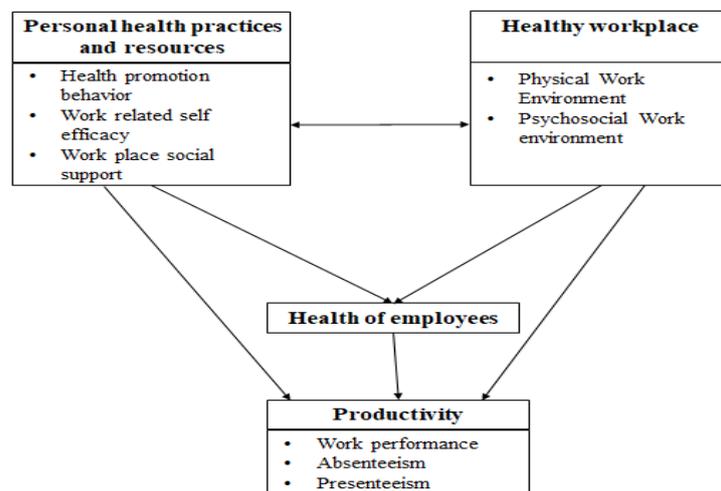


Figure 3. A conceptual framework of this study

IV. METHOD

1. Design

This study is a descriptive correlation study to investigate the influence of a healthy workplace on migrant workers' health and productivity.

2. Participants

Participants of the study were 250 migrant workers holding E-9 visas (non-professional visa) who worked at companies with less than 100 employees located in Seoul or Gyeonggi province.

The migrant workers in Korea holding E-9 visas met the following conditions: 1) they belong to one of the 16 countries that signed an MoU with Korea, 2) they passed Korean language tests and medical checkups in their country, 3) they were registered with an employment agency before signing a contract with Korean companies.

Exclusion criteria was as follows:

China was excluded from this study because the number of workers with E-9 visas was few, as they have the option of entering Korea through other type of visas.

2.1 Sample size estimation

The sample size was calculated using the G power program version 3.1.9.2. The sample was calculated with effect size .10, significance level .05, the power to .90, and ten

predictive variables, which produce 215 participants. Then allowing for a 15% dropout rate from the previous study on migrant workers (Choi, Kim, & Han, 2012), questionnaires were distributed to 250 participants.

3. Measures

A self-reported questionnaire was composed of 118 items. The questions covered six major topics: health promotion behavior (44 questions), personal resources (10 questions), healthy workplace (18 questions), health of employees (15 questions), productivity (19 questions), and general characteristics (12 questions).

The original authors approved instruments via email.

Measurements were modified and translated in accordance with the following steps. The first step was the face validity of the questionnaire. Six experts reviewed the first draft of the questionnaire which was in Korean. The six experts included four nursing faculty members interested in the subject of this study and two field experts working in occupational health areas. Final questionnaires were modified based on the feedback given by these experts. Through this process, the number of items was reduced from 131 to 118.

The second step was to translate the instrument from Korean to the languages of 10 countries, which were the Philippines, Bangladesh, Vietnam, Thailand, Myanmar, East Timor, Indonesia, Nepal, Sri Lanka, and Cambodia. This was based on which countries'

workers were accessible for the pilot study and then the instrument was reviewed by bilingual experts again.

Finally, a pilot study was conducted with 15 migrant workers from 10 countries in the migrant support center in Ansan and workers' health center in Northern Gyeonggi-do from April to May 2019. Most migrant workers who participated in the pilot test did not express any difficulties or make any comments. Only the questionnaire of Bangladesh was revised due to the narrow spacing of words, which made it very difficult to read. The questionnaires took 20–30 minutes to complete. After the pilot test, the questionnaire was finalized for the data collection. The questionnaire was made in the native languages of 10 countries: Bangladesh, Myanmar, Indonesia, The Philippines, East Timor, Vietnam, Thailand, Cambodia, Nepal, and Sri Lanka.

3.1 General characteristics

General characters of participants consists of 12 items: age, gender, education level, marriage status, nationality, religion, the period of residency in Korea, fluency in Korean, job type, salary, subjective health status, and BMI.

3.2 Healthy workplace

In this study, “healthy workplace” consists of the physical and psychosocial work environments.

3.2.1 Physical work environment

The physical work environment was measured by the Work Design Questionnaire (WDQ). It consisted of a total of 14 questions in four areas: ergonomics, physical demands, working conditions, and equipment use, and Cronbach α was .64-.82 at the time of development (Morgeson & Humphrey, 2006). In this study, a total of 13 questions were measured except for the temperature and humidity of working conditions. The higher the score, the better was the physical work environment. In this study, Cronbach α was .70.

3.2.2 Psychosocial work environment

The psychosocial work environment was measured by the Copenhagen Psychosocial Questionnaire (short versions) (Kristensen, Hannerz, Hogh, & Borg, 2005). The short version of the Copenhagen Psychosocial Questionnaire II (COPSOQII) consisted of 44 questions for 18 domains to measure the psychosocial work environment. In this study, it was based on a literature review, measuring the psychosocial work environment of migrant workers with a total of six items about quantitative demands, work pace, and emotional demands (De Castro, Gee, & Takeuchi, 2008; Olesen et al., 2012). In this study, a total of five items were used after combining two items about emotional demands. The reliability of short version questionnaires was not measured at the time of development (Kristensen, Hannerz, Hogh, & Borg, 2005). The psychosocial work domain of this measurement was re-coded and measured as a total average. The higher the score, the better was the psychosocial work environment. In this study, Cronbach α was .72.

3.3 Personal health practices and resources

In this study, personal health practices and resources consists of health promotion behavior, work-related self-efficacy, and workplace social support.

3.3.1 Health promotion behavior

The health promotion behavior was measured by the Health Promotion Life Profile II (HPLP II) instrument (Walker & Hill-Polerecky, 1996). This measurement has six domains: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. It has a total of 52 items, with a four-point scale starting with “never” at one point and ending with “routinely” at the fourth point, and the higher the average score, the better is the activity of health promotion. In this study, the original instrument was revised and the number of total items reduced to 44 since 8 items such as specific diet habits and exercise habits were excluded. At the time of development, Cronbach α was .94 (Walker & Hill-Polerecky, 1996). In this study, Cronbach α was .94.

3.3.2 Work-related self-efficacy

The work-related self-efficiency was measured by the job-related self-efficiency instrument developed by Lorente et al. (2011), which is a total of 7 items. The higher the score on the six-point scale (from “not at all” to “strongly agree”), the higher is the work-related self-efficiency. In this study, the survey was conducted with a total of 6 items except for one item of presenteeism. At the time of development, Cronbach α was measured .82 (Lorente, Salanova, & Martínez, 2011). In this study, Cronbach α was .91.

3.3.3 Work place social support

The work place social support was measured by Johnson and Hall (Johnson & Hall, 1988). It has a total of five items. In this study, the survey was conducted with a total of four items. One item was excluded because it did not apply to migrant workers.

The survey presented “dichotomic questions.” The higher the frequency of the response “often”, the higher was the social support score. At the time of development, Cronbach α was .75 (Johnson & Hall, 1988). In this study, Cronbach α was .62.

3.4 Health of employees

The patient health questionnaire called 15 instruments (PHQ-15) by Kroenke et al. examined migrant workers. Out of the 15 items, two items related to females and sexual behavior were deleted in consideration of the religious beliefs of some participants. It was rated on a three-point scale (0= not bothered at all; 1=bothered a little; 2=bothered a lot), with higher scores indicating greater severity of somatic symptoms (Kroenke, Spitzer, & Williams, 2002). In this study, the survey was conducted with a total of 13 items.

3.5 Productivity

In this study, productivity consists of work performance, absenteeism, and presenteeism.

3.5.1 Work performance

Work performance was measured by the individual work performance questionnaire developed by Koopmans (2014), consisting of three sub-domains: task performance,

contextual performance, and counterproductive work behavior, all of which made up a total of 18 items. This instrument was developed to compensate for the limitations of absenteeism or presenteeism, which focused on health-related productivities. The higher the score for task performance and contextual performance, and the lower the score for counterproductive work behavior, the better is the organizational performance. This study measured 15 items after being modified and supplemented by expert validity. The counterproductive work behavior domain of this measurement was re-coded and measured as a total average. The Cronbach α was .78-.85 at the time of development (Koopmans, Bernaards, Hildebrandt, de Vet, & van der Beek, 2014). In this study, Cronbach α was .83.

3.5.2 Absenteeism

Absenteeism was measured by the Work Performance questionnaire developed by the WHO (Kessler et al., 2003). It has two items which ask the respondent to state the expected number of hours for one week, and recall the number of hours worked in the past one week. In this study, relative absenteeism was calculated using Kessler's suggested formula $((4 * \text{expected hour of work} - 4 * \text{recalled hour of work}) / 4 * \text{expected hour of work})$, the measure of relative absenteeism meant as a percentage of expected hours and ranges between a negative number (working more than expected) and 1.0 (always absent).

3.5.3 Presenteeism

Presenteeism was measured by the Work Performance questionnaire developed by the WHO (Kessler et al., 2003). It has two items asking the participant to rate their overall work performance during past one week on a scale of 0 to 10, and asking them to rate their

work performance compared to other colleagues on the same scale. In this study, relative presenteeism was calculated using Kessler's suggested formula (their overall work performance/work performance compared to other colleagues). The WHO recommends restricting the distribution of relative presenteeism to the range of 0.25 to 2.0, where 0.25 is the worst relative performance (25% or less of other workers' performance), and 2.0 is the best performance (200% or more of other workers' performance).

4. Data collection

Data collection was conducted after receiving approval from the Institutional Review Board of the Yonsei University Health System (IRB number: Y-2019-0012) The data collection was conducted from June to August 2019.

The pilot test was conducted from April to May 2019 to confirm the comprehension of translation questionnaires by 15 migrant workers from 10 countries. The migrants from Bangladesh, Myanmar, Indonesia, the Philippines, East Timor, Vietnam, Thailand, Cambodia, Nepal, and Sri Lanka, were accepted as participants because they had attended the Korean language class. Other immigrant workers holding E-9 visas in the remaining five countries (Laos, Kirkuk, Uzbekistan, Pakistan, and Mongolia) were not eligible for the pilot survey because they could not attend the language class. Although the time required for the pilot test varied among the participating migrant workers, it took an average of 20–30 minutes. The pilot test helped identify problematic sentences or words that were not

understood by the participants or which did not reflect their culture. The migrant workers did not express difficulties with the survey conducted in their native languages, and they said that they clearly understood the questions.

Data collection was conducted through a self-reported questionnaire among migrant workers from June to August 2019. For data collection in this study, cooperation was requested from the migrant support center, multicultural support center, migrants' communities, and personal networking. The researcher visited the center, or communities, explained the purpose of the study, spoke to migrant workers who wanted to participate, and conducted the survey. If a researcher could not personally conduct the survey, they explained it to the staff in charge of the center or community and asked them to conduct the survey. All migrant workers had agreed to contribute to the data collection and signed the consent forms and responded to the survey using a questionnaire made in their native language. If they did not understand any question, they asked the researcher to explain.

This study was conducted with a total of 250 migrant workers, but the data of only 240 participants was utilized for analysis because incomplete data was excluded.

In this survey by the institution, 95 participants were sourced from the migrant support center, 28 participants were reached through the multicultural support center, 53 participants had been approached in the migrant communities such as those of Bangladesh, Thailand, The Philippines, Myanmar, and Vietnam, and 74 participants were found through personal contacts.

5. Data analysis

Data analysis was performed in this study using the IBM SPSS 25.0 program and the process SPSS macro version 3.4 program. A detailed description of the data analysis was given below:

- 1) Descriptive statistics, including the means, standard deviations (SD) and proportions were calculated using the IBM SPSS 25.0 program to study the general characteristics of the participants.
- 2) Sample normality was verified by calculating the sample mean, SD; and Pearson's correlation coefficient was used to identify the relationship amongst variables, which was calculated using the IBM SPSS 25.0 program.
- 3) The differences of measurement variables according to general characteristics were analyzed using a t-test, one-way ANOVA, post-hoc test, which were calculated using the IBM SPSS 25.0 program.
- 4) The internal consistency of instruments was analyzed using Cronbach's α , which was calculated using the IBM SPSS 25.0 program.
- 5) To examine the factors influencing health of employees, work performance, absenteeism, and presenteeism multiple regression analysis was done using the IBM SPSS 25.0 program.
- 6) Mediator analysis was conducted to estimate the bootstrapping and used to identify direct, indirect, and total effects. This was done using the SPSS process macro version 3.4 program.

To test the indirect effects of mediators, this approach suggested by Hayes was utilized rather than running separate analyses for each variable. Additionally, if the 95% CI does not include 0, the effect is said to be significant with $p < .05$ (Hayes & Rockwood, 2017).

V. RESULTS

1. Characteristics of participants

1.1 General characteristics

The general characteristics of the participants of this study are as follows. The participants consisted of 240 migrant workers from ten countries: Myanmar (19.2%), Cambodia (18.3%), Thailand (12.9%), Bangladesh (12.5%), the Philippines and Indonesia (7.5%), Vietnam (7.1%), Sri Lanka and Nepal (5.4%), and East Timor (4.2%). The mean age of the participants was 30.56 (5.58) years, and most of the participants were male (87.1%) and single (57.9%). The education level of the participants was high school graduates (45.6%), college graduates or higher (31.4%), and others (23.0%). Regarding religion, 56.7% of the participants were Buddhists, followed by Muslims (18.8%) and Catholics (11.3%). The mean length of stay in Korea was 39.30 (30.95) months, with 69.6% speaking a little Korean. Further, 66.3% of the participants were factory workers (66.3%), and 52.1% of the participants earned 2–3 million won monthly, followed by 1–2 million won (38.8%) (Table 3).

Table 3. Characteristics of participants

(N=240)

Variables	Categories	N (%)
Gender	Male	209(87.1)
	Female	31(12.9)
Age Group (year)	20-24	33(14.7)
	25-29	77(34.2)
	30-34	64(28.4)
	35-39	34(15.1)
	≥40	17(7.6)
Education level	Elementary school	12(5.0)
	Middle school	43(18.0)
	High School	109(45.6)
	≥ College graduate	75(31.4)
Marriage status	Single	139(57.9)
	Married	92(38.3)
	Divorced	6(2.5)
	Bereaved	3(1.3)
Religion	Christian	20(8.3)
	Catholic	27(11.3)
	Buddhist	136(56.7)
	Muslim	45(18.8)
	Hindu	9(3.8)
	Others	3(1.3)
Nationality	Nepal	13(5.4)
	Bangladesh	30(12.5)
	Cambodia	44(18.3)
	Vietnam	17(7.1)

Table 3. Characteristics of participants (continued)

Variables	Categories	N (%)
	The Philippines	18(7.5)
	Sri Lanka	13(5.4)
	Myanmar	46(19.2)
	Indonesia	18(7.5)
	East Timor	10(4.2)
	Thailand	31(12.9)
	Fluency in Korean	Never
	A little	167(69.6)
	Good	57(23.8)
	Excellent	7(2.9)
Length of stay in Korea (Month)	≤ 12	45(19.7)
	13-24	36(15.8)
	24-36	39(17.1)
	37-48	43(18.9)
	49-60	27(11.8)
	≥61	38(16.7)
Job type	Daily Labor	79(32.9)
	Factory Worker	159(66.3)
	Others	2(0.8)
Salary	≤ 1,000,000 won	4(1.7)
	1,000,000 - 2,000,000	93(38.8)
	2,000,000 - 3,000,000	125(52.1)
	≥ 3,000,000	15(6.3)

1.2 Health-related characteristics

Health-related characteristics of migrant workers in this study included subjective health status and Body Mass Index (BMI).

Subjective health status (four-point scale) mean was 1.96 (0.6), and 80.2% of the participants perceived their health as good or very good.

BMI mean was 22.56 (2.77) Kg/m²; 52.9% of the participants had normal BMI, 40.9% of the participants were overweight or obesity (Table 4).

Table 4. Health-related characteristics of participants

(N=240)		
Variables	Categories	N (%)
Subjective health status	Poor	6(2.6)
	Moderate	39(17.1)
	Good	141(61.8)
	Very good	42(18.4)
BMI (Kg/m ²)	Underweight (≤ 18.5)	13(6.3)
	Normal (18.5-23.0)	110(52.9)
	Overweight (23.0-25.0)	53(25.5)
	Obesity (>25.0)	32(15.4)

2. Descriptive statistics of study variables

Table 5 shows the results of descriptive statistical analysis in this study.

The mean of the physical work environment was 2.10 (0.42) out of 4.00. The equipment use variable had the highest mean at 2.41(0.66); on the other hand, physical demands had the lowest mean was at 1.73 (0.63).

The mean of the psychosocial work environment score was 2.22 (0.54) out of 4.00; the highest mean was 2.67(0.65) in quantitative demands; on the other hand, the work pace had the lowest mean at 0.76 (0.95).

The mean of health promotion behavior was 2.62 (0.48) out of 4.00, which indicates that participant's health promotion behavior was higher than the median score (2.58). The highest mean was 2.91 (0.60) in the spiritual growth domain; on the other hand, physical activity had the lowest mean at 2.39 (0.61).

The mean of the work-related self-efficacy was 3.98 (1.11) out of 6.00, which indicates participant's self-efficacy was lower than the median score (4.00).

The mean of the workplace social support was 0.64 (0.32) out of 1.00, which shows that workplace social support was lower than the median score (0.75).

The mean of the health of employees was 0.31(0.32) out of 2.00, which shows that health of employees was higher than the median score (0.23).

The mean of the work performance was 2.56 (0.54) out of 4.00. The highest mean was 2.84(0.85) in the counterproductive work behavior; on the other hand, contextual performance had the lowest mean at 2.35 (0.75).

The mean (SD) of absenteeism was 0.00 (0.16) and presenteeism was 1.00 (0.22).

Table. 5. Descriptive statistics of study variables

(N=240)

Domain	Variable	Range	Mean	SD
Healthy workplace	Physical work environment	0-4	2.10	0.42
	Psychosocial work environment	0-4	2.22	0.54
Personal health practices and resources	Health Promotion Behavior	1-4	2.62	0.48
	Work-related self-efficacy	0-6	3.98	1.11
	Workplace social support	0-1	0.64	0.32
Health of employees	Health of employees	0-2	0.31	0.32
	Work performance	0-4	2.56	0.54
Productivity	Absenteeism	-2-1	0.00	0.17
	Presenteeism	0.25-2.0	1.00	0.22

2.1 Descriptive statistics of healthy workplace

Table 6 shows the item distributions of the physical work environment. The physical work environment had four domains; ergonomics, physical demands, working conditions, and equipment use. The lowest mean was at 1.59 (0.66) out of 4.00 in the equipment use domain, and the highest mean was at 2.25(0.79) out of 4.00 in the working conditions domain. The item “work is excessive” in the ergonomics domain had the lowest mean at 1.89 (0.89), and item "the task requires a lot of physical labor" in the physical demands domain was the lowest at 1.56 (1.00). The item “the workplace is free from excessive noise” in working conditions was the lowest at 2.00 (1.26), and “my work requires complex skills” in equipment use was the lowest at 2.33 (0.90). The item “Work in a clean environment” had the highest mean at 2.55(1.10) in the physical work environment.

Table 7 shows the item distributions of the psychosocial work environment. The psychosocial work environment had three domains; quantitative demands, work pace, emotional demands. The lowest mean was at 1.76(0.95) out of 4.00 in the work pace domain. The item “when you are at work, do you need to work at a higher speed?” of total five items was the lowest at 1.70 (1.06). The item “When you are at work, do you get behind with your work?” had the highest mean at 2.73(1.06) in the psychosocial work environment.

Table 6. Item distribution of physical work environment (N=240)

Domain	Contents	Mean (SD)	N (%)				
			Strongly disagree	Disagree	Moderate	Agree	Strongly agree
1	The arrangement of chairs is appropriate in the workplace.	2.25 (1.27)	37 (15.4)	23 (9.6)	60 (25.0)	80 (34.6)	37 (15.4)
	The available intervals between workers, lines of movement, and leg room etc. suit the operators' physical characteristics.	2.20 (1.10)	24 (10.1)	29 (12.1)	86 (35.8)	76 (31.7)	25 (10.4)
	Workload is excessive*.	1.89 (0.89)	11 (4.6)	31 (13.1)	129 (54.4)	50 (21.1)	16 (6.8)
Sub-total		2.11(0.80)					
2	The task requires a great deal of repetitive work*.	1.63 (0.84)	3 (1.3)	26 (10.9)	110 (46.2)	77 (32.4)	22 (9.2)
	The task requires much muscular strength for lifting heavy things*.	1.71 (1.01)	15 (6.3)	26 (10.9)	99 (41.6)	71 (29.8)	27 (11.3)
	The task requires a lot of physical labor*.	1.56 (1.00)	9 (3.8)	29 (12.1)	83 (34.6)	86 (35.8)	33 (13.8)
Sub-total		1.63(0.76)					
3	The workplace is free from excessive noise.	2.00 (1.26)	41 (17.1)	40 (16.7)	66 (27.5)	65 (27.1)	28 (11.7)
	The task involves a small risk of accidents.	2.20 (0.99)	15 (6.3)	32 (13.3)	102 (42.5)	71 (29.6)	20 (8.3)
	An environment free from health hazards.	2.25 (1.16)	17 (7.1)	49 (20.4)	70 (29.2)	65 (27.1)	39 (16.3)
	Work in a clean environment.	2.55 (1.10)	14 (5.8)	22 (9.2)	74 (30.8)	79 (32.9)	51 (21.3)
Sub-total		2.25(0.79)					
4	The task requires the use of variety of different machines*.	1.69 (0.89)	9 (3.8)	23 (9.6)	111 (46.3)	78 (32.5)	19 (7.9)
	My work requires complex skills*.	1.63 (0.93)	7 (2.9)	27 (11.3)	103 (42.9)	76 (31.7)	27 (11.3)
	A lot of time is required to learn the equipment used on the job*.	2.40 (0.93)	9 (3.8)	15 (6.3)	85 (35.4)	100 (41.2)	31 (12.9)
Sub-total		1.59 (0.66)					

1.Ergonomic; 2. Physical demands; 3. Working conditions; 4. Equipment use; *: re-coding

Table 7. Item distribution of psychosocial work environment

(N=240)

Domain	Contents	Mean (SD)	Never/ hardly ever	Seldom	Sometimes	Often	Always
			N (%)				
1	When you are at work, do you get behind with your work? *	2.73 (1.06)	64 (26.9)	84 (35.3)	64 (27.9)	16 (6.7)	10 (4.2)
	When you are at work, do you have enough time to finish your work?	2.67 (0.65)	11 (4.6)	19 (7.9)	69 (28.7)	95 (39.6)	46 (19.2)
Sub-total		2.67 (0.65)					
2	When you are at work, do you need to work at a higher speed? *	1.70 (1.06)	11 (4.6)	37 (15.4)	100 (41.7)	53 (22.1)	39 (16.3)
	When you are at work, do you work at a high speed all day? *	1.82 (1.03)	13 (5.4)	46 (19.2)	89 (37.1)	69 (28.7)	23 (9.6)
Sub-total		1.76(0.95)					
3	When you are at work, does your work put you through emotionally disturbing situations? *	2.24 (0.99)	22 (9.2)	72 (30.1)	102 (42.7)	29 (12.1)	14 (5.9)
Sub-total		2.24(0.99)					

1. Quantitative demands; 2. Work pace; 3. Emotional demands; *: re-coding

2.2 Descriptive statistics of personal health practice and resources

Table 8 shows the item distributions of health promotion behaviors. The health promotion behaviors had six domains: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. The lowest mean was 2.37 (0.63) out of 4.00 in the health responsibility domain, and the highest mean was 2.91(0.60) out of 4.00 in spiritual growth. The item “I go to the hospital when I have any unusual signs and symptoms” in the health responsibility domain was the lowest at 2.18 (0.97), “I check my heartbeat while working out” in physical activity was the lowest at 1.91 (0.82), “I eat less fatty food” in the nutrition domain was the lowest at 2.22 (0.73), “I seek interesting and challenging things every day” in the spiritual growth domain was the lowest at 2.60 (0.88), “I discuss my problems and concerns with people close to me” in interpersonal relationships was the lowest at 2.39(0.84), and “I relax or meditate for 15 to 20 minutes every day” in stress management was the lowest at 2.16(0.99). The item “I believe that my life has a purpose” had the highest mean at 3.29(0.86) among health promotion behaviors.

Table 9 shows the item distribution for work-related self-efficacy. The item “Even when I finish work in a rushed situation, I can do it” was the highest at 4.15 (1.34) out of 6.00, and “I can work even in the face of unexpected situations” was the highest at 3.56 (1.39) of 6.00.

Table 10 shows the item distribution for workplace social support. The item “I could talk to co-workers during breaks” was the highest at 0.78 (0.42) of 1.00, and “I got together

with my coworkers outside the company during my free time” was the highest at 0.49 (0.50) of 1.00.

Table 8. Item distribution of health promotion behaviors

(N=240)

Do mai n	Contents	Mean (SD)	N (%)			
			Never	Some times	Often	Routinely
He alth res pon sibi lity	I go to the hospital when I have any unusual signs and symptoms.	2.18 (0.97)	65 (27.1)	97 (40.4)	49 (20.4)	29 (12.1)
	I read or watch television programs on improving health.	2.40 (0.86)	33 (13.8)	105 (43.8)	76 (31.7)	26 (10.8)
	I discuss my health issues with health professionals.	2.41 (0.94)	38 (15.8)	104 (43.3)	60 (25.0)	38 (15.8)
	I inspect my body at least monthly for physical changes/danger signs.	2.33 (0.87)	41 (17.1)	103 (42.9)	73 (30.4)	23 (9.6)
	I consult doctors, nurses, or pharmacists on how to take care of my health.	2.34 (0.89)	45 (18.8)	92 (38.3)	80 (33.3)	23 (9.6)
	I attend educational programs on personal health care.	2.26 (0.93)	52 (21.7)	100 (41.7)	61 (25.4)	27 (11.3)
	I get counselling or guidance if necessary.	2.26 (0.93)	27 (11.3)	90 (37.5)	53 (22.1)	70 (29.2)
	Sub-total	2.37(0.63)				
Ph ysi cal act ivi ty	I work out with a plan.	2.45 (0.97)	41 (17.1)	92 (38.3)	65 (27.1)	42 (17.5)
	I do minimum 20 minutes of intense workout, minimum thrice a week.	2.43 (0.91)	37 (15.4)	95 (39.6)	76 (31.7)	32 (13.3)
	I engage in workout that is light to moderate in intensity.	2.51 (0.91)	29 (12.1)	98 (40.8)	74 (30.8)	39 (16.3)
	I take part in leisure activities during my free time.	2.40 (0.90)	33 (13.8)	113 (47.1)	60 (25.0)	34 (14.2)
	I practice stretching at least thrice a week.	2.45 (0.98)	42 (17.5)	93 (38.8)	61 (25.4)	44 (18.3)
	I work out in my everyday life.	2.61 (0.96)	25 (10.4)	99 (41.3)	60 (25.0)	56 (23.3)
	I check my heartbeat while working out.	1.91 (0.82)	85 (35.4)	99 (41.3)	49 (20.4)	7 (2.9)
	Sub-total	2.39(0.61)				
Nu trit ion	I eat less fatty food.	2.22 (0.73)	27 (11.3)	149 (62.1)	49 (20.0)	16 (6.7)
	I try to eat less sweet food or sugar.	2.42 (0.85)	26 (10.8)	117 (48.8)	67 (27.9)	30 (12.5)
	I eat a certain amount of cooked rice or noodles every day.	2.95 (0.96)	15 (6.3)	70 (29.2)	66 (27.5)	89 (37.1)
	I eat fruit every day.	2.70 (0.82)	9 (3.8)	100 (41.7)	84 (35.0)	47 (19.6)
	I eat enough vegetables daily.	2.83 (0.86)	10 (4.2)	82 (34.2)	88 (36.7)	60 (25.0)
	I eat breakfast.	3.11 (0.96)	14 (5.8)	56 (23.3)	60 (25.0)	110 (45.8)
	Sub-total	2.71(0.54)				

Table 8. Item distribution of health promotion behaviors (continued)

Domain	Contents	Mean (SD)	N (%)			
			Never	Some times	Often	Routinely
Spiritual growth	I think that I am changing for the better.	2.88 (0.90)	14 (5.8)	71 (29.6)	84 (35.0)	71 (29.6)
	I believe that my life has a purpose.	3.29 (0.86)	7 (2.9)	42 (17.5)	65 (27.1)	126 (52.5)
	I look forward to the future.	3.18 (0.87)	9 (3.8)	47 (19.6)	77 (32.1)	107 (44.6)
	I feel content and at peace with myself.	2.73 (0.90)	19 (7.9)	80 (33.3)	87 (36.3)	54 (22.5)
	I work toward long-term goals in my life.	3.07 (0.88)	9 (3.8)	58 (24.2)	81 (33.8)	92 (38.3)
	I seek interesting and challenging things every day.	2.60 (0.88)	18 (7.5)	105 (43.8)	71 (29.6)	46 (19.2)
	I know what is important in my life.	2.90 (0.97)	21 (8.8)	64 (26.7)	74 (30.8)	81 (33.8)
	I try new experiences and challenges.	2.63 (0.91)	23 (9.6)	92 (38.3)	77 (32.1)	48 (20.0)
	Sub-total	2.91(0.60)				
Inter- personal relation- ships	I discuss my problems and concerns with people close to me.	2.39 (0.84)	24 (10.0)	131 (54.6)	53 (22.1)	32 (13.3)
	I praise other people easily for their achievements.	2.81 (0.84)	9 (3.8)	84 (35.0)	91 (37.9)	56 (23.3)
	I keep harmonious relationships with others.	3.27 (0.82)	7 (2.9)	35 (14.6)	85 (35.4)	113 (47.1)
	I spend time with close friends.	2.87 (0.88)	9 (3.8)	83 (34.6)	79 (32.9)	69 (28.9)
	I give attention and love to others.	2.97 (0.90)	13 (5.4)	61 (25.4)	86 (35.8)	80 (33.3)
	I get along with persons who are precious to me.	2.95 (0.88)	9 (3.8)	83 (34.6)	79 (32.9)	69 (28.7)
	I seek a way to get along with others.	2.72 (0.85)	13 (5.4)	91 (37.9)	87 (36.3)	49 (20.4)
	I resolve conflicts with others through dialogue and compromise.	2.62 (0.90)	22 (9.2)	93 (38.8)	79 (32.9)	46 (19.2)
	Sub-total	2.82(0.55)				
Stress manage- ment	I get enough sleep.	2.65 (0.95)	23 (9.6)	97 (40.4)	62 (25.8)	58 (24.2)
	I take some time for relaxation each day.	2.61 (0.98)	31 (12.9)	88 (36.7)	65 (27.1)	56 (23.3)
	I accept things in my life that cannot be changed.	2.64 (0.97)	25 (10.4)	97 (40.4)	58 (24.2)	60 (25.0)
	I concentrate on pleasant thoughts at bedtime.	2.71 (0.92)	25 (10.4)	72 (30.0)	91 (37.9)	52 (21.7)
	I use specific methods to control my stress.	2.35 (0.93)	42 (17.5)	104 (43.3)	61 (25.4)	33 (13.8)
	I balance time between work and leisure.	2.62 (0.93)	22 (9.2)	101 (42.1)	64 (26.7)	53 (22.1)
	I relax or meditate for 15 to 20 minutes every day.	2.16 (0.99)	71 (29.6)	89 (37.1)	50 (20.8)	30 (12.5)
	I make adjustments to prevent fatigue.	2.42 (0.83)	27 (11.3)	110 (45.8)	78 (32.5)	25 (10.4)
	Sub-total	2.52(0.58)				

Table 9. Item distribution of work-related self-efficacy

(N=240)

Contents	Mean (SD)	Not at all ←————→ Strongly agree						
		N (%)						
I can work in situations where I have to solve difficult problems.	3.61 (1.48)	7 (2.9)	11 (4.6)	27 (11.3)	76 (31.8)	54 (22.6)	31 (13.0)	33 (13.8)
I can work even in the face of unexpected situations.	3.56 (1.39)	5 (2.1)	11 (4.6)	24 (10.0)	90 (37.7)	51 (21.3)	31 (13.0)	27 (11.3)
When my colleague's work is delayed, I can work with the person to finish it.	4.20 (1.50)	3 (1.3)	8 (3.3)	14 (5.9)	63 (26.4)	40 (16.7)	47 (19.7)	64 (26.8)
Even when I finish work in a rushed situation, I can do it.	4.15 (1.34)	3 (1.3)	6 (2.5)	13 (5.4)	51 (21.3)	65 (27.2)	60 (25.1)	41 (17.2)
Although my task changes frequently, I can do it.	4.03 (1.35)	4 (1.7)	6 (2.5)	17 (7.1)	51 (21.3)	70 (29.3)	55 (23.0)	36 (15.1)
I can do my work even when my colleagues do not help me.	4.13 (1.43)	6 (2.5)	5 (2.1)	15 (6.3)	46 (19.2)	69 (28.9)	50 (20.9)	48 (20.1)
Total	3.98(1.11)							

Table 10. Item distribution of work place social support

(N=240)

Contents	Mean (SD)	Often	Seldom
		N (%)	
I could talk to co- workers during breaks	0.78 (0.42)	186 (77.8)	53 (22.2)
I could take a rest to talk with my co-workers	0.59 (0.49)	141 (59.0)	98 (41.0)
I can communicate with my colleagues about work.	0.69 (0.47)	164 (68.6)	75 (31.4)
I got together with my coworkers outside the company during my free time	0.49 (0.50)	118 (49.4)	121 (50.6)
Total	0.64(0.32)		

2.3 Descriptive statistics of health of employees

Table 11 shows the item distribution for health of employees. The symptom of fainting was the lowest at 0.11 (0.32) out of 2.00 and the symptom of back pain was the highest at 0.55 (0.61) out of 2.00.

Table 11. Item distribution of health of employees

(N=240)

Physical Symptoms	Mean (SD)	N (%)		
		Not at all	Moderately	Extremely
Stomachache	0.27 (0.50)	182(75.8)	52(21.7)	6(2.5)
Back pain	0.55 (0.61)	123(51.2)	102(42.5)	15(6.3)
Pain in arms, legs, knee, or hip joint	0.44 (0.59)	147(61.3)	81(33.7)	12(5.0)
Headache	0.43 (0.56)	145(60.4)	87(36.3)	8 (3.3)
Chest pain	0.17 (0.41)	203(84.6)	34(14.1)	3(1.3)
Dizziness	0.21 (0.44)	192(80.0)	45(18.8)	3(1.3)
Fainting	0.11 (0.32)	213(88.8)	27(11.2)	0(0.0)
Palpitations	0.18 (0.42)	202(84.2)	34(14.2)	4(1.7)
Shortness of breath	0.16 (0.40)	204(85.0)	33(13.7)	3(1.3)
Constipation, loose bowel, or diarrhea	0.28 (0.47)	175(72.9)	63(26.3)	2(0.8)
Nausea, gas, or indigestion	0.29 (0.49)	174(72.5)	62(25.8)	4(1.7)
Being tired or having low energy	0.46 (0.59)	141(58.8)	87(36.2)	12(5.0)
Sleep disturbance	0.48 (0.62)	142(59.1)	82(34.2)	16(6.7)
Total	0.31(0.32)			

2.4 Descriptive statistics of productivity

Table 12 shows item distribution for work performance. Work performance had three domains: task performance, contextual performance, and counterproductive work performance. The lowest mean was at 2.35 (0.75) out of 4.00 in the contextual performance domain, and the highest mean was at 2.84 (0.85) out of 4.00 in counterproductive work performance. The item “I have planned out my work so that I can finish it on time” in task performance had the lowest mean at 2.39 (0.96), “I have been in charge of other duties apart from my routine work” in contextual performance had the lowest mean at 2.20 (1.13), and “I have complained even about small things related to my work” in counterproductive work performance had the lowest mean at 2.72 (1.03). “I have made problems all the more serious” had the highest mean at 3.05(1.07) in work performance.

Table 12. Item distribution of work performance

(N=240)

Domain	Contents	Mean (SD)	Seld -om	Some times	Regula r	Often	Always
Task performance	I have planned out my work so that I can finish it on time.	2.39 (0.96)	4 (1.7)	37 (15.4)	93 (38.8)	73 (30.4)	33 (13.1)
	I have figured out the outcome of work that I have to accomplish.	2.40 (0.92)	3 (1.3)	34 (14.2)	97 (40.4)	77 (32.1)	29 (12.1)
	I have set priorities for work.	2.50 (0.99)	6 (2.5)	26 (10.8)	93 (38.8)	71 (29.6)	44 (18.3)
	I have efficiently conducted work.	2.53 (0.91)	2 (0.8)	19 (7.9)	112 (46.7)	63 (26.3)	44 (18.3)
	I have efficiently conducted work.	2.59 (0.91)	1 (0.4)	23 (9.6)	94 (39.2)	78 (32.5)	44 (18.3)
Sub-total		2.48(0.70)					
Contextual performance	I have started a new task when my task is finished according to my plan.	2.54 (0.98)	5 (2.1)	26 (10.8)	88 (36.7)	76 (36.7)	45 (18.8)
	I have voluntarily taken care of difficult tasks.	2.34 (0.90)	2 (0.8)	40 (16.7)	95 (39.6)	80 (33.3)	23 (9.6)
	I have tried to learn latest knowledge, or skills related to work.	2.46 (1.01)	5 (2.1)	35 (14.6)	87 (36.3)	70 (29.2)	43 (17.9)
	I have come up with creative solutions to new problems.	2.25 (0.98)	10 (4.2)	40 (16.7)	91 (37.9)	78 (32.5)	21 (8.8)
	I have been in charge of other duties apart from my routine work.	2.20 (1.13)	16 (6.7)	49 (20.4)	82 (34.2)	57 (23.8)	36 (15.0)
	I have continuously pursued new challenges in my field of work.	2.30 (1.10)	12 (5.0)	42 (17.5)	90 (37.5)	55 (22.9)	41 (17.1)
Sub-total		2.35(0.75)					
Domain	Contents	Mean (SD)	Nev -er	Seldom	Someti mes	Regu lar	Often
Counter- productive work performance * re-code	I have complained even about small things related to my work.	2.72 (1.03)	60 (25.0)	86 (35.8)	68 (28.3)	18 (7.5)	8 (3.3)
	I have made problems all the more serious*.	3.05 (1.07)	103 (42.9)	77 (32.1)	35 (14.6)	18 (7.5)	7 (2.9)
	I have focused more on negative aspects of situations at work instead of the positive aspects*.	2.85 (1.19)	95 (39.6)	61 (25.4)	48 (20.0)	25 (10.4)	11 (4.6)
	I have talked to coworkers, or people outside the workplace about the negative aspects of my work*.	2.73 (1.07)	64 (26.7)	86 (35.8)	60 (25.0)	21 (8.8)	9 (3.8)
Sub-total		2.84(0.85)					

3. Differences in health of employees, work performance, absenteeism, and presenteeism according to general characteristics

3.1 Difference in health of employees by general characteristics

Table 13 shows the results of the differences in terms of the health of employees by general characteristics in this study.

There were significant differences in health of employees in terms of gender ($t=-2.48$, $p=.018$), religion ($F=2.62$, $p=.025$), nationality ($F=6.21$, $p<.001$), job type ($F=7.49$, $p=.007$), and subjective health status ($F=3.23$, $p=.023$) (Table 13).

Table 13. Health of employees by general characteristics

(N=240)

Variables	Categories	N	Health of employees			
			Mean±SD	t/F	p	
Gender	Male	209	0.29±0.30	-2.48	.018	
	Female	31	0.47±0.40			
Education level	Elementary school	12	0.43±0.43	1.65	.179	
	Middle school	43	0.32±0.38			
	High School	109	0.27±0.30			
	≥ College graduate	75	0.35±0.29			
Marriage status	Single	139	0.31±0.33	1.17	.323	
	Married	92	0.30±0.29			
	Divorced	6	0.24±0.23			
	Bereaved	3	0.64±0.62			
Religion	Christian	20	0.33±0.25	2.62	.025	
	Catholic	27	0.40±0.34			(a<b)
	Buddhist	136	0.25±0.31 ^a			
	Muslim	45	0.35±0.31			
	Hindu	9	0.55±0.45 ^b			
	Others	3	0.46±0.28			
Nationality	Nepal	13	0.61±0.45 ^a	6.21	<.001	
	Bangladesh	30	0.35±0.29			(b<c<a)
	Cambodia	44	0.38±0.38			
	Vietnam	17	0.23±0.26			
	The Philippines	18	0.48±0.36			
	Sri Lanka	13	0.17±0.17 ^b			
	Myanmar	46	0.09±0.11 ^c			
	Indonesia	18	0.41±0.36			

Table 13. Health of employees by general characteristics (Continued)

Variables	Categories	N	Health of employees		
			Mean±SD	t/F	p
Fluency in Korean	East Timor	10	0.24±0.21	1.42	.238
	Thailand	31	0.33±0.26		
	Never	7	0.42±0.46		
	A little Korean	167	0.29±0.29		
Job type	Good	57	0.31±0.37	7.49	.007
	Excellent	7	0.52±0.39		
	Daily Labor	79	0.23±0.34		
	Factory Worker	159	0.35±0.30		
Salary (won)	≤ 1,000,000	4	0.37±0.25	1.25	.292
	1,000,000 - 2,000,000	93	0.34±0.33		
	2,000,000 - 3,000,000	125	0.30±0.33		
	≥ 3,000,000	15	0.17±0.20		
Subjective health status	Poor	6	0.45±0.14	3.23	.023 (a>b)
	Moderate	39	0.43±0.39 ^a		
	Good	141	0.29±0.30		
BMI (Kg/m ²)	Very good	42	0.23±0.32 ^b	1.67	.174
	Underweight (≤ 18.5)	13	0.31±0.26		
	Normal (18.5-23.0)	110	0.32±0.31		
	Overweigh (23.0-25.0)	53	0.32±0.32		
	Obesity (>25.0)	32	0.19±0.21		

Post-hoc test was analyzed by Scheffe Test

3.2 Work performance, absenteeism, presenteeism by general characteristics

The work performance of migrant workers did not differ significantly by the general characteristics (Table 14).

Table 15 shows the results of the differences in terms of absenteeism and presenteeism by general characteristics in this study. In terms of absenteeism, there was a significant difference between Buddhist and Catholic ($F=2.62$, $p=.025$). And, Vietnam, The Philippines, Indonesia, East Timor scored higher than Cambodia with a statistically significant difference ($F=3.10$, $p=.002$). In terms of presenteeism, there was a significant difference between those earning 1–2 million won and those earning more than 3 million won ($F=3.31$, $p=.021$).

Table 14. Work performance by general characteristics

(N=240)

Variables	Categories	N	Work performance		
			Mean±SD	t/F	p
Gender	Male	209	2.58±0.51	1.55	.131
	Female	31	2.39±0.67		
Education level	Elementary school	12	2.48±0.58	.096	.962
	Middle school	43	2.57±0.54		
	High School	109	2.56±0.55		
	≥College graduate	75	2.57±0.52		
Marriage status	Single	139	2.59±0.56	1.03	.382
	Married	92	2.54±0.47		
	Divorced	6	2.39±0.39		
	Bereaved	3	2.12±0.69		
Religion	Christian	20	2.60±0.43	0.38	.863
	Catholic	27	2.51±0.61		
	Buddhist	136	2.58±0.56		
	Muslim	45	2.49±0.46		
	Hindu	9	2.66±0.70		
	Others	3	2.71±0.27		
Nationality	Nepal	13	2.67±0.60	0.96	.477
	Bangladesh	30	2.45±0.46		
	Cambodia	44	2.62±0.49		
	Vietnam	17	2.34±0.59		
	The Philippines	18	2.43±0.49		
	Sri Lanka	13	2.71±0.58		
	Myanmar	46	2.58±0.61		

Table 14. Work performance by general characteristics (continued)

Variables	Categories	N	Work performance		
			Mean±SD	t/F	p
	Indonesia	18	2.48±0.46		
	East Timor	10	2.64±0.78		
	Thailand	31	2.64±0.45		
Fluency in Korean	Never	7	2.80±0.66	0.70	.556
	A little Korean	167	2.54±0.56		
	Good	57	2.59±0.50		
Job type	Excellent	7	2.44±0.22		
	Daily Labor	79	2.58±0.59	0.30	.768
	Factory Worker	159	2.55±0.51		
Salary (won)	≤1,000,000	4	2.39±0.63	0.58	.627
	1,000,000 - 2,000,000	93	2.61±0.60		
	2,000,000 - 3,000,000	125	2.52±0.50		
	≥3,000,000	15	2.59±0.40		
Subjective health status	Poor	6	2.34±0.65	1.54	.206
	Moderate	39	2.42±0.56		
	Good	141	2.60±0.54		
	Very good	42	2.60±0.50		
BMI (Kg/m ²)	Underweight (≤18.5)	13	2.44±0.58	0.76	.518
	Normal (18.5-23.0)	110	2.56±0.53		
	Overweigh (23.0-25.0)	53	2.63±0.56		
	Obesity (>25.0)	32	2.47±0.52		

Table 15. Absenteeism, presenteeism by general characteristics

(N=240)

Variables	Categories	N	Absenteeism			N	Presenteeism		
			Mean±SD	t/F	p		Mean±SD	t/F	p
Gender	Male	196	-0.00±0.16	-1.64	.102	204	1.02±0.15	-0.88	.387
	Female	31	0.05±0.20			30	1.05±0.16		
Education level	Elementary school	12	0.01±0.09	1.89	.131	12	0.96±0.34	2.52	.059
	Middle school	43	-0.05±0.20			43	0.92±0.27		
	High School	109	0.18±0.18			109	1.01±0.21		
	≥ College graduate	75	0.00±0.12			75	1.02±0.17		
Marriage status	Single	131	0.00±0.18	0.96	.411	137	1.02±0.17	0.25	.864
	Married	87	0.00±0.15			88	1.03±0.14		
	Divorced	6	0.01±0.12			6	1.06±0.10		
	Bereaved	3	-0.17±0.29			3	1.00±0.00		
Religion	Christian	20	-0.01±0.10	2.56	.028	19	0.98±0.23	0.93	.461
	Catholic	27	0.08±0.11 ^a		(a>b)	27	1.06±0.18		
	Buddhist	126	-0.03±0.20 ^b			131	1.01±0.14		

Table 15. Absenteeism, presenteeism by general characteristics (continued)

Variables	Categories	N	Absenteeism			N	Presenteeism		
			Mean±SD	t/F	p		Mean±SD	t/F	p
Nationality	Hindu	9	-0.01±0.04			9	1.02±0.18		
	Others	3	0.10±0.16			3	0.99±0.13		
	Nepal	13	-0.02±0.21	3.10	.002	13	1.07±0.18	0.93	.496
	Bangladesh	29	0.01±0.09		(a<b)	30	1.04±0.15		
	Cambodia	35	0.00±0.17 ^a			43	1.00±0.14		
	Vietnam	17	0.09±0.19 ^b			16	1.06±0.15		
	The Philippines	18	0.08±0.27 ^b			18	1.07±0.18		
	Sri Lanka	12	-0.02±0.13			11	1.00±0.07		
	Myanmar	46	-0.02±0.06			45	1.01±0.16		
	Indonesia	16	0.09±0.19 ^b			18	1.01±0.10		
	East Timor	10	0.07±0.08 ^b			10	1.04±0.17		
Fluency in Korean	Thailand	31	-0.04±0.16			30	0.98±0.16		
	Never	7	0.09±0.18	1.61	.188	6	1.00±0.00	0.19	.903
	A little Korean	165	0.01±0.14			167	1.02±0.16		

Table 15. Absenteeism, presenteeism by general characteristics (continued)

Variables	Categories	N	Absenteeism			N	Presenteeism		
			Mean±SD	t/F	p		Mean±SD	t/F	p
	Good	47	-0.04±0.25			55	1.01±0.11		
	Excellent	7	0.02±0.13			7	0.99±0.18		
Job type	Daily Labor	72	-0.02±0.14	-1.04	.299	79	0.97±0.26	-1.26	.209
	Factory Worker	153	0.01±0.18			159	1.00±0.20		
Salary	≤ 1,000,000	4	0.03±0.63	0.73	.534	4	1.02±0.13	3.31	.021
(won)	1,000,000 - 2,000,000	91	0.01±0.21			93	1.05±0.18 ^a		(a>b)
	2,000,000 - 3,000,000	114	-0.00±0.14			120	1.01±0.13		
	≥ 3,000,000	15	-0.05±0.11			15	0.94±0.11 ^b		
Subjective	Poor	6	0.06±0.89	2.08	.104	6	1.13±0.19	0.88	.451
health	Moderate	39	0.04±0.17			39	1.00±0.20		
status	Good	141	0.00±0.13			141	0.99±0.22		
	Very good	42	-0.04±0.24			42	1.00±0.21		
BMI	≤ 18.5	13	0.10±0.13	1.87	.136	13	1.04±0.20	0.26	.852
(Kg/m ²)	18.5-23.0	110	-0.00±0.18			110	0.98±0.23		
	23.0-25.0	53	-0.00±0.15			53	1.00±0.26		
	> 25.0	32	-0.00±0.16			32	0.99±0.23		

Post-hoc test was analyzed by Scheffe Test

4. Correlations among study variables

Correlations were as shown in Table 16.

Age showed a significant positive correlation with the length of stay in Korea ($r=.346$, $p<.001$) and the physical work environment ($r=.189$, $p=.005$). And it showed a significant negative correlation with presenteeism ($r=-.205$, $p=.002$). Length of stay in Korea showed a significant positive correlation with the physical work environment ($r=.269$, $p<.001$) and the psychosocial work environment ($r=.132$, $p=.046$). Subjective health status showed a significant positive correlation with health promotion behavior ($r=.186$, $p=.005$) and a negative correlation with the health of employees ($r=-.193$, $p=.003$) and absenteeism ($r=-.163$, $p=.014$). Health promotion behavior showed a significant positive correlation with work-related self-efficacy ($r=.194$, $p=.003$), workplace social support ($r=.136$, $p=.035$), and work performance ($r=.325$, $p<.001$), and a negative correlation with the health of employees ($r=-.307$, $p<.001$). Work-related self-efficacy showed a significant positive correlation with work performance ($r=.360$, $p<.001$). Physical work environment showed a significant positive correlation with the psychosocial work environment ($r=.185$, $p=.004$) and a significant negative correlation with the health of employees ($r=-.129$, $p=.048$). Psychosocial work environment showed a significant positive correlation with work performance ($r=.192$, $p=.003$) and a significant negative correlation with the health of employees ($r=-.132$, $p=.040$). Health of employees showed a significant positive correlation with absenteeism ($r=.198$, $p=.002$) and a significant negative correlation with work performance ($r=-.220$, $p=.001$). Work performance showed a significant positive

correlation with presenteeism ($r=.141, p=.029$) and a significant negative correlation with work performance ($r=-.173, p=.007$).

Table 16. Pearson correlation for measured variables

(N=240)

Variable	1	2	3	4	5	6	7	8	9	10	11
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
1. Age											
2. Length of stay in Korea	.346 ($<.001$)										
3. Subjective health status	-.109 (.112)	-.067 (.324)									
4. Health promotion behavior	-.034 (.617)	.075 (.262)	.186 (.005)								
5. Work-related self-efficacy	-.035 (.603)	-.100 (.131)	.024 (.715)	.194 (.003)							
6. Workplace social support	.059 (.382)	.077 (.244)	.065 (.327)	.136 (.035)	-.052 (.420)						
7. Physical work environment	.189 (.005)	.269 ($<.001$)	-.104 (.122)	.076 (.248)	.022 (.731)	.077 (.241)					
8. Psychosocial work environment	.082 (.232)	.132 (.046)	.009 (.895)	.076 (.238)	.063 (.335)	.009 (.888)	.185 (.004)				
9. Health of employees	-.078 (.241)	-.023 (.731)	-.193 (.003)	-.307 ($<.001$)	-.038 (.562)	-.072 (.269)	-.129 (.048)	-.132 (.040)			
10. Work performance	-.064 (.341)	.012 (.853)	.119 (.072)	.325 ($<.001$)	.360 ($<.001$)	.058 (.371)	.109 (.095)	.192 (.003)	-.220 (.001)		
11. Absenteeism	-.009 (.474)	-.018 (.785)	-.163 (.014)	.001 (.986)	-.036 (.581)	-.023 (.724)	-.016 (.806)	-.122 (.060)	.198 (.002)	-.173 (.007)	
12. Presenteeism	-.205 (.002)	-.071 (.289)	-.058 (.382)	.046 (.474)	.042 (.512)	.060 (.353)	.034 (.605)	-.049 (.447)	-.051 (.429)	.141 (.029)	.020 (.754)

5. Factors influencing health of employees

Table 17 shows the results of multiple regression analysis conducted to identify factors influencing the health of migrant workers.

The following factors were analyzed: age, gender, religion, job type, subjective health status of general characteristics, health promotion behavior, workplace social support, physical work environment, and psychosocial work environment. When the Durbin-Watson statistic was verified before the regression analysis as a test of the underlying assumptions for the regression analysis, it was 1.838 to satisfy the independence of the residuals, and the VIF was also in the range of 1.108-4.559; there was no multicollinearity.

The result indicated that health promotion behavior ($\beta=-.25$, $p=.001$), psychosocial work environment ($\beta=-.19$, $p=.005$), physical work environment ($\beta=-.18$, $p=.009$), subjective health status ($\beta=-.15$, $p=.026$), age ($\beta=-.15$, $p=.026$), and religion ($\beta=.24$, $p=.003$) explained 21.1% of the variance of health of employees ($F=5.29$, $p<.001$).

Table 17. Factors influencing health of employees

Variable	β	B	SE	t	P	VIF
Age (Year)	-.15	-.07	.30	-2.249	.026	1.145
Gender: Ref (Male)	.04	.04	.06	0.576	.566	1.187
Religion: Ref (Christian)						
- Catholic	.09	.09	.09	0.951	.343	2.386
- Buddhist	.17	.11	.08	1.320	.189	4.559
- Muslim	.10	.08	.09	0.919	.359	3.194
- Hindu	.24	.37	.12	2.964	.003	1.672
- Others	.07	.18	.18	1.023	.307	1.221
Job type: Ref (Daily Labor)	.17	.12	.05	2.154	.032	1.701
Subject health status	-.15	-.07	.03	-2.249	.026	1.119
Health promotion behavior	-.25	-.17	.05	-3.466	.001	1.351
Workplace social support	.11	.11	.06	1.765	.079	1.108
Physical work environment	-.18	-.08	.03	-2.625	.009	1.239
Psychosocial work environment	-.19	-.06	.02	-2.828	.005	1.221
F=5.29 (p<.001), R ² = .260, Adj R ² = .211						

6. Factors influencing productivity

6.1 Factors influencing work performance

Table 18 shows the results of multiple regression analysis conducted to identify factors influencing work performance among migrant workers.

The following factors were analyzed: age, gender, subjective health status, health promotion behavior, work-related self-efficacy, workplace social support, physical work environment, and psychosocial work environment. When the Durbin-Watson statistic was verified before the regression analysis as a test of the underlying assumptions for the regression analysis, it was 1.866 to satisfy the independence of the residuals, and the VIF was also in the range of 1.034-1.162; there was no multicollinearity.

The result indicated that work-related self-efficacy ($\beta=.27$, $p<.001$), health promotion behavior ($\beta=.18$, $p=.007$), psychosocial work environment ($\beta=.18$, $p=.006$), and physical work environment ($\beta=.13$, $p=.050$) explained 18.1% of the variance of work performance ($F=6.76$, $p<.001$).

Table 18. Factors influencing work performance

Variable	β	B	SE	t	P	VIF
Age (Year)	-.08	-.01	.01	-1.276	.204	1.067
Gender (Ref: Male)	-.04	-.07	.11	-0.658	.511	1.162
Subjective health status	.08	.06	.05	1.173	.242	1.075
Health promotion behavior	.18	.21	.08	2.733	.007	1.143
Work-related self-efficacy	.27	.13	.03	4.194	<.001	1.034
Workplace social support	.03	.06	.11	0.514	.608	1.075
Physical work environment	.13	.10	.04	1.971	.050	1.162
Psychosocial work environment	.18	.10	.04	2.767	.006	1.087

F=6.76 (p<.001), R² = .212, Adj R² = .181

6.2 Factors influencing absenteeism

Table 19 shows the results of multiple regression analysis conducted to identify the factors influencing absenteeism among migrant workers.

Age, gender, subjective health status, and psychosocial work environment were analyzed. When the Durbin-Watson statistic was verified before the regression analysis as a test of the underlying assumptions for the regression analysis, it was 1.809 to satisfy the independence of the residuals, and the VIF was also in the range of 1.020-1.032; there was no multicollinearity.

The result indicated that psychosocial work environment ($\beta=-.14$, $p=.043$), and subjective health status ($\beta=-.13$, $p=.050$) explained 4.1% of the variance of absenteeism ($F=3.29$, $p=.012$).

Table 19. Factors influencing absenteeism

Variable	β	B	SE	t	P	VIF
Age (Year)	.01	.00	.00	0.082	.935	1.020
Gender (Ref: Male)	.12	.06	.03	1.713	.088	1.032
Subjective health status	-.13	-.03	.02	-1.970	.050	1.022
Psychosocial work environment	-.14	-.02	.01	-2.033	.043	1.029

$F=3.29$ ($p=.012$), $R^2 = .059$, $Adj R^2 = .041$

6.3 Factors influencing presenteeism

Table 20 shows the results of multiple regression analysis conducted to identify factors influencing presenteeism among migrant workers.

The following factors were analyzed: age, gender, subjective health status, salary, education, length of stay in Korea, and workplace social support. When the Durbin-Watson statistic was verified before the regression analysis as a test of the underlying assumptions for the regression analysis, it was 1.926 to satisfy the independence of the residuals, and the VIF was also in the range of 1.035-6.578; there was no multicollinearity.

The result indicated that age ($\beta=-.28$, $p<.001$) and salary ($\beta=.41$, $p=.016$) explained 11.9% of the variance of presenteeism ($F=3.54$, $p<.001$).

Table 20. Factors influencing presenteeism

Variable	β	B	SE	t	P	VIF
Age (Year)	-.28	-.01	.00	-3.912	<.001	1.214
Gender (Ref: Male)	-.08	-.05	.04	-1.088	.278	1.187
Subjective health status	-.07	-.02	.02	-1.104	.271	1.035
Length of stay in Korea	.07	.00	.00	0.978	.329	1.328
Education (Ref: Elementary)						
- Middle school	-.12	-.07	.07	-1.020	.309	3.455
- High school	.05	.02	.06	0.360	.719	5.107
- \geq College graduate	.10	.04	.06	0.709	.479	4.579
Salary (Ref: \geq 3,000,000)						
- <1,000,000	.06	.08	.12	0.690	.491	1.473
-1,000,000-2,000,000	.41	.17	.07	2.424	.016	6.578
-2,000,000-3,000,000	.17	.07	.07	1.067	.287	6.238
Workplace social support	.10	.06	.04	1.410	.160	1.075
F=3.54 (p<.001), R ² = .166, Adj R ² = .119						

7. Mediating effect of work performance, absenteeism, and presenteeism

7.1 Mediating effect of health of employees: work performance

Table 21 shows the results of the mediating effect between the health of employees and work performance.

The health of employees was statistically significant as a mediator between health promotion behavior ($\beta = -.21$, $p < .001$) and work performance ($\beta = .24$, $p = .001$) as well as between psychosocial work environment ($\beta = -.05$, $p = .014$) and work performance ($\beta = .10$, $p = .004$). The factor “physical work environment” was significant for the health of employees ($\beta = -.07$, $p = .016$), but it was not significant for work performance ($\beta = .09$, $p = .058$).

Table 22 shows the direct and indirect effects of the health of employees.

The direct effect was health promotion behavior (effect = .243, LLCI, ULCI; .105-.382), work-related self-efficacy (effect = .145, LLCI, ULCI; .092-.199), and psychosocial work environment (effect = .103, LLCI, ULCI; .034-.171), which were statistically significant.

The indirect effect was health promotion behavior (effect = .048, LLCI, ULCI; .007-.101), physical work environment (effect = .018, LLCI, ULCI; .002-.044), and psychosocial work environment (effect = .014, LLCI, ULCI; .001-.036), which were statistically significant.

The total effect was health promotion behavior (effect = .291, $p < .001$), work-related self-efficacy (effect = .144, $p < .001$), physical work environment (effect = .105, $p = .022$), and psychosocial work environment (effect = .117, $p = .001$), which were statistically significant.

Table 21. Result of Mediating effect: Personal health practice and resources, organizational of work, health of employee, and work performance

Independent Variable	Outcome: Health of employee				Outcome: Work performance			
	β	SE	t	p	β	SE	t	p
1* Health promotion behavior	-.21	.04	-4.806	<.001	.24	.07	3.457	.001
1* Work-related self-efficacy	.01	.18	0.323	.747	.15	.03	5.326	<.001
1* Workplace social support	-.03	.06	-0.460	.646	.06	.10	0.599	.550
2* Physical work environment	-.07	.03	-2.435	.016	.09	.05	1.903	.058
2* Psychosocial work environment	-.05	.02	-2.477	.014	.10	.04	2.940	.004

* 1: Personal health practice and resources; 2: Healthy workplace

Table 22. Direct effect and indirect effect of health of employees

Independent Variable	Direct effect				Indirect effect				Total effect	
	Effect	SE	LLCI*	ULCI*	Effect	BootSE	LLCI	ULCI	Effect	p
1* Health promotion behavior	.243	.07	.105	.382	.048	.02	.007	.101	.291	<.001
1* Work-related self-efficacy	.145	.03	.092	.199	-.001	.01	-.012	.009	.144	<.001
1* Workplace social support	.058	.10	-.129	.260	.007	.02	-.024	.036	.066	.509
2* Physical work environment	.087	.05	-.003	.176	.018	.01	.002	.044	.105	.022
2* Psychosocial work environment	.103	.04	.034	.171	.014	.01	.001	.036	.117	.001

* 1: Personal health practice and resources; 2: Organizational of work; LLCI: Lower limited CI; ULCI: Upper Limited CI

7.2 Mediating effect of health of employee: absenteeism

Table 23 shows the results of the mediating effect between the health of employees and absenteeism. The health of employees was not significant as a mediator between measurement variables and absenteeism.

Table 24 shows the direct and indirect effects of health of employees. In absenteeism, the direct effect was not significant. However, the indirect effect was health promotion behavior (effect=-.023, LLCI, ULCI; -.237-.047), physical work environment (effect=-.004, LLCI, ULCI; -.015- -.001), and psychosocial work environment (effect=-.031, LLCI, ULCI; -.012--.000), which were statistically significant. In absenteeism, the total effect was psychosocial work environment (effect=-.023, p=.043), which was statistically significant.

Table 23. Result of Mediating effect: Personal health practice and resources, organizational of work, health of employee, and absenteeism

Independent Variable	Outcome: Health of employee				Outcome: Absenteeism			
	β	SE	t	p	β	SE	t	p
Health promotion behavior	-.21	.04	-4.806	<.001	.29	.024	1.158	.248
1* Work-related self-efficacy	.01	.18	0.323	.747	-.01	.009	-0.676	.500
Workplace social support	-.03	.06	-0.460	.646	-.01	.033	-0.315	.752
2* Physical work environment	-.07	.03	-2.435	.016	-.00	.014	-0.167	.867
Psychosocial work environment	-.05	.02	-2.477	.014	-.02	.011	-1.576	.116

*1: Personal health practice and resources; 2: Healthy workplace

Table 24. Direct effect and indirect effect of health of employees

Independent Variable	Direct effect				Indirect effect				Total effect	
	Effect	SE	LLCI*	ULCI*	Effect	BootSE	LLCI	ULCI	Effect	p
Health promotion behavior	.028	.02	-.020	.075	-.023	.05	-.237	-.047	.004	.853
1* Work-related self-efficacy	-.006	.01	-.025	.012	.001	.00	-.004	.006	-.006	.552
Workplace social support	-.011	.03	-.076	.055	-.003	.01	-.019	.011	-.014	.686
2* Physical work environment	-.002	.01	-.030	.260	-.006	.00	-.015	-.001	-.009	.536
Psychosocial work environment	-.017	.01	-.039	.004	-.031	.00	-.012	-.000	-.023	.043

* 1: Personal health practice and resources; 2: Organizational of work; LLCI: Lower limited CI; ULCI: Upper Limited CI

7.3 Mediating effect of health of employee: presenteeism

Table 25 shows the results of the mediating effect between the health of employees and presenteeism.

The health of employees was not significant as a mediator between measurement variables and absenteeism.

Table 26 shows the direct and indirect effects of health of employees.

In presenteeism, the direct, indirect, and total effect was not significant.

Figure 4. shows the mediating effect of health of employees on work performance, absenteeism, and presenteeism.

Table 25. Result of Mediating effect: Personal health practice and resources, organizational of work, health of employee, and presenteeism

Independent Variable	Outcome: Health of employee				Outcome: Presenteeism			
	β	SE	t	p	β	SE	t	p
Health promotion behavior	-.21	.04	-4.806	<.001	.01	.03	0.265	.791
1* Work-related self-efficacy	.01	.18	0.323	.747	.01	.01	0.607	.545
Workplace social support	-.03	.06	-0.460	.646	.04	.05	0.864	.389
2* Physical work environment	-.07	.03	-2.435	.016	.01	.02	0.243	.808
Psychosocial work environment	-.05	.02	-2.477	.014	-.01	.02	-0.887	.376

*1: Personal health practice and resources; 2: Healthy workplace

Table 26. Direct effect and indirect effect of health of employees

Independent Variable	Direct effect				Indirect effect				Total effect	
	Effect	SE	LLCI*	ULCI*	Effect	BootSE	LLCI	ULCI	Effect	p
Health promotion behavior	.009	.03	-.056	.073	.006	.01	-.009	.022	.015	.645
1* Work-related self-efficacy	.008	.01	-.017	.033	-.000	.00	-.002	.015	.008	.552
Workplace social support	.039	.05	-.050	.127	.001	.00	-.004	.008	.040	.378
2* Physical work environment	.005	.02	-.034	.043	.002	.00	-.003	.010	.007	.715
Psychosocial work environment	-.013	.02	-.043	.016	.002	.00	-.003	.008	-.012	.437

* 1: Personal health practice and resources; 2: Organizational of work; LLCI: Lower limited CI; ULCI: Upper Limited CI

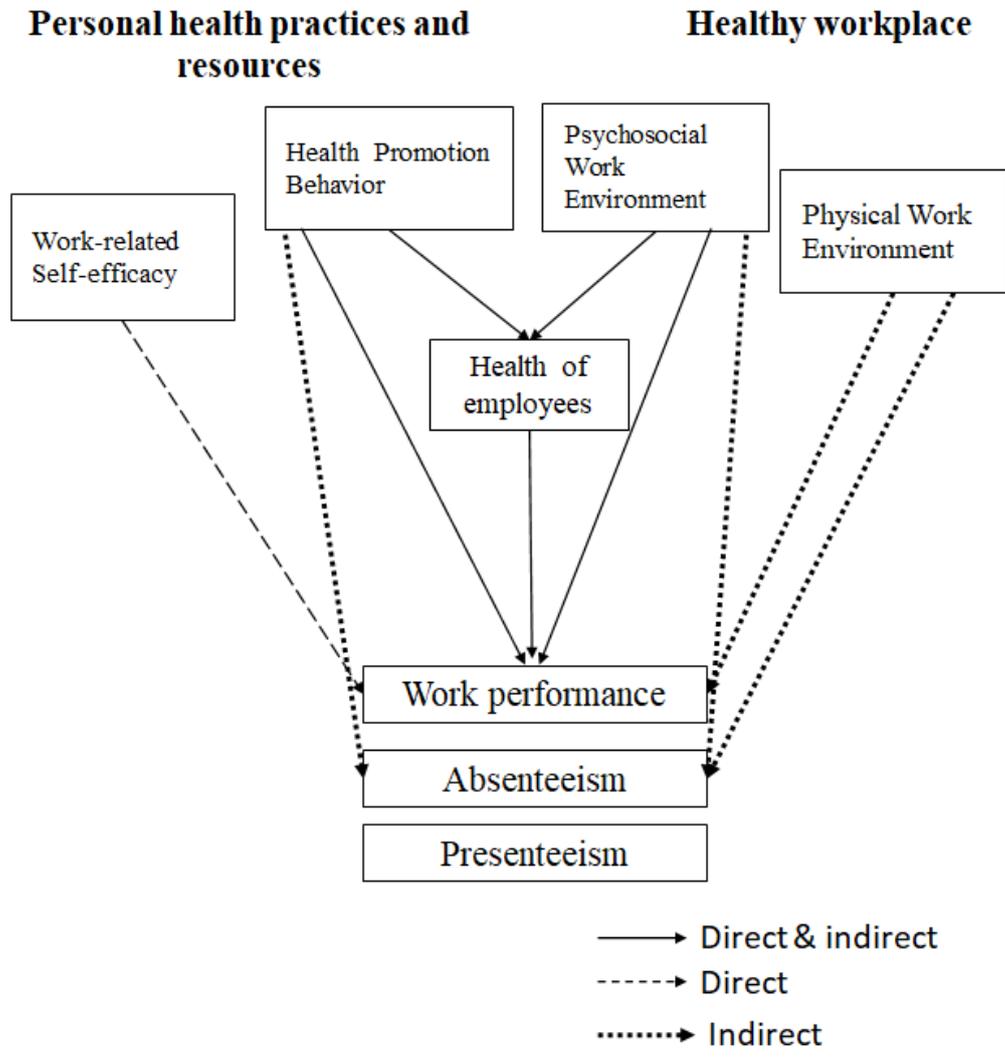


Figure 4. Mediating effect of health of employees: work performance, absenteeism, and presenteeism

VI. DISCUSSION

The purpose of this study is to investigate the influence of a healthy workplace on the health of employees and productivity among the migrant workers in Korea. In this study, a literature review of the previous studies has identified the characteristics of migrant workers as well as their influence on the health of employees and productivity. In particular, based on Shain's Health Promotion in the Workplace theoretical model, this study has identified not only what makes a healthy workplace but also personal health practices and resources. The findings of this study are as follows.

First, the findings will enhance understanding about characteristics of migrant workers in Korea. Second, the results of this study showed that of age, religion, subjective health status, health promotion behavior, and the healthy workplace, which comprised of both physical work environment and psychosocial work environment, were influencing factors on the health of employees. Also, age, religion, subjective health status, health promotion behavior, work-related self-efficacy, a healthy workplace, which is a combination of physical work environment and psychosocial work environment, were the influencing factors on work performance of the migrant workers. Moreover, in the case of absenteeism, subjective health status and psychosocial work environment turned out to be the influencing factors; for presenteeism, age and salary were the influencing factors. Finally, it was proved that the health of employees has a mediating effect between health promotion behavior or psychosocial work environment and work performance.

1. Characteristics of migrant workers in Korea

Migrant workers holding E-9 visas in Korea and employed in manufacturing, one of the so-called “3-D” industries, are mostly single male workers from Southeast Asia with a mean age of around 30. Other characteristics of migrant workers were that they have to be separated from their own families and that even though they were married they can only work for a maximum of four years and ten months at a time. If they want to keep working in Korea, they must come back to their home country and return to Korea after they are reissued E-9 visas (Justice, 2019).

According to the immigrant current status report (2018), the number of workers working on E-9 visas in South Korea is about 210,000, with females accounting for about 10% of the total. Also, 45.8% of the migrant workers are employed in manufacturing, 79.3% of them work in companies having less than 50 employees, 57.6% of them stay in Seoul and Gyeonggi Province, and 49.5% of them earn 2–3 million won in salary (Justices, 2018).

As a result of the general characteristics of this study, it was found that 87.1% of participants were male, 66.3% of the participants were engaged in manufacturing jobs, and 52.1% of them earned 2 to 3 million won.

However, compared to previous studies from other countries on migrant workers, there were differences in age and gender. Most studies show that the majority of migrant workers' age in Korea is around 30 years old. However, in other countries the average age was more than 40 years old. Also, in Korean studies most participants were male migrant workers, whereas in the studies from other countries, the gender ratio was more or less equal; or

those studies focused on migrant worker groups such as cleaners and nurses that consisted of a large number of females (Dzurova & Drbohlav, 2014; Font, Moncada, & Benavides, 2012; Ju, 2017; Olesen et al., 2012; Rugulies et al., 2008).

In other words, most studies of migrant workers in Korea showed that the studies were male-centered and the male workers separated from their family members and transferred most of their money to their home countries. Therefore, we argue that further research on migrant employees needs to be inclusive of female migrant workers.

2. Healthy workplace among migrant workers

In this study, the healthy workplace included the physical work environment and psychosocial work environment, as mentioned by WHO, to identify influencing factors that affect individual health and productivity. Also, productivity was divided into three aspects: work performance, absenteeism, and presenteeism, and each aspect was analyzed.

In this study, the psychosocial work environment was included as influencing factor affecting work performance but only psychosocial work environment was affected the case of work performance and absenteeism. The influence on presenteeism was found to be not significant. Thus, it can be concluded that it is necessary to improve the physical and psychosocial work environment in order to increase productivity.

The PATH model of Grawitch et al. (2006) indicated a similar result that healthy workplace practices were affecting factors on the health of employees (Grawitch et al.,

2006). Manimaran et al. (2015) focused on the physical work environment hazards influence health and safety in the workplace (Manimaran et al., 2015).

The previous studies in Korea have separated the physical work environment and psychosocial work environment while examining their respective impact on health. Yoo and Ha studies (2011) showed that the physical work environment of an office affects job satisfaction, and Joh et al. studies (2011) found that physical and chemical hazards in the working environment were strongly associated with mental health problems (Yoo, & Ha, 2011, Joh et al., 2011). Kim et al. (2018) found that the physical work environment was related to health conditions (Kim, Seo, & Cho, 2018). June et al. (2013) concluded that psychosocial work environment and self-efficacy are associated with stress and depression (June, Choi, & Park, 2013).

However, previous studies in Korea have not examined the health of employees and productivity by integrating the physical and psychosocial work environment, so the results of this study can be considered very significant.

When it analyzed using multi regression, the results of this study exhibit that the factors influencing absenteeism were subjective health status and psychosocial work environment. And, the influencing factors for presenteeism were age and salary status.

In terms of absenteeism, it is found to be related to health and psychosocial work environment. The stress caused by health status and psychosocial work environment is a risk factor for cardiovascular disease and has turned out to be a significant factor in health inequality (Aronsson, Toivanen, Leineweber, & Nyberg, 2019; Godin & Kittel, 2004).

Wee et al. (2019) also reported income, general physical health, sleeping time, and stress as predictors of absenteeism (Wee et al., 2019), which is similar to the results of this study.

In terms of presenteeism, personal health practices and resources, and a healthy workplace (which is the theory this study is based on) were not statistically significant. However, other studies have identified health promotion behaviors, physical work environment, and psychosocial work environment as factors affecting presenteeism (Solovieva, Leinonen, Husgafvel-Pursiainen, Heliövaara, & Viikari-Juntura, 2018).

In this study, salary status was identified as an influential variable for presenteeism, but other studies did not reach this result. The participants in this study were a mix of factory workers and daily laborers (specifically, construction workers) and the salary statistics for both jobs differ. In other words, 11.4% of daily laborers and 54.1% of factory migrant workers were paid between 1 million and 2 million won, while 10.1% of daily laborers and 3.8% of factory workers received more than 3 million won as a salary. With regard to weekly working hours, the mean of weekly working hours was measured at 48.0 hours for factory workers and 61.4 hours for daily laborers. The study found that even if the factory workers were paid less than daily laborers, migrants working as daily laborers seem to have less presenteeism than migrants working in factories.

3. Health of migrant workers as a mediating variable

In this study, the health of migrant workers was a statistically significant mediating variable between work performance and health promotion behavior and psychosocial work environment.

Previous studies have described that health promotion behavior was associated with health of employees and work performance significantly, and they confirmed that health promotion programs were significantly effective as they reduced the risk to employee health, facilitated work performance, and reduced medical costs (Mills, Kessler, Cooper, & Sullivan, 2007). Kim, Park, and Lee (2018) studied the literature review of health promotion programs for improving the health of migrant workers. According to this study, two studies on physical health showed that perceived health conditions differed between experimental and control groups and that the physical health level was not significant, and most health promotion programs were conducted for the psychosocial work environment domain. However, it reported that the number of health promotion programs for migrant workers was very much lesser than that for native workers in Korea (Kim, Park, & Lee, 2018).

In this study, the physical work environment was not found to be a significant mediator variable to the health of migrant workers. The first reason was that being young they did not have physical health problems (48.9% were in their 20s) and they had been screened through health check-ups before they entered Korea. The second reason was that for migrant workers adapting to the psychosocial work environment (e.g., a new culture and a new type of organization) is a far greater challenge than adjusting to the physical work

environment. However, the study in Senthanar (2018) described that it was associated with musculoskeletal disorders (Senthanar, 2018). Therefore, for improving the physical work environment, it is necessary to: develop guidelines; to conduct regular physical work environment checks for issues such as such as ventilation, noise, and toxic agents; to conduct health check-ups; and to encourage stretching exercises at work mainly based on guidelines for preventing musculoskeletal diseases.

Currently, migrant workers holding E-9 Visas are required to submit medical examination certificates, which identify functional health status and maximum labor capacity (healthy migrant worker effects). However, while staying in Korea, they are burdened with disability and disease at work; in some of the cases, they have experienced health problems, and then returned home. Over the last five years, 412 of the migrant workers in Korea have been reported to have died from sudden death syndrome, cancer, heart disease, and causes (Hong, 2019). Therefore, migrant workers in Korea require a policy that reflects their needs so that they can visit medical institutions and receive health care properly.

For absenteeism and presenteeism, the health of employees was not significant as a mediator variable in this study. However, the healthy workplace, including the physical and psychosocial work environments, showed indirect effect only on absenteeism. Thus, a healthy work environment has an impact on the health of employees and absenteeism, and it is necessary to improve the physical work environment as well as the psychosocial work environment.

Five years ago, migrant deaths accounted for 10% of all industrial deaths. This number rose to 60% in 2019. However, the total number of industrial deaths (including migrant and

local workers) has reduced from 135 in 2018 to 42 in June 2019. These statistics indicate that although the rate of industrial accidents for local workers in Korea is decreasing, the rate is increasing in the case of migrant workers. The number of migrant workers in labor-intensive 3D industries in Korea is increasing, and the environment in which they work requires much attention. The environment in which they work requires much attention, and therefore it is essential to make efforts to create safe workplaces supported safety and health education tailored for migrant workers.

The Korean government announced on September 18, 2019 “four key strategies and policy tasks” to cope with super-low birthrates. One of the strategies is expanding the foreign workforce, which is expected to boost production. The integrated immigration control law for efficient use of outstanding immigrant workers will plan and execute this strategy, and the number of migrant workers is expected to increase further (Ministry of Economy and Finance, 2019). In other words, policies need to focus on providing a healthy work environment to migrant workers while protecting their health and enhancing organizational productivity.

4. Limitations

Although this study presents a unique perspective on the healthy workplace for migrant workers in Korea, it has several limitations.

The first has to do with the participants from different countries. From a methodological perspective, this study chose the self-questionnaire method among the survey research methods; it was translated into ten different languages of countries including the Philippines, Bangladesh, Vietnam, Thailand, Myanmar, East Timor, Indonesia, Nepal, Sri Lanka, and Cambodia. In the process of translating instruments, there were limitations in reflecting the social and cultural characteristics of the participants from ten different countries. Moreover, when measuring the physical work environment, it is not easy to reflect all the work environments since employees work in different working conditions. Therefore, it will be necessary to develop an instrument to measure the physical work environment for each job type, as well as to take into account migrant worker's native culture. In addition, since the subjective assessment measure may result in common method bias, it is important to undertake further study to collect objective data from the organizational perspective, such as absenteeism, annual profits, number of workers, industrial environment measurement results, and physical examination results, all of which should be taken into consideration before coming to any conclusions about healthy workplace.

The second is the question of representation. In order to represent all migrant workers, the target of this study was migrant workers holding E-9 visas and residing in Seoul or Gyeonggi province, where most of the migrant workers in Korea are employed. Most of the participants were those who visited the migrant support center, multicultural center, or immigrant networking group, and they were legally engaged in work, so they can be

classified as an active group adapting to Korean culture. However, many migrant workers are currently engaged in illegal employment in Korea, living without the help of supporting groups, or working in agriculture and fishery-related fields. Since those migrant workers reside in rural areas, it was challenging to contact them. Moreover, the majority of the female migrant workers were excluded in this study. These factors can be considered limitations because this study was unable to represent and analyze all types of migrant workers in Korea. Further studies may yield more meaningful results if they include illegal migrants along with legal migrants in their research. It is recommended that further studies be conducted via a random sampling method.

The third limitation is linked to the matter of instrument. The purpose of this study was to identify the influencing factors that affect the health and productivity of migrant workers. However, due to the characteristics of migrant workers, it was necessary to keep the survey simple, short, and not very time-consuming. For this reason, short version instruments were chosen and sometimes the questionnaire was modified based on the characteristics of the migrant worker. In other words, it was not feasible to include all the concepts of the original instrument in the final questionnaire.

5. Significance of the study

5.1 The aspect of nursing theory

The aim of this study was to identify the influencing factors that affect the health of migrant workers and their productivity by utilizing the theoretical framework of Shain's

Health Promotion in the Workplace. As a result, it turned out to be significant that it developed a situation-specific nursing theory of healthy workplaces of migrant workers in Korea by identifying the influencing relationship of a healthy workplace on the health of employees and productivity from this theoretical framework.

5.2 The aspect of nursing research

This study not only confirmed the results of the direct and indirect effects between personal health practice and resources, the healthy workplace, and productivity, but also identified the influencing factors affecting the health and productivity of migrant workers.

As a result, it developed a theoretical framework of the healthy workplace for migrant workers, which can be used as primary data in conducting further studies on topics such as the development of intervention programs by industries, job type, or tailored measurement instruments considering multicultural aspects.

5.3 The aspect of nursing practice

Based on the results of this study, we can evaluate migrant workers' health promotion programs and psychosocial related safety and health program development. This study can also provide occupational health care as multicultural nursing at work. For instance, the Korea Occupational Safety and Health Agency (KOSHA) established workers health center, which have 21 centers in Korea to support health care for workers employed at small workplaces with less than 50 employees. Therefore, this study can support initiatives such

as organizing health promotion programs for migrant workers at this center or making health posters to encourage community-based activities and participation.

5.4 The aspect of national policy

"Four key strategies and policy tasks" for coping with population changes to overcome low birth rates and an aging society can be used as primary data for developing policies both to expand the workforce of foreigners and help to revise such laws as the Labor Standards Act and the Industrial Safety and Health Act.

VII. CONCLUSION AND SUGGESTIONS

1. Conclusion

Approaching the theoretical framework of Shain's Health Promotion in the Workplace, this study identified the influencing factors that affect the health of employees and productivity among migrant workers in Korea. Productivity had three domains: work performance, absenteeism, and presenteeism. The results were as follows.

First, influencing factors such as age, religion, job type, subjective health status, health promotion behaviors, physical work environment, and psychosocial work environment, affect the health of migrant workers. Second, influencing factors such as health promotion behavior, physical work environment, and psychosocial work environment affect work performance. Relatedly, influencing factors such as subjective health status and psychosocial work environment affect absenteeism. Also, the influencing factors for presenteeism were age and salary levels; and the factor of work performance showed the highest explanation power among productivity outcome variables. Third, variables of the migrant worker's health as a mediating effect on productivity were found in both health promotion behavior and psychosocial work environment.

As a result, this study confirmed that it is essential to develop nursing intervention programs such as: the health promotion program of the migrant workers and the psychosocial work environment improvement program, and health management of the migrant workers. Additionally, improvements in the physical work environment can be

seen as critical in occupational health care, as both physical work environment and psychosocial work environment have been identified as indirect influences in the health of employees and absenteeism.

2. Suggestions

Based on the results of this study, we can provide the following suggestions for direction of further study and practical application of the nursing intervention.

First, this study used a convenience sampling method due to the characteristics of migrant workers. The participants joined and conducted the survey with the migrant support center's cooperation. They were surveyed when they visited the center or when contacting their community networking group for collecting data individually after signing the consent form. However, in order to obtain more accurate and useful data on healthy workplace, the data collection must take place both at an individual level and at an organizational level. This objective data from workplaces must be used to understand and evaluate the working environment. Therefore, further studies need to be designed to engage the employer. Furthermore, these studies need to focus on a single job type to clearly understand a particular kind of workplace environment rather than grouping a variety of job types into a single study.

Second, this study investigated only two domains (physical work environment, psychosocial work environment) of WHO's healthy workplace and excluded the domains

of personal health resources and enterprise community involvement. The term “personal health resources” means a supportive environment, access to health service, and facilities to improve or maintain a healthy life. Enterprise community involvement involves activities that engage the company and communities to facilitate health promotion and reduce hazards in working environments in various ways. This study was conducted on only migrant workers and excluded these two domains, but further studies should be designed to involve the company and community policy.

Third, most of the migrant workers in Korea are male migrant workers in manufacturing or construction industry as indicated in many studies. Fewer studies have been carried out on health and working conditions for female migrant workers, except for the studies on Chinese female caregivers and married migrant women. It should also be pointed out that the global “feminization of migration” has become gradually common, which requires us to draw our attention to female workplaces in the sense that they are set in worse workplaces compared to males. Therefore, further studies should be conducted to shed light on the condition of female migrant workers and their health problems.

Fourth, this study was conducted through the use of a survey research methodology supported by a self-reporting questionnaire. However, it is difficult to customize self-reporting questionnaire surveys effectively for various cultures and this puts certain limitations on the study. Therefore, we suggest further studies on a healthy workplace for migrant workers using qualitative research methodology. Furthermore, we also suggest

experimental design studies on the development of the program of safety and health promotion for migrant workers.

Finally, so as to prepare new policies for the healthy workplace for migrant workers, the government needs to establish data to reflect the culture of the nation's industrial migrant workforce. For this purpose, we suggest the creation of data and activation of research through the establishment of panel data on migrant workers, which is essential not only for health care but also for economic, social, and cultural aspects, as well as for improving the nation's demographics change policy in the face of a low birth rate, an aging society, and a multicultural society.

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APPENDICES

1. Result of IRB approval

	연세의료원 연구심의위원회 Yonsei University Health System, Institutional Review Board 서울특별시 서대문구 연세로 50-1 (우) 03722 Tel. 02 2228 0454, Fax. 02 2227 7888 Email. irb@yuhs.ac
심 의 일 자 과제승인번호	2019년 3 월 11 일 Y-2019-0012
연세의료원 연구심의위원회의 심의 결과를 다음과 같이 알려 드립니다.	
Protocol No.	
연 구 제 목	이주 코로나의 건강관 일터가 조직의 건강에 미치는 영향요인
연 구 책 임 자 의 회 자 연 구 예 정 기 간 지 속 심 의 번 도 과 제 승 인 일 위 험 수 준 심 의 유 형 심 의 내 용	이수정 / 연세대학교 김포일 간호학연구소 (학)연세대학교 2019.03.11 ~ 2020.03.10 12개월마다 2019.03.11 Level 1 최소취급 집단면 <ul style="list-style-type: none"> -자료수집을 위해, 안산시 다문화센터 및 경기도 소재 외국인근로자 지원센터의 담당자들을 통해서 공동체의 대표와 연락할 수 있도록 하거나, 근로자들이 센터에 방문할 수 있는 토요일이나 일요일에 만날 수 있도록 일정을 계획할 예정입니다. 현재 구체적으로 확인된 일정은 없으나, 대부분의 자료수집은 근로자들이 센터에 방문할 수 있는 토요일이나 일요일에 자료수집을 진행하는 것으로 몇 개 기관에서는 사건의 무투 승인을 받은 상태입니다. -주신 의견 감사드립니다. 몇몇으로 일정을 일부하였습니다. 전문가 타당도 이후 번역 작업을 시작하고, 사건에 관련된 기관에 확인하여 많은 근로자가 있는 국가를 우선순위로 먼저 예비 조사를 실시하고, 설문지를 변경하여 IRB 수정 심의 이후 진행하고, 나머지 국가들은 예비조사를 8월까지 실시 할 수 있도록 하여 본 조사를 늦어도 8월까지 진행할 수 있도록 할 예정에 있습니다. -설문하고자 하는 대상자의 일반적 특성을 제시함으로써 전문가 타당도 측정 시 이해도를 높이고자 하였으나, 출판의 여지가 있을 것 같아서 내용을 제외하고 조사하는 것으로 변경하였습니다. -먼저 주신 의견에 감사드리며, 먼저 이 연구는 영문으로 논문이 진행될 예정이므로, 논문을 작성하면서 한국어로 설명하게 될 때 업무, 업무 결과 등으로 기재하는 것을 고려해 보기로 하였습니다. -수정하였습니다. 권고하신 대로 수정 하였습니다.
Ver. 1.0 / 누적 출력 횟수 연세의료원 YUHS IRB [2017.04.01] 1/5	
이 위치에 복사방지마크가 출력된 이 위치에 비로스가 출력됩니다.	

심 의 내 용

- [환경] 연구의 과학적 근거 : 전 세계 사회는 새천년 개발목표(Millennium Development Goal)를 2015년까지 달성 이후 2016년부터 지속가능 발전 목표(Sustainable Development Goal)를 가지고, 목표를 해결하고자 노력하고 있다. 이 SDG의 목표는 인류의 보편적 문제(빈곤, 질병, 교육, 여성, 아동, 난민 등)와 지구의 환경문제와 경제 사회문제 등으로 17가지 주 목표와 169개의 하부 목표로 구성되어 있으며, 특히 목표 8번인 모든 사람들에게의 알필의 일자리에 대한 부분은 전 세계에서 매우 중요한 의미를 가졌다고 볼 수 있다. 현재 세계는 국제화와 교통 통신수단 발달로 인하여, 이주 근로자는 국제 이주자 중 1억 5천만명(87%)에 이르고 있으며(IL O, 2013). 이들은 다른 나라에서 근로활동을 통해 얻은 기술과 경제활동으로 자국 경제성장과 발전에 기여하고 있다. 이주 근로자의 흐름은 저개발 국가에서 개발된 국가로 이동하여, 경제 활동을 하게 되는 것으로서, 우리나라 역시 3D 직종에서 일하는 것을 피피하는 현상과 우리나라에서 노동을 행하는 이주민들이 국가의 허가 없이 입국하여, 근로활동을 영위하는 수가 늘어 나게 되자, 이를 해결하기 위해 2004년부터 고용허가제를 실시하게 되었으며 (전병주, 2012), 그 결과 2016년 법무부 통계에 따르면 200만 명이 넘는 이주 근로자가 우리나라에서 근무를 하고 있다.

우리나라에서의 이주 근로자들의 근로환경에서의 문제는 근로조건, 임금체불, 인권침해, 산 재발생과, 연장근로, 심야근로와 임금 수준에서의 차이, 낮은 근로환경에 대한 만족도 및 직무 만족도, 저숙련 근로활동으로 인한 단순업무 반복성으로 인한 안전사고, 언어적 불연관 등의 문제가 발생하고 있으며, 이러한 문제는 이주 근로자의 문화적응과 자아존중감과 상관관계가 있는 것으로 나타났다 (김지현 & 김보미, 2017; 박달순, 2003; 이관형, 2012). 이러한 이주 근로자들의 열악한 근로환경의 문제들은 건강문제와 관련이 있다. 이주 근로자들은 문화적응 스트레스, 급급하게 질환, 우울증 등의 건강문제가 내국인에 비해서 빈번하며, 소극적인 건강검 보 획득으로 건강취급에 노출될 확률이 높고, 한 연구에 의하면 한국에 들어온 이주 건강 상태 가 나빠졌으므로 보고되기도 하였다(Ayala, Baquero, & Klingner, 2008; Choi & Reed, 2011; Rooks, Wiltshire, Elder, BeLue, & Gary, 2012; T. M. Smith, Colon-Ramos, Pinard, & Yaroch, 2016; 이항련, 조영일, 최은영, 박경애, & 박영미, 2009; 정혜연 et al., 2008). 또한 이주 근로자들은 저임금과 사회적으로 지위가 낮은 곳에서 단순 업무 종사자로 많이 고용 되어, 충분한 사회적 지지와 업무 개발 기회가 많이 주어지지 않아서 신체적, 정신적 어려움에 많이 노출되어 있는 취약 집단으로 볼 수 있기 때문에 (Kumar & Kumar, 2008; Schenker, 2010; L. H. Smith, Hviid, Frydendall, & Flyvholm, 2013), 이들이 건강하게 근무를 하면서, 조직 역시 성과를 낼 수 있도록 하는 방안을 모색하는 것이 매우 필요해 졌다. 즉 근로 환경과 건강과는 매우 밀접한 관련성이 있으며, 이에 대한 개념 설명 및 확인하는 과정을 위해 건강함 일터(healthy workplace)의 개념으로 많은 학자들과 세계보건기구(World Health Organization, WHO)가 설명하기 시작하였다. 건강함 일터는 근로환경, 건강보호와 건강증진 을 포함한 개념으로서, Sauter(1998)는 안녕(well being)에 대한 근로자의 목표와 기업의 생산 성과 이윤의 목표를 통합하여 최대화 하는 것으로 건강함 일터를 정의 하였다. 즉 근로자의 건강 측면과 조직(기업)의 활동의 두 가지 측면을 포함하고 있으며(Grawitch, Gottschalk, & Munz, 2006), 세계보건기구에서도 물리적 근로 환경(건강과 안전 고려), 심리사회적 근로 환경 , 작업장에서의 개인 건강 자원, 지역사회 참여를 통한 근로자와 가족, 지역사회의 건강증진 도 모하는데 협력하는 것으로서 건강함 일터를 정의하고 있다(Burton & Organization, 2010). 특히 조직의 건강(Organizational Health)는 일련의 직업 및 조직 요인을 기반으로 건강함 일터 를 식별할 수 있으며, 건강함 일터는 건강하고 생산적인 노동력이 생겨서 조직의 생산성과 영 쟁력을 높일 수 있다는 가정을 지니고 있어 (Schmidt, Welch, & Wilson, 2000), 건강함 일터를 구성을 확인하는 데 있어서 개인의 건강 측면과 조직의 건강 측면에서의 영향요인을 파악하는 것은 매우 중요한 개념 중 하나로 볼 수 있다.

특히 우리나라에 거주하고 있는 이주 근로자들의 근로 환경은 대부분 60인 미만의 영세 소규모 사업장 및 제조업으로서, 이러한 근로환경에서 근무하고 있는 이주 근로자들의 건강관리 측면에서 건강함 일터의 결정 요인을 확인 하는 것은 이들의 건강권 보장과 안전한 일터를 마련

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하는데 것 뿐만 아니라, 함께 근무하고 있는 우리나라 근로자들의 건강과 안전을 확인할 수 있는 기초 연구로 활용될 수 있기 때문에 매우 필요한 연구로 생각되어진다. 또한 이주 근로자의 경우 근로환경의 조건 뿐 아니라, 그들 고유의 문화적으로 가지고 있는 건강 신념, 가치, 생각 등이 일터에서 어떠한 영향을 미치고 있는지에 대해서 함께 파악해 볼 필요가 있으며, 이는 다문화 사회에서 조화로운 건강관리 시스템을 만드는 데 기초 자료로 활용될 수 있기 때문이다. 그러나 국외에서는 이민자들에게 대한 근로환경의 요인에 대해서 연구가 진행된 바가 있으나(Font, Moncada, Llorens, & Benavides, 2012; Hoppe, 2011; Stromgren et al., 2014), 국내 연구에서는 이주 노동자들의 직무스트레스, 우울과의 관련성, 근로조건, 직종에서의 차이와 관련된 연구와 이주 근로자들의 건강측면과 관련되어서 개인 건강문제 측면에서 연구가 진행되었을 뿐(이꽃메, 정혜선, 이윤경, 권혜진, & 김희걸, 2009; 이항련, 스테파니아, et al., 2009; 정혜선 et al., 2008; 조민희 et al., 2009), 건강관 일터의 측면에서 건강 보호와 건강 증진으로서 개인의 건강 측면과 조직의 건강 측면을 통합적으로 진행한 연구는 없는 상태이다. 따라서 본 연구의 목적은 이주 근로자들의 건강관 일터와 조직의 건강에 미치는 영향 요인을 확인함으로써, 다문화사회에서의 이주 근로자들의 건강문제를 해소할 수 있는 건강관 일터 조성을 위한 중재프로그램 개발의 근거를 마련하고자 한다.

[변경후]연구의 과학적근거 : 원 국제 사회는 새천년 개발목표(Millennium Development Goal, MDG)를 2015년까지 달성 이후 2016년부터 지속가능 발전 목표(Sustainable Development Goal, SDG)를 공포하였으며, 제시된 목표를 달성하기 위해 노력하고 있다. SDG의 목표는 인류의 보편적 문제(빈곤, 기근, 건강, 교육, 여성, 아동, 난민 등), 지구의 환경문제, 경제 및 사회문제 등으로 17가지 주 목표와 169개의 하부 목표로 구성되어 있으며, 특히 모든 사람들에게 알맞은 일자리 달성과 관련된 목표 8은 원 사회에서 매우 중요한 의미를 가졌다고 볼 수 있다. 국제화와 상품생산수단 발달의 세계적인 추세로, 국제 이주자 중 1억 5천만명(87%)에 달하는 이주 근로자가 존재하고 있으며(ILO, 2013), 이들은 다른 나라에서 근로활동을 통해 얻어진 기술과 경제활동으로 자국 경제성장과 발전에 기여하고 있다. 이주 근로자의 이동 경로는 저개발 국가에서 개발된 국가로 이동하면서 경제활동을 하게 되는 것이 통상적이다. 이와 같은 현상을 반영하여 아시아의 개발도상국에서 우리나라로 이주 근로자가 유입되었으며, 우리나라 근로자의 3D 직종에서 일하는 것을 피하는 현상을 해결하기 위해 노동을 원하는 이주민들이 국가의 허가 없이 근로활동을 영위하는 수가 늘어나게 되었다. 정부는 이를 해결하기 위해 2004년부터 고용허가제를 실시하게 되었으며 (전병후, 2012), 2016년 통계에 따르면 200만 명이 넘는 이주 근로자가 우리나라의 일터에서 근무를 하게 되었다(통계청).

우리나라에서 근무하는 이주 근로자들의 근로환경에 있어서 발생하고 있는 문제를 고찰한 연구 결과 근로조건, 임금체급, 인권침해, 산재발생, 연장근로, 심야근로와 임금 수준에서의 차이, 낮은 근로환경에 대한 만족도 및 직무만족도, 저수준 근로활동으로 인한 만성업무 반복성으로 인한 만성피로, 언어적 불편감 등의 문제가 발생하였으며, 이는 이주 근로자의 문화적응과 자아존중감의 관련성이 있는 것으로 나타났다(김지현 & 김보미, 2017; 박달순, 2003; 이관형, 2012). 결과적으로, 이주 근로자들의 열악한 근로환경 문제들은 건강문제와 관련성이 있다. 이주 근로자들은 문화적응 스트레스, 큰급격계 질환, 우울증 등의 건강문제가 자국민에 비해서 빈번하게 발생되었으며, 언어 장벽 및 문화 차이 등으로 인한 소극적인 건강정보 획득으로 건강취급에 노출될 확률이 높게 보고되었으며, 자국에서 생활 하기 전과 비교하였을 때 이주 이후 건강 상태가 나빠진 것으로 나타났다(Ayala, Baquero, & Klinger, 2008; Choi & Reed, 2011; Rooks, Wiltshire, Elder, BeLue, & Gary, 2012; T. M. Smith, Colón-Ramos, Pinard, & Yaroch, 2016; 이항련, 조영일, 최은영, 박경애, & 박영미, 2009; 정혜선 et al., 2008). 또한 이주 근로자들은 대부분 저임금을 받으며, 사회적으로 지위가 낮은 곳에서 단순 업무 중 사자로 많이 고용되었다. 또한 사회적 지지가 충분하지 못하며, 업무 개발 기회가 많이 주어지지 않기 때문에, 신체적·정신적 어려운 상황에 많이 노출되어 있는 취약 집안으로 간주할 수 있다(Kumar & Kumar, 2008; Schenker, 2010; L. H. Smith, Hviid, Frydendall, & Flyvholm, 2013). 따라서, 이주 근로자들이 건강을 유지하면서 근무를 할 수 있고, 조직 또한 성과를 낼 수 있도록 환경을 조성하는 것이 이주 근로자들이 급증한 우리 사회에서 필요하게 되었다.

이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다

이에 대한 요구도는 먼저 근로환경과 건강과는 매우 밀접한 관련성이 연구되기 시작하면서, 건강할 일터(healthy workplace)로서의 개념으로 많은 학자들과 세계보건기구(World Health Organization, WHO)가 설명하기 시작하였다. WHO의 건강할 일터에 대한 개념을 근로환경, 건강보호와 건강증진을 통합하여 접근하고 있으며, Sauter(1996)의 연구에서는 안녕(well-being)에 대한 근로자측면에서의 목표와 기업의 생산성 및 이윤 측면에서의 목표를 통합하여 최대화 하는 것으로 건강할 일터를 정의 하였다. 즉 근로자의 건강과 조직(기업)의 행동의 두 가지 내용을 모두 포함하고 있으며(Grawitch, Gottschalk, & Munz, 2006), WHO에서는 이에 대한 영역으로 물리적 근로 환경(건강과 안전 고려), 심리사회적 근로 환경, 작업장에서의 개인 건강 자원, 지역사회 참여를 통한 근로자와 가족, 지역사회의 건강증진 도모하는데 협력으로 총 5가지 영역으로 건강할 일터를 정의하고 있다(Burton & Organization, 2010). 특히 조직의 건강(Organizational Health)은 조직의 안녕을 의미하는 것으로 직업 및 조직 요인을 기반으로 설명하고 있으며, 건강할 일터의 경우 건강하고 생산적인 노동력으로 조직의 생산성과 경쟁력을 높일 수 있다는 가정을 지니고 있어 (Schmidt, Welch, & Wilson, 2000), 건강할 일터를 구성할 확인하는 데 있어서 개인의 건강 측면 뿐 아니라 조직의 건강 측면에서의 영향요인을 파악하는 것은 매우 중요한 개념 중 하나를 들 수 있다. 특히 우리나라에 거주하고 있는 이주 근로자의 근로 환경은 대부분 50인 미만의 영세 소규모 사업장 및 제조업에서 근무하고 있어, 이주 근로자의 조직의 건강 측면에서 건강할 일터의 결정 요인을 확인 하는 것은 이들의 건강권 보장과 안전한 일터 마련뿐 아니라, 함께 근무하고 있는 우리나라 근로자들의 건강과 안전을 확인할 수 있는 기초 연구로 활용될 수 있기 때문에 매우 필요한 연구를 생각한다. 또한 이주 근로자의 경우 근로환경의 조건뿐 아니라, 그들 고유의 문화적으로 가지고 있는 건강 신념, 가치, 생각 등이 일터에서 어떠한 영향을 미치고 있는지에 대해서 함께 파악해 볼 필요가 있으며, 이는 다문화 사회에서 조화로운 건강관리 시스템을 만드는 데 기초 자료를 활용할 수 있기 때문이다. 그러나 국외에서는 이민자들에 대한 근로환경의 요인에 대해서 연구가 진행된 바가 있으나(Font, Moncada, Llorens, & Benavides, 2012; Hoppe, 2011; Stromgren et al., 2014), 국내 연구에서는 이주 근로자들의 직무스트레스, 우울과의 관련성, 근로조건, 직종에서의 차이와 관련된 연구와 이주 근로자들의 건강측면과 관련되어서 개인 건강문제 측면에서 연구가 진행되었을 뿐(이꽃메, 정혜선, 이윤경, 권혜진, & 김희걸, 2009; 이향련, 스테파니아, et al., 2009; 정혜선 et al., 2008; 조민희 et al., 2009), 건강할 일터의 측면에서 조직의 건강 측면을 통합적으로 진행된 연구는 없는 상태이다. 따라서 본 연구의 목적은 이주 근로자들의 건강할 일터와 조직의 건강에 미치는 영향 요인을 확인함으로써, 다문화사회에서의 이주 근로자들의 건강증진들을 해소할 수 있는 건강할 일터 조건을 위한 정책프로그램 개발의 근거를 마련하고자 한다.

- 심 의 내 용
- [변경후] 임상 연구계획서(국문) 추가
 - [변경후] 대상자 설명문 및 동의서(국문) 추가
 - [변경후] 대상자 설명문 및 동의서(영문) 추가
 - [변경후] 설명문(예비조사)영문 추가
 - [변경후] 설명문(예비조사)국문 추가
 - [변경후] 전문가타당도 추가
 - [변경후] 일정보 추가

I R B 회 의 연세의료원 IRB

참 석 위 원 연세의료원 IRB 소속심의회자

이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다.



연세의료원 연구심의위원회

Yonsei University Health System, Institutional Review Board

서울특별시 서대문구 연세로 50-1 (우) 03722

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심 의 일 자 2019년 6 월 4 일
 과제승인번호 Y-2019-0012

연세의료원 연구심의위원회의 심의 결과를 다음과 같이 알려 드립니다.

Protocol No.

연구 제목 이주 근로자의 건강관 및태가 조직의 건강에 미치는 영향요인

연구책임자 이수경 / 연세대학교 김모임 란프학연구소

의 비 자 (학)연세대학교

연구예정기간 2019.03.11 ~ 2020.03.10

지속심의 빈도 12개월마다

과제승인일 2019.03.11

위험수준 Level 1 최소위험

심의유형 계획연구

심의내용
 - [변경전] 의료자산 활용을 통한 사업화 가능성 여부 :
 [변경후] 의료자산 활용을 통한 사업화 가능성 여부 : N
 - [변경전] 대상자 산출 근거 : 변경사유를 기술하십시오.
 [변경후] 대상자 산출 근거 : 변경사유를 기술하십시오.
 - [변경전] 선정 기준 : 본 연구에서는 현재 대한민국에 거주하고 있는 고용허가제를 통해서 입국한 E-9 비자를 소지한 이주 근로자를 표적모집단으로 하며, 서울, 경기 지역에 위치한 10-99명 이하 소규모 사업장에 근무하고 있는 이주 근로자를 대상으로 하며, 구체적인 연구 대상자의 기준은 다음과 같다.
 ? - 20세 이상의 성인남녀
 ? - 우리나라 법무부에서 허가한 비자 E-9(비전문비자) 을 소지하고 있는 이주 근로자
 ? - 서울과 경기 지역에 위치한 10-99명 이하 소규모 사업장에 근무하고 있는 이주 근로자
 ? - 한국어로 기본적인 의사소통이 가능하며, 한국어 또는 영어, 모국어로 된 설문지를 읽고 응답하는데 무리가 없는 이주 근로자
 ? - 본 연구의 목적을 이해하고 참여에 동의한 자
 [변경후] 선정 기준 : 본 연구에서는 현재 대한민국에 거주하고 있는 고용허가제를 통해서 입국한 E-9 비자를 소지한 이주 근로자를 표적모집단으로 하며, 서울, 경기 지역에 위치한 10-99명 이하 소규모 사업장에 근무하고 있는 이주 근로자를 대상으로 하며, 구체적인 연구 대상자의 기준은 다음과 같다.

Ver 1.0 / 누락 출력 횟수 연세의료원 YUHS IRB [2017.04.01] 1/8

이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다

심 의 내 용

- ? - 20세 이상의 성인남녀
- ? - 우리나라 법무부에서 허가한 비자 E-9(비전문비자) 을 소지하고 있는 이주 근로자
- ? - 서울과 경기 지역에 위치한 99명 이하 소규모 사업장에 근무하고 있는 이주 근로자
- ? - 한국어로 기본적인 의사소통이 가능하며, 한국어 또는 영어, 모국어로 된 설문지를 읽고 을 답하는데 무리가 없는 이주 근로자
- ? - 본 연구의 목적을 이해하고 참여에 동의한 자

- [변경전] 연구 방법 : 본 연구 방법은 연세의료원 기관생명윤리심의위원회(Institutional Review Board, IRB) 승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 근로자 지원단체, 이주 근로자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사와 본 조사 2단계로 진행할 예정이다.

자료수집 방법은 연세의료원 기관생명윤리심의위원회(Institutional Review Board, IRB) 승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 근로자 지원단체, 이주 근로자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사와 본 조사 2단계로 진행할 예정이다.

이 때 이주 근로자나 사회복지 단체의 담당자들로부터 외국인 근로자들 공동체의 대표자를 만날 수 있도록 하거나, 지원단체에 상담을 온 사람들을 대상으로 모집을 진행하고자 하며, 센터 내 광고문을 부착하여 자발적 참여를 유도할 수 있도록 하며, 이주 근로자의 공동체 대표들과의 면대면 설명으로 자료수집을 진행할 시에는 커뮤니티의 연락망에 광고문을 SNS로 올릴 수 있도록 하여 자발적 참여를 증도록 할 예정으로서, 센터에 방문하는 대상자나 지역사회 공동체 대표에 의해서 안내를 받는 대상자들이 비자발적으로 참여하지 않도록 사전에 담당자들에게 설명을 충분히 할 예정이다.

1) 예비조사: 본 연구의 예비조사는 E-9 비자를 소지한 국가의 10-99인 이하 사업장에서 근무 하는 근로자 각각 2~4명에게 진행하여서, 연구에 사용될 번역도구의 이해도, 응답 소요시간 등을 확인하는 목적으로 진행하여서 설문도구에 의한 오차를 최소화 할 수 있도록 할 예정이다. 현재는 설문도구가 한국어와 영어로 만들어져 있으며, 연구가 승인이 난 이후 전문가의 설문 도구에 대한 확인 후 예비조사를 실시할 예정이다. 전문가 타당성 조사는 간호학 교수 4인과 근로자 건강지원센터에서 실무를 담당하고 있는 산업간호사 2인 총 6명을 대상으로 개발된 설문도구의 타당성을 확인할 예정에 있으며, 예비조사의 경우 외국인 지원 단체와 연락하여서 접근이 용이한 국가부터 설문지를 해당국가언어로 만들 예정이며, 이 때 번역 기관을 통해서 1차로 해당 모국어로 번역을 진행하고, 다시 역번역을 진행하여 설문도구의 신뢰도와 타당도를 높이고자 한다. 그 이후 예비조사를 실시하여, 근로자들의 설문조사를 하는 데 있어서 어려움이 없는지, 이해도가 높은지, 응답 시간 등을 확인 한 후에, 본 조사에 반영할 예정이며, 설문도구에 수정사항이 있을 경우에 IRB 수정 승인을 득한 후 진행하고자 한다. 이 때 예비조사를 실시 할 경우 독립된 공간에서 설문조사를 진행할 예정이며, 연구자는 독립된 공간 밖에서 대기 하고 있을 후 조사가 끝나고, 본 연구 실시를 위한 도구를 완성하기 위해서 필요한 경우 연구 책임자가 인터뷰를 진행할 예정이다.

2) 본 조사: 본 조사는 E-9 비자를 소지한 국가 및 10-99인 이하 사업장에 근무하는 근로자들 을 대상으로 설문조사를 진행할 예정이며, 자가보고식 조사방법으로 진행할 계획이다. 본 조사에서는 모국어로 실시 할 때 이주 노동자 지원 센터 및 단체의 도움을 득하여서, 해당자들을 모집하고 해당 기관에서 설문 조사를 진행할 예정이다. 소요 시간은 30-40분을 넘지 않는 정도로 설문을 계획하고 있으며, 사전에 동의를 받아서 진행할 예정에 있다. 그리고, 본 조사에서는 예비조사자들은 제외하고 진행한다. 만약 예상된 소요 시간이나 응답 수 등이 달라지게 되면 IRB의 수정 심의를 거친 후에 본 조사를 진행하고자 한다.

[변경후] 연구 방법 : 본 연구 방법은 연세의료원 기관생명윤리심의위원회(Institutional Review Board, IRB) 승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 근로자 지원단체, 이주 근로자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사와 본 조사 2단계로 진행할 예정이다.

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이 위치에 복사방지마크가 출력된 이 위치에 비코드가 출력됩니다.



심 의 내 용

자료수집 방법은 연세의료원 기관생명윤리심의위원회(Institutional Review Board, IRB)승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 크르자 지원단체, 이주 크르자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사와 본 조사 2단계로 진행할 예정이다.

이 때 이주 크르자나 사회복지 단체의 담당자들로부터 외국인 크르자들 공동체의 대표자를 만날 수 있도록 하거나, 지원단체에 상담을 온 사람들을 대상으로 모집을 진행하고자 하며, 센터 내 공고를 부착하여 자발적 참여를 유도할 수 있도록 하며, 이주 크르자의 공동체 대표들과의 연대연설 등으로 자료수집을 진행할 시에는 커뮤니티의 연락망에 공고를 SNS로 올릴 수 있도록 하여 자발적 참여를 증진할 예정으로서, 센터에 방문하는 대상자나 지역사회 공동체 대표에 의해서 안내를 받는 대상자들이 비자발적으로 참여하지 않도록 사전에 담당자들에게 설명을 충분히 할 예정이다.

1)예비조사: 본 연구의 예비조사는 E-9 비자를 소지한 국가의 99인 이하 사업장에서 근무하는 크르자 각각 1-3명에게 진행하여서, 연구에 사용할 번역도구의 이해도, 응답 소요시간 등을 확인하는 목적으로 진행하여서 설문도구에 의한 오차를 최소화 할 수 있도록 할 예정이다. 현재는 설문도구가 한국어와 영어로 만들어져 있으며, 연구가 승인이 난 이후 전문가의 설문도구에 대한 확인 후 예비조사를 실시할 예정이다. 전문가 타당성 조사는 간호학 교수 4인과 크르자 건강지원센터에서 실무를 담당하고 있는 산업간호사 2인 총 6명을 대상으로 개발된 설문도구의 타당성을 확인할 예정에 있으며, 예비조사의 경우 외국인 지원 단체와 연락하여서 접근이 용이한 국가부터 설문지를 해당국가언어로 만들 예정이며, 이 때 번역 기관을 통해서 1차로 해당 모국어로 번역을 진행하고, 다시 역번역을 진행하여 설문도구의 신뢰도와 타당도를 높이고자 한다. 그 이후 예비조사를 실시하여, 크르자들의 설문조사를 하는 데 있어서 어려움이 없는지, 이해도가 높은지, 응답 시간 등을 확인 한 후에, 본 조사에 반영할 예정이며, 설문도구에 수정사항이 있을 경우에 IRB 수정 승인을 득한 후 진행하고자 한다. 이 때 예비조사를 실시 할 경우 독립된 공간에서 설문조사를 진행할 예정이며, 연구자는 독립된 공간 밖에서 대기 하고 있는 후 조사가 끝나고, 본 연구 실시를 위한 도구를 완성하기 위해서 필요한 경우 연구 책임자가 인터뷰를 진행할 예정이다.

2)본 조사: 본 조사는 E-9 비자를 소지한 국가 및 10-99인 이하 사업장에 근무하는 크르자들을 대상으로 설문조사로 진행할 예정이며, 자가보고식 조사방법으로 진행할 계획이다. 본 조사에서는 모국어로 실시 할 때 이주 노동자 지원 센터 및 단체의 도움을 득하여서, 해당자들을 모집하고 해당 기관에서 설문 조사를 진행할 예정이다. 소요 시간은 30-40분을 넘지 않는 정도로 설문을 계획하고 있으며, 사전에 동의를 받아서 진행할 예정에 있다. 그리고, 본 조사에서는 예비조사자들은 제외하고 진행한다. 만약 예상된 소요 시간이나 응답 수 등이 달라지게 되면 IRB의 수정 심의를 거친 후에 본 조사를 진행하고자 한다.

-[변경전]유료설 평가 항목 : 예비조사에서는 E 9 비자 소지자 및 10-99인 이하 사업장에서 근무하는 국가별 2-4명 정도를 측정하여 총 30-60명정도를 실시할 경우 자료수집을 종료 예정이며, 이를 토대로 구성된 최종 설문지를 통해서, 본 조사에서 대상자 250명의 자료수집이 완성되면 1차적으로 설문 조사를 종료할 예정이며, 자료결과 및 분석 시 설문지 응답률이 계획한 것보다 저조할 경우에는 IRB의 수정 심의를 거친 후에, 자료수집의 대상자 수를 조정할 계획이다.

[변경후]유료설 평가 항목 : 예비조사에서는 E 9 비자 소지자 및 10-99인 이하 사업장에서 근무하는 국가별 1-3명 정도를 측정하여 총 15-45명정도를 실시할 경우 자료수집을 종료 예정이며, 이를 토대로 구성된 최종 설문지를 통해서, 본 조사에서 대상자 250명의 자료수집이 완성되면 1차적으로 설문 조사를 종료할 예정이며, 자료결과 및 분석 시 설문지 응답률이 계획한 것보다 저조할 경우에는 IRB의 수정 심의를 거친 후에, 자료수집의 대상자 수를 조정할 계획이다.

-[변경전]스크리닝 방법 : 자료수집 방법은 연세의료원 기관생명윤리심의위원회(Institutional

Review Board, IRB)승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 근로자 지원단체, 이주 근로자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사를 실시하여 설문도구를 최종 결정 후, 본 조사 2단계로 진행할 예정이다. 이 때 이주 근로자나 사회복지 단체의 담당자들로부터 외국인 근로자들 공동체의 대표자를 만날 수 있도록 하거나, 지원단체에 상담을 온 사람들을 대상으로 모집을 진행하고자 하며, 센터 내 광고판을 부착하여 자발적 참여를 유도할 수 있도록 하며, 이주 근로자의 공동체 대표들과의 연대연설 등으로 자료수집을 진행할 시에는 커뮤니티의 연락망에 광고판을 SNS로 올릴 수 있도록 하여 자발적 참여를 돕도록 할 예정으로서, 센터에 방문하는 대상자나 지역사회 공동체 대표에 의해서 안내를 받는 대상자들이 비자발적으로 참여하지 않도록 사전에 담당자들에게 설명을 충분히 할 예정이다.

1) 예비조사: 본 연구의 예비조사는 E-9 비자를 소지한 국가의 근로자, 10~99이하 사업장에 근무하는 각각 2~4명에게 진행하여서, 연구에 사용될 번역도구의 이해도, 응답 소요시간 등을 확인하는 목적으로 진행하여서 설문도구에 의한 오차를 최소화 할 수 있도록 할 예정이다. 현재는 설문도구가 한국어와 영어로 만들어져 있으며, 연구가 승인이 난 이후 전문가의 설문도구에 대한 타당성 확인 후 예비조사를 실시할 예정이다. 전문가 타당성 조사는 간호학 교수 4인과 근로자 건강지원센터에서 실무를 담당하고 있는 산업간호사 2인 총 6명을 대상으로 개발된 설문도구의 타당성을 확인할 예정에 있으며, 예비조사의 경우 및 예비조사를 진행할 외국인 지원 단체와 연락하여서, 접근이 용이한 국가부터 설문지를 해당국가언어로 만들 예정이며, 이 때 번역 기관을 통해서 1차로 해당 모국어로 번역을 진행하고, 다시 역번역을 진행하여 설문도구의 신뢰도와 타당도를 높이고자 한다. 그 이후 예비조사를 실시하여, 근로자들의 설문조사를 하는 데 있어서 어려움이 없는지, 이해도가 높은지, 응답 시간 등을 확인 한 후에, 본 조사에 반영할 예정이며, 설문도구에 수정사항이 있을 경우에 IRB 수정 승인을 득한 후 진행하고자 한다. 이 때 예비조사를 실시 할 경우 독립된 공간에서 설문조사를 진행할 예정이며, 연구자는 독립된 공간 밖에서 대기 하고 있을 후 조사가 끝나고, 본 연구 실시를 위한 도구를 완성하기 위해서 필요한 경우 연구 책임자가 인터뷰를 진행할 예정이다.

2) 본 조사: 본 조사는 E-9 비자를 소지한 국가의 근로자들을 대상으로 편의 추출방법 및 자가보고식 조사방법으로 진행할 계획이다. 본 조사에서는 모국어로 실시 할 때 이주 노동자 지원 센터 및 단체의 도움을 통하여서, 해당자들을 모집하고 해당 기관에서 설문 조사를 진행할 예정이다. 소요 시간은 30~40분을 넘지 않는 정도로 설문을 계획하고 있으며, 사전에 동의 를 받아서 진행할 예정에 있다. 그리고, 본 조사에서는 예비조사자들은 제외하고 진행한다. 만약 예상된 소요 시간이나 분할 수 등이 달라지게 되면 IRB의 수정 심의를 거친 후에 본 조사를 진행하고자 한다.

[번역후]스크리닝 방법 : 자료수집 방법은 연세의료원 기관생명윤리심의위원회(Institutional Review Board, IRB)승인을 받은 후 시행할 예정이며, 자료수집을 위해서 이주 근로자 지원단체, 이주 근로자 공동체, 사회복지단체 등의 협조를 구하여서 자료수집을 진행할 수 있도록 계획할 것이며, 연구의 자료 수집은 예비 조사를 실시하여 설문도구를 최종 결정 후, 본 조사 2단계로 진행할 예정이다. 이 때 이주 근로자나 사회복지 단체의 담당자들로부터 외국인 근로자들 공동체의 대표자를 만날 수 있도록 하거나, 지원단체에 상담을 온 사람들을 대상으로 모집을 진행하고자 하며, 센터 내 광고판을 부착하여 자발적 참여를 유도할 수 있도록 하며, 이주 근로자의 공동체 대표들과의 연대연설 등으로 자료수집을 진행할 시에는 커뮤니티의 연락망에 광고판을 SNS로 올릴 수 있도록 하여 자발적 참여를 돕도록 할 예정으로서, 센터에 방문하는 대상자나 지역사회 공동체 대표에 의해서 안내를 받는 대상자들이 비자발적으로 참여하지 않도록 사전에 담당자들에게 설명을 충분히 할 예정이다.

1) 예비조사: 본 연구의 예비조사는 E-9 비자를 소지한 국가의 근로자, 99이하 사업장에 근무하는 각각 1~3명에게 진행하여서, 연구에 사용될 번역도구의 이해도, 응답 소요시간 등을 확인하는 목적으로 진행하여서 설문도구에 의한 오차를 최소화 할 수 있도록 할 예정이다. 현재는 설문도구가 한국어와 영어로 만들어져 있으며, 연구가 승인이 난 이후 전문가의 설문도구에 대한 타당성 확인 후 예비조사를 실시할 예정이다. 전문가 타당성 조사는 간호학 교수

이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다

4인과 크루자 건강지원센터에서 실행을 담당하고 있는 산업간호사 2인 중 6명을 대상으로 개별 설문조사의 타당성을 확인할 예정에 있으며, 예비조사의 경우 및 예비조사를 진행할 외국의 지원 단체와 연락하여서, 접점이 높은 국가부터 설문지를 해당국가언어로 만들 예정이며, 이 때 번역 기관을 통해서 1차로 해당 모크어로 번역을 진행하고, 다시 역번역을 진행하여 설문조사의 신뢰도와 타당도를 높이고자 한다. 그 이후 예비조사를 실시하여, 크루자들의 설문조사에 있어서 어려움이 없는지, 이해도가 높은지, 응답 시간 등을 확인 한 후에, 본 조사에 반영할 예정이며, 설문조수에 수정사항이 있을 경우에 IRB 수정 승인을 득한 후 진행하고자 한다. 이 때 예비조사를 실시 할 경우 독립된 공간에서 설문조사를 진행할 예정이며, 연구자는 독립된 공간 밖에서 대기 하고 있을 후 조사가 끝나고, 본 연구 실시를 위한 프로그램을 완성하기 위해서 필요한 경우 연구 책임자가 인터뷰를 진행할 예정이다.

2) 본 조사: 본 조사는 E-9 비자를 소지한 국가의 크루자들을 대상으로 편의 추출방법 및 자가보고식 조사방법으로 진행할 계획이다. 본 조사에서는 모크어로 실시 할 때 이후 노동자 지원 센터 및 단체의 도움을 통하여, 해당자들을 모집하고 해당 기관에서 설문 조사를 진행할 예정이다. 소요 시간은 30-40분을 넘지 않는 정도로 설문을 계획하고 있으며, 사전에 동의 를 받아서 진행할 예정에 있다. 그리고, 본 조사에서는 예비조사자들은 제외하고 진행한다. 만약 예상된 소요 시간이나 분할 수 등이 달라지게 되면 IRB의 수정 승의를 거친 후에 본 조사를 진행하고자 한다.

IRB 회의	연세의료원 IRB
참석 위원	연세의료원 IRB 소속심의자
심의 결과	승인
심의 의견	-

※ 연세의료원 연구심의위원회는 생명윤리 및 안전에 관한 법률을 준수합니다. 연구책임자 및 연구담당자가 IRB 위원인 경우, 해당 위원은 본 연구의 심의과정에 참여하지 않았습니다.

연세의료원
 연구심의위원회
 위원장



이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다.

*** 유의사항 ***

1. 연세의료원 연구심의위원회의 규정을 준수하여 주십시오.

연구책임자께서는 모든 연구 관련자들이 규정을 이해할 수 있도록 협조하여 주시기 바랍니다.

2. 질의답변

승인 불부 합치 않은 단계는 연구 진행할 수 없으며, 관련 질의에 대한 답변서와 질의 사항에 따른 변경 및 수정된 자료가 있다
면접후하여 심의일로부터 6개월 이내 제출하여야 합니다.

3. 연구의 승인 유효 기간

관련법령에 따라 승인된 연구의 유효기간은 최대 1년을 넘을 수 없습니다.
연구자께서는 승인 만료일 최소 한 달전에 중간보고를 제출하여 승인 유효기간을 갱신하여야 합니다.
유효기간이 만료된 연구는 새로운 대상자를 등록할 수 없습니다.

4. 계획 변경

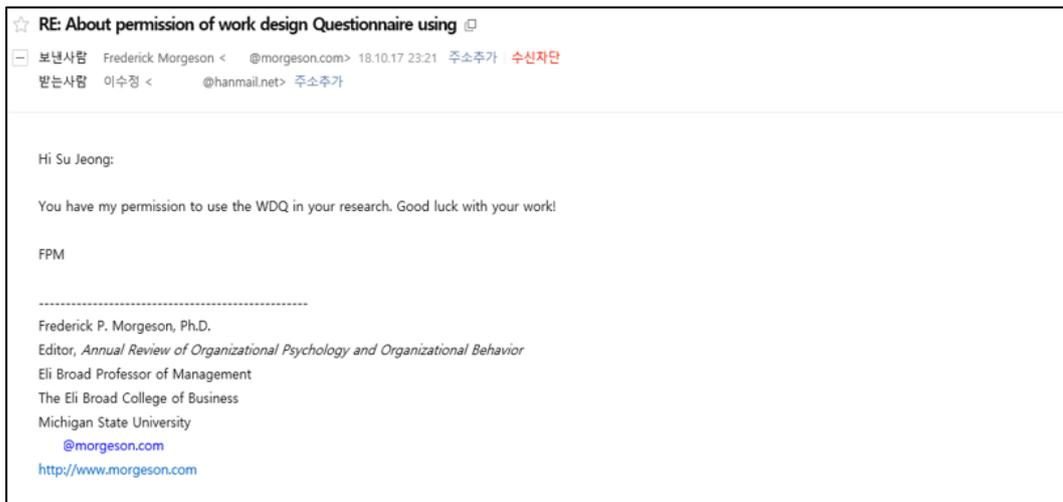
연구 중단, 대상자 수 IRB로부터 승인 받은 내용에 변경 또는 추가 사항이 있을 경우에는
반드시 IRB의 승인을 득한 후에 적용하실 수 있습니다.

5. 연구자는 심의결과에 이의가 있을 경우 이의신청을 통해 심의관련 의견제시가 가능합니다. 관련 질의에 대한 의견제시와 충분한 근거를 첨부자료로 제출해
야 합니다. 자료 미흡 또는 근거가 불충분할 경우 연구자에게 추가자료를 요청할 수 있습니다.

이 위치에 복사방지마크가 출력된 이 위치에 바코드가 출력됩니다

2. Permission to use a survey instrument

1) WDQ instrument



2) HPLP II instrument



3) Job-related Self efficacy instrument

Dear Su Jeong,
Of course, you can use the scale (obviously citing the authors of the scale...).
Good luck with your dissertation.
Best regards,
Laura

2018-10-01 12:40 GMT+02:00 이수정 <@hanmail.net>:
Dear professor
This is Su Jeong from Korea.
I am a doctorating student in Nursing.
My interesting population is an immigrant worker. So I am planning to write a dissertation for their work environment.
I read your article about scale of Job related self efficacy. So If you allow to use for them, I am happy and I appreciate you.
I am waiting for your good reply.

Regards
Su Jeong Lee

--
Dra. Laura Lorente Prieto
Facultad de Psicología, Dpto. Psicología Social
Universidad de Valencia; Telf: +34 96 386 44 20
Instituto de Investigación IDOCAL
www.uv.es/~idocal/Grupo.htm
<http://www.uv.es/belasos/equipo.html>
<http://erasmuswop.org>

4) COPSCOQII instrument

☆ SV: About permission of version of Copehagen Psychosocial Questionnaire

보낸사람 Jan Hyld Pejtersen <@vive.dk> 18.10.18 19:47 주소추가 수신차단
받는사람 이수정 <@hanmail.net> 주소추가

일련파열 1개 (2.14MB) 모두저장
TRE-DÆKKER II PAKKE.ZIP 2.14MB

Dear Su Jeong Lee

Please feel free to use the COPSOQ questionnaire.

Best wishes,

Jan Pejtersen

Med venlig hilsen

Jan Hyld Pejtersen
Seniorforsker

VIVEN FÆRD

5) IWPQ instrument

Dear Su Jeong Lee,

Please find attached the manual of the IWPQ. It includes the final 18-item version in English and Dutch. You have my permission to use the IWPQ for your research. Good luck with your research!

Kind regards,

Dr. Linda Koopmans

Dr. L. (Linda) Koopmans
Research Scientist
Sustainable Productivity & Employability

T +31 (0)88 866 20 25
E [@tno.nl](mailto:l.koopmans@tno.nl)
Werkdagen ma, di, do, vr

[Locatie](#)
Schipholweg 77-89
2316 ZL Leiden



Dit bericht kan informatie bevatten die niet voor u is bestemd. Indien u niet de geadresseerde bent of dit bericht abusievelijk aan u is toegezonden, wordt u verzocht dat aan de afzender te melden en het bericht te verwijderen. TNO aanvaardt geen aansprakelijkheid voor de inhoud van deze e-mail, de wijze waarop u deze gebruikt en voor schade, van welke aard ook, die verband houdt met risico's verbonden aan het elektronisch verzenden van berichten.

From: 이수정 <isujung@hanmail.net>
Sent: woensdag 24 oktober 2018 2:12
To: Koopmans, L. (Linda) <l.koopmans@tno.nl>
Subject: About permission of using IWQ

6) WHO-HPQ instrument

☆ **Re: WHO-HPQ 한국어판 사용 승인 요청 건** □ 목록 < 위 > 아래 < □

보낸사람 Paul Woo <pwoo@gmail.com> 19.01.06 17:32 주소주가 수신자만
받는사람 이수정 <isujung@hanmail.net> 주소주가

알림파일 1개 (679.44KB) 모두자랑

 Value in Health_Impact of Depression on Work Productivity and Its Improv...pdf (679.44KB) 미리보기

안녕하세요?
문의해주셔서 감사합니다.
제가 만든 한국어판 설문은 연구목적일 경우 무상으로 사용하셔도 됩니다.

제가 사용했던 HPQ는 Ron Kessler 교수에게 허락을 받고 번역 권역까지 사용했습니다. 다만 HPQ의 원저자인 하버드대학교 Ron Kessler 교수가 HPQ 수정판부터는 관련 사항 전체를 어떤 회사에 남긴 것으로 알고 있고, 이후 내용도 일부 변화가 있는 것으로 알고 있는데, 그런 사항에 대해서는 저는 권원이 없습니다. (제정 방식 등에 변화가 있기 때문에 알려드립니다.)

좋은 결과가 있으시길 소망합니다.

우종민 드림

On Tue, Jan 1, 2019 at 10:00 PM 이수정 <isujung@hanmail.net> wrote:
안녕하세요 교수님

저는 연세대학교 간호대학에서 박사과정 중인 이수정입니다. 현재 학위 논으로 우리나라 외국의 근로자들의 조직 건강과 관련된 논문을 준비하고 있고, 이들에게 설문과 프리인터뷰를 측정하고자 도구를 찾았을 때, 이 도구가 적절할 것으로 생각되어서 문헌을 찾아보니, 교수님께서 번역 허신사함을 알게 되었습니다.

특히, 번역본을 받아 볼 수 있는지와 함께 도구를 연구에 활용할 수 있도록 하여 주시면 감사드리겠습니다.

세해 꼭 많이 받으세요

감사합니다.

이수정 드림

3. Questionnaire

1) Questionnaire in Korean

이주 근로자(immigrant worker)의 건강한 일터(healthy workplace)가

조직의 건강(Organizational Health)에 미치는 영향요인

안녕하세요

바쁘신 가운데 소중한 시간을 내어서 설문에 참여하여 주셔서 진심으로 감사드립니다. 저는 연세대학교 간호대학의 박사학위논문으로서 설문조사를 실시하고자 하며, 설문의 목적은 이주 근로자들의 건강한 일터에 미치는 영향요인을 파악하여 이주 근로자의 근로환경 개선의 기초 자료로 활용하기 위해서입니다.

설문 문항은 총 118 문항으로서, 소요되는 시간은 약 30-40분 내외 소요되며, 설문지 문항에 직접 본인의 생각을 기입하는 방법입니다. (설문 도중에 모르는 내용에 대해서는 질문을 하여 주셔도 됩니다.) 또한 설문 도중 참여를 원치 않으실 경우 언제든지 철회하실 수 있으며 어떠한 불이익도 받지 않을 것입니다.

설문을 통해 얻어진 정보는 학문 목적으로 사용될 것이며, 다른 어떤 용도로 사용되지 않습니다.

작성된 설문지는 코드로 부여되기 때문에 작성하여 주시는 참여자의 개인정보는 절대 비밀이 보장이 되며, 자료는 책임자와 공동 연구원 외에 접근하지 못하도록 기밀성을 유지할 것입니다.

설문 문항에 빠짐없이 응답해 주시길 부탁드립니다. 설문에 답해주시는 모든 분들께 소정의 답례품(5천원 상당)을 드립니다.

본 연구에 관하여 궁금한 점이 있거나, 연구와 관련이 있는 문제가 발생한 경우, 아래의 연구자에게 언제든지 연락하여 주십시오.

2019.6

- 연구자 성명 : 이수정
- 연구자 소속 : 연세대학교 일반대학원 간호학과
- 연구자 직위 : 박사과정 9학기
- 연구자 주소 : 서울 특별시 서대문구 연세로 50
- 연구자 전화번호 : 010-22 - (24시간 연락처)
- 연구자 E mail : eye @hanmail.net

1. 당신의 비자 종류는 어떻게 되십니까? () ① E-9 VISA ② E-9 VISA가 아니다.

(해당 연구는 현재 E-9 VISA 소지한 이주 근로자의 경우에만 설문이 가능합니다.

E-9 VISA 인 경우에는 2번 문제를 답변하여 주시고, 그렇지 않으신 분은 중단해 주시기 바랍니다.)

2. 현재 일하고 있는 직장의 직원 수는 모두 몇 명입니까? () 명) : 한국인
근로자 포함

3. 당신의 태어난 년도는 언제입니까? () 년)

4. 당신의 성별은 어떻게 되십니까? () ① 남 ② 여

5. 당신의 최종 학력은 어떻게 되십니까? ()

① 학교를 다니지 않았습니다. ② 초등학교 졸업 ③ 중학교 졸업

④ 고등학교 졸업 ⑤ 대학교 이상

6. 현재 결혼 상태는 어떻게 되십니까? ()

① 미혼 ② 결혼 ③ 이혼 ④ 사별

7. 종교는 어떻게 되십니까? ()

① 기독교 ② 가톨릭 ③ 불교 ④ 이슬람교

⑤ 힌두교 ⑥ 기타 ()

8. 당신의 국적은 어떻게 되십니까? ()

9. 당신은 언제 한국에 입국하였습니까? () 년) 월)

10. 당신이 생각 할 때 한국어로 대화를 어느 정도 하십니까?

① 전혀 하지 못한다 ② 조금 할 수 있다.

③ 잘하는 편이다. ④ 매우 잘한다.

11. 당신의 직업 종류는 무엇입니까? ()

① 단순 노무직 ② 공장 근로 ③ 기술직 ④ 사무직

⑤ 판매직 ⑥ 관리직 ⑦ 기타 ()

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다

번호	내용	전혀 하지 않는다	가끔 한다	자주 한다	일상적 으로 한다
나는...					
1	내가 관심 있는 것이나 고민을 가장 가까운 사람에게 말한다	1	2	3	4
2	기름기가 적은 음식을 먹는다	1	2	3	4
3	비정상적인 증상이 있을 때 병원에 간다.	1	2	3	4
4	계획을 세워서 운동을 한다	1	2	3	4
5	잠을 충분히 잔다	1	2	3	4
6	내가 좋은 쪽으로 변화하고 있다고 생각한다	1	2	3	4
7	다른 사람이 한 일에 대해서 칭찬을 잘한다	1	2	3	4
8	단 음식이나 설탕을 적게 먹으려고 노력한다	1	2	3	4
9	건강에 관한 내용의 텔레비전 프로그램을 보거나 글을 읽는다	1	2	3	4
10	일주일에 3회 이상 20분 이상의 격렬한 운동을 한다 (예 : 빨리 걷기, 자전거 타기, 에어로빅 등)	1	2	3	4
11	매일 일정한 휴식시간을 갖는다	1	2	3	4
12	내 삶에 목적이 있다고 믿는다	1	2	3	4
13	다른 사람과 원만한 대인 관계를 유지한다	1	2	3	4
14	적당량의 밥이나 국수 종류를 매일 먹는다	1	2	3	4
15	강도가 약한 운동에서부터 보통인 운동을 한다 (예: 1주일에 5회 이상 30-40분간 걷기운동)	1	2	3	4
16	내 삶에서 변화시킬 수 없는 것들을 그냥 받아들인다	1	2	3	4
17	미래에 대한 희망을 가지고 있다	1	2	3	4
18	친한 친구와 시간을 보낸다	1	2	3	4
19	매일 과일을 먹는다	1	2	3	4
20	여가시간을 활용하여 운동을 한다 (수영, 춤, 자전거)	1	2	3	4
21	잠들기 전에 즐거운 생각을 한다	1	2	3	4
22	내 자신에 대해 만족감과 평온함을 느낀다	1	2	3	4
23	다른 사람에게 따뜻한 관심과 사랑을 표현한다	1	2	3	4
24	매일 채소를 충분히 먹는다	1	2	3	4
25	의료인에게 내 건강문제를 상의한다	1	2	3	4
26	일주일에 3회 이상 스트레칭을 한다	1	2	3	4
27	내 방식으로 스트레스를 풀다	1	2	3	4

번호	내용	전혀 하지 않는다	가끔 한다	자주 한다	일상적 으로 한다
나는...					
28	장기적인 삶의 목표를 향해 일한다	1	2	3	4
29	나에게 소중한 사람과 잘 지낸다	1	2	3	4
30	몸의 비정상적인 변화를 알기 위해 한 달에 한 번 정도 내 몸을 관찰한다	1	2	3	4
31	나는 일상생활 속에서 운동을 한다 (점심시간에 걷기, 엘리베이터 대신 계단 이용)	1	2	3	4
32	일하는 시간과 여가 시간이 비슷하다	1	2	3	4
33	매일 재미있고, 도전적인 일을 찾는다	1	2	3	4
34	다른 사람과 어울릴 수 있는 방법을 찾는다	1	2	3	4
35	의사, 약사, 간호사에게 건강관리하는 법을 알아본다	1	2	3	4
36	운동을 할 때 심박동수를 체크한다	1	2	3	4
37	매일 15-20분 동안 이완이나 명상을 한다	1	2	3	4
38	내 인생에서 무엇이 중요할지를 알고 있다	1	2	3	4
39	건강교육 강좌에 참석한다	1	2	3	4
40	피곤하지 않도록 스스로 조절한다	1	2	3	4
41	다른 사람과의 갈등을 대화와 타협으로 해결한다	1	2	3	4
42	아침 식사를 한다	1	2	3	4
43	필요하다면 상담이나 지도를 받는다	1	2	3	4
44	새로운 경험과 도전을 시도한다	1	2	3	4

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다.

번호	내용	0	1	2	3	4	5	6
		<div style="display: flex; justify-content: space-between; align-items: center;"> ← 전혀 아니다. 매우 그렇다. → </div>						
1	나는 어려운 문제를 해결해야 하는 상황에서도 일을 할 수 있다	0	1	2	3	4	5	6
2	나는 예기치 않은 상황이 발생해도 일을 할 수 있다	0	1	2	3	4	5	6
3	나는 동료의 일이 늦어지면 함께 일을 해 낼 수 있다	0	1	2	3	4	5	6
4	나는 바쁘게 일을 끝내야 하는 상황에서도 해낼 수 있다	0	1	2	3	4	5	6
5	내가 맡은 일이 자주 변경되지만 해낼 수 있다	0	1	2	3	4	5	6

번호	내용	0	1	2	3	4	5	6
		전혀 아니다. 매우 그렇다.						
6	나의 동료가 나를 도와주지 않아도 일을 해낼 수 있다	0	1	2	3	4	5	6

※ 지난 3개월 동안 업무 활동을 진행하면서, 해당되는 경우에 'V'표시를 해주시기 바랍니다.

번호	내용	전혀 그렇지 않다	가끔 그렇다	보통이다	종종 그렇다	항상 그렇다
지난 3개월 동안 나는----						
1	일을 제 시간에 끝낼 수 있도록 나의 일을 계획하였다.	0	1	2	3	4
2	내가 달성해야 하는 업무 결과를 파악하고 있었다.	0	1	2	3	4
3	일의 우선순위를 설정할 수 있었다.	0	1	2	3	4
4	효율적으로 업무를 수행할 수 있었다.	0	1	2	3	4
5	나의 시간을 잘 계획하였다.	0	1	2	3	4
6	나의 계획에 따라 작업이 끝나고 나면, 새로운 작업을 시작하였다.	0	1	2	3	4
7	어려운 작업이 있을 때 스스로 나서서 처리하였다.	0	1	2	3	4
8	업무와 관련된 최신 지식 또는 기술을 배우기 위해 노력하였다.	0	1	2	3	4
9	새로운 문제에 대한 창의적인 해결 방안을 고안해 냈다.	0	1	2	3	4
10	업무 이외의 다른 책임을 맡고 있다.	0	1	2	3	4
11	지속적으로, 나의 업무에 대해서 새로운 도전을 추구했다.	0	1	2	3	4

※ 지난 3개월 동안 업무 활동을 진행하면서, 해당되는 경우에 'V'표시를 해주시기 바랍니다.

번호	내용	절대 그렇지 않다	그렇지 않다	가끔 그렇다	보통 이다	종종 그렇다
지난 3개월 동안 나는----						
12	나의 업무와 관련된 아주 작은 일에도 불평을 하였다.	0	1	2	3	4
13	나는 문제를 더 심각하게 만든 적이 있다.	0	1	2	3	4
14	근무할 때 긍정적인 부분보다 부정적인 부분에 집중하였다.	0	1	2	3	4
15	동료들이나 외부 사람들에게 직장의 부정적인 부분을 이야기하였다.	0	1	2	3	4

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다.

번호	내용	종종 그렇다	그렇지 않다
1	나는 휴식 시간에 이야기할 동료가 있다.		
2	나는 동료들과 이야기하기 위해 나의 일을 잠깐 동안 휴식을 할 수 있다.		
3	나는 일에 대해서 동료들과 함께 의사소통을 할 수 있다.		
4	나는 여가 시간에 회사 밖에서 동료들과 만났다.		

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다.

번호	내용	매우 그렇지 않다	그렇지 않다	보통 이다	그 렇 다	매우 그렇다
1	작업장의 좌석배치가 적절하다. (편안한 의자, 좋은 자세 지지)	0	1	2	3	4
2	작업장의 간격, 동선, 다리를 뻗을 수 있는 공간 등이 작업자의 신체적 특성에 맞게 제공되었다.	0	1	2	3	4
3	업무량이 매우 많다.	0	1	2	3	4
4	반복작업이 많이 요구되는 일이다.	0	1	2	3	4
5	무거운 짐 들어 올리기 등의 근육의 힘이 많이 요구되는 일이다.	0	1	2	3	4

번호	내용	매우 그렇지 않다	그렇지 않다	보통이다	그렇다	매우 그렇다
6	육체적인 노동을 많이 필요로 한다.	0	1	2	3	4
7	심한 소음이 발생되지 않는다.	0	1	2	3	4
8	사고 위험이 적다.	0	1	2	3	4
9	건강위험요인(화학 물질, 용접 흠 등)이 없는 환경이다.	0	1	2	3	4
10	깨끗한 환경에서 작업한다.	0	1	2	3	4
11	다양한 기계를 이용하는 일이다.	0	1	2	3	4
12	하고 있는 일이 복잡한 기술이 필요하다.	0	1	2	3	4
13	작업에서 사용하는 장비를 사용하는 방법을 배우는데, 많은 시간이 요구된다	0	1	2	3	4

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다.

번호	내용	절대 그렇지 않다	그렇지 않다	보통이다	그렇다	매우 그렇다
당신이 근무를 할 때,						
1	일이 많이 밀려 있습니까?	0	1	2	3	4
2	일을 끝낼 수 있는 충분한 시간이 주어질까요?	0	1	2	3	4
3	빠른 속도로 일을 하는 것이 필요합니까?	0	1	2	3	4
4	하루 종일 빠른 속도로 일을 합니까?	0	1	2	3	4
5	일이 당신을 감정적으로 불안하게 합니까?	0	1	2	3	4

※ 각 문항을 읽고 당신의 생각과 같다고 생각되는 곳에 'V'표시를 해주시기 바랍니다.

번호	내용	예	아니오	잘 모르겠다
1	회사에서 건강검진을 매 년 1회 제공한다.	0	1	2
2	회사에 구내식당이 있어서 식사를 제공한다.	0	1	2
3	회사에 운동 시설이 있어서, 운동을 할 수 있다.	0	1	2
4	회사에 휴게실이 있다.	0	1	2

※ 각 문항을 읽고 기입해 주시기 바랍니다.

1. 회사 사장님께서 당신이 1주일에 몇 시간 일하기를 원합니까?

_____ 총 시간 수

2. 지난 7일 동안 총 몇 시간 정도 일을 했습니까? (아래 예시 상자를 확인하세요).

_____ 총 시간 수

지난 7일 동안 일한 시간을 계산하는 방법 (예시)

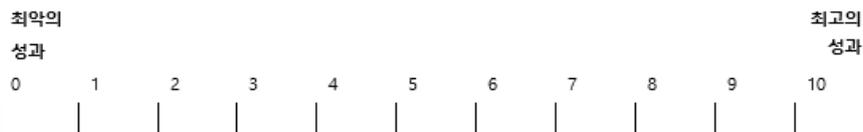
주 5일 동안 8시간씩 일한 경우 = 40 시간

주 5일 동안 7시간씩 일한 경우 = 35 시간

주 4일 동안 8시간씩 일하고, 1일은 4시간 일한 경우 = 36 시간

주 3일 동안 7시간씩 일하고, 2일은 4시간 일한 경우 = 29 시간

3. 당신의 당신의 동료들과 비교하였을 때, 당신은 0부터 10까지 점수 중 몇 점을 주고 싶습니까? (숫자에 동그라미를 하세요)



4. 지난 7일 동안 당신의 성과를 0점부터 10점까지 점수 중에서 몇 점을 주고 싶습니까? (숫자에 동그라미를 하세요)



※ 모든 문항을 빠짐없이 V 해 주셨는지 확인 부탁드립니다, 이 연구를 통해서 외국인 근로자의 건강에 이바지할 수 있도록 하겠습니다.

-감사합니다-

2) English version

<Philippine>

**Factor influencing Healthy workplaces and organizational health
among immigrant workers**

Greetings!

Thank you for shelling out your precious time out of your busy schedule to participate in this survey.

I am conducting a questionnaire survey for a doctoral dissertation for College of Nursing, Yonsei University. And the purpose of the survey is to figure out the influential factors on a healthy workplace for immigrant workers and thereby use it as basic data for improving the working environment for immigrant workers.

The questionnaire has total 118 questions and takes about 30 to 40 minutes. It is a self-administered survey in which respondents provide their own thoughts to the questions (those who are not sure about any of the questions are free to ask questions). And, those who do not continue to participate in the survey halfway through are free to cancel the participation without penalty.

The information obtained through the survey will be put to academic purposes and no other purposes.

As the questionnaire you fill out is given a code, so the personal information provided shall be kept absolutely confidential, with the data kept secret, accessible only to the manager and co-researchers.

So, please respond to all the questions and those who do will be presented with a 5,000-won-worth gift each.

If you have any questions about the study, or if you run into any problems related to it, please feel free to contact the researcher any time at the contact information below.

March, 2019

- Researcher Name: Lee Su-jeong
- Affiliation: College of Nursing, Yonsei University Graduate School
- Researcher Address: 50, Yonsei-ro, Seodaemun-gu, Seoul
- Researcher Phone: +82 10-22 - (available 24/7)
- Researcher email: @hanmail.net

1. What is the type of your visa? () ① E-9 VISA ② Not E-9 VISA

(This study applies only to **those immigrant workers with E-9 visa**. Those with E-9 visa may proceed to answer question 2 and those without E-9 visa, please stop here.)

2. What is the number of employees at your current workplace?

(_____ person(s); with Korean workers included)

3. What is your year of birth? (_____)Year

4. What is your gender? (_____)

- ① Male ② Female

5. What is your highest level of education attained? (_____)

- ① No Education ② Elementary school graduate
③ Middle school graduate ④ High school graduate
⑤ College graduate or higher

6. What is your current marital status? (_____)

- ① Single ② Married
③ Divorced ④ Bereaved (widow/widower)

7. What is your religion? (_____)

- ① Christian ② Catholic ③ Buddhism
④ Muslim ⑤ Hindu ⑥ Other (_____)

8. What is your nationality? (_____)

9. When did you arrive in South Korea? (____ (month), _____(year))

10. How would you rate your Korean speaking skills?

- ① Totally absent ② A little Korean
③ Good ④ Excellent

11. What is your current job? ()

- ① Daily laborer ② Factory worker ③ Engineer
 ④ Office worker Sales worker ⑥ Manager
 ⑦ Other ()

12. What is your monthly salary? ()

- ① Below 1 million (1,000,000) won
 ② 1 million (1,000,000) won to less than 2 million (2,000,000) won
 ③ 2 million (2,000,000) won to less than 3 million(3,000,000) won
 ④ 3 million (3,000,000) won or more

※ Please check the answer choice that correctly describes **your health condition over the last 4 weeks.**

No	Items	Poor	Fair	Good	Very Good
1	In general, would you say your health is?	0	1	2	3

※ How seriously have the symptoms listed below troubled you over the **past 4 weeks?**

No.	Health Issues	Not at all	Moderately	Extremely
2	Stomachache	0	1	2
3	Lower back pain	0	1	2
4	Pain in arms, legs, bone joints (pain as at knee and hip joint)	0	1	2
5	Headache	0	1	2
6	Chest pain	0	1	2
7	Dizziness	0	1	2
8	Fainting spells	0	1	2
9	Feeling your heart pound or race	0	1	2
10	Shortness of breath	0	1	2
11	Constipation, loose bowels, or diarrhea	0	1	2
12	Nausea, gas, or indigestion	0	1	2
13	Feeling tired or having low energy	0	1	2
14	Troubled sleep	0	1	2

15. What are your height and weight?

Height _____ cm(feet) Weight _____ Kg

※ Read the questions and check the answer choice that matches your thought.

No	Items	Never	Some times	Often	Routinely
I ...					
1	discuss my problems and concerns with people close to me	1	2	3	4
2	eat less fatty food	1	2	3	4
3	go to hospital when I have any unusual signs and symptoms	1	2	3	4
4	work out with a plan	1	2	3	4
5	get enough sleep	1	2	3	4
6	think that I am changing for the better	1	2	3	4
7	praise other people easily for their achievements	1	2	3	4
8	try to eat less sweet food or sugar	1	2	3	4
9	read or watch television programs on improving health	1	2	3	4
10	minimum 20 minutes of intense workout for minimum three times a week (such as brisk walking, biking, or aerobics)	1	2	3	4
11	take some time for relaxation each day	1	2	3	4
12	believe that my life has a purpose	1	2	3	4
13	keep harmonious relationships with others	1	2	3	4
14	eat a certain amount of cooked rice or noodles every day	1	2	3	4
15	engage in workout light to moderate in intensity. (such as 30 to 40 minutes of walking at least 5 times a week)	1	2	3	4
16	accept things in my life that cannot be changed	1	2	3	4
17	look forward to the future	1	2	3	4

No	Items	Never	Some times	Often	Routinely
18	spend time with close friends	1	2	3	4
19	eat fruit every day	1	2	3	4
20	take part in leisure time during my free time (swimming, dancing, or biking)	1	2	3	4
21	concentrate on pleasant thoughts at bedtime	1	2	3	4
22	feel content and at peace with myself	1	2	3	4
23	express warm attention and love to others	1	2	3	4
24	eat enough vegetables daily	1	2	3	4
25	discuss my health issues with health professionals	1	2	3	4
26	engage in stretching at least three times per week	1	2	3	4
27	use specific methods to control my stress	1	2	3	4
28	work toward long-term goal in my life	1	2	3	4
29	get along with persons who are precious to me	1	2	3	4
30	inspect my body at least monthly for physical changes/danger signs	1	2	3	4
31	work out in my everyday life (such as walking during lunch time or using stairway instead of elevator)	1	2	3	4
32	balance time between work and leisure	1	2	3	4
33	seek interesting and challenging things every day	1	2	3	4
34	seek a way to get along with others	1	2	3	4
35	consult doctors, nurses, or pharmacist on how to take care of my health	1	2	3	4
36	check my heartbeat while working out	1	2	3	4
37	relax or meditate for 15 to 20 minutes every day	1	2	3	4
38	know what is important in my life	1	2	3	4

No	Items	Never	Some times	Often	Routinely
39	attend educational programs on personal health care	1	2	3	4
40	make adjustments to prevent fatigue	1	2	3	4
41	resolve conflicts with others through dialogue and compromise	1	2	3	4
42	eat breakfast	1	2	3	4
43	get counseling or guidance if necessary	1	2	3	4
44	try new experiences and challenges	1	2	3	4

※ Read the questions and check the answer choice that matches your thought.

No	Items	0	1	2	3	4	5	6
		← Not at all Strongly agree →						
1	I can work in situations where I have to solve difficult problems	0	1	2	3	4	5	6
2	I can work even in the face of unexpected situations	0	1	2	3	4	5	6
3	When my colleague's work is delayed, I can work with the person to finish it	0	1	2	3	4	5	6
4	Even when I finish work in a rushed situations, I can do it	0	1	2	3	4	5	6
5	Although my task changes frequently, I can do it	0	1	2	3	4	5	6
6	I can do my work even my colleagues do not help me	0	1	2	3	4	5	6

※ With regard your work in the **past 3 months**, check the answer choice that correctly describes it.

No	Items	Seldom	Some times	Regular -ly	Often	Always
In the past 3 months, I						
1	have planned out my work so that I can finish it on time	0	1	2	3	4
2	have figured out the outcome of work that I have to accomplish	0	1	2	3	4
3	have set priorities for work	0	1	2	3	4

No	Items	Seldom	Some times	Regular -ly	Often	Always
In the past 3 months, I						
4	have efficiently conducted work	0	1	2	3	4
5	have excellently planned my time	0	1	2	3	4
6	have started a new task when my task is finished according to my plan	0	1	2	3	4
7	have voluntarily taken care of difficult tasks	0	1	2	3	4
8	have tried to learn latest knowledge, or skills related to work	0	1	2	3	4
9	have come up creative solutions to new problems	0	1	2	3	4
10	have been in charge of other duties than the work itself	0	1	2	3	4
11	have continuously pursued new challenges about my work	0	1	2	3	4

※ With regard your work in the **past 3 months**, check the answer choice that correctly describes it.

No	Items	Never	Seldom	Some times	Regular -ly	Often
In the past 3 months, I						
12	have complained even about small things related to my work	0	1	2	3	4
13	have made problems all the more serious	0	1	2	3	4
14	have focused more on negative aspects of situation at work instead of the positive aspects	0	1	2	3	4
15	have talked to coworkers, or people outside the workplace about the negative aspects of my work	0	1	2	3	4

※ Read the questions and check the answer choice that matches your thought.

No	Items	Often	Seldom
1	I could talk to co- workers during breaks		
2	I could take a rest to talk with my co-workers		
3	I can communicate with my colleagues about work.		
4	I got together with my coworkers outside the company during my free time		

※ Read the questions and check the answer choice that matches your thought.

No	Items	Strongly disagree	Disagree	Moderate	Agree	Strongly agree
1	The arrangement of chairs is appropriate in the workplace (comfortable chairs supporting the right posture)	0	1	2	3	4
2	The available intervals between workers, lines of movement, and leg room etc. suit the operators' physical characteristics	0	1	2	3	4
3	Workload is excessive	0	1	2	3	4
4	The task requires a great deal of repetitive work	0	1	2	3	4
5	The task requires much muscular strength involved in lifting heavy things	0	1	2	3	4
6	The task requires a lot of physical labor	0	1	2	3	4
7	The work place is free from excessive noise	0	1	2	3	4
8	The task is small risk of accidents	0	1	2	3	4
9	An environment free from health hazards (such as chemicals, fumes, etc.)	0	1	2	3	4
10	Work in a clean environment	0	1	2	3	4
11	The task requires the use of variety of different machines	0	1	2	3	4
12	My work requires complex skills	0	1	2	3	4
13	A lot of time is required to learn the equipment used on the job	0	1	2	3	4

※ Read the questions and check the answer choice that matches your thought.

No	Items	Never/ hardly ever	Seldom	Some times	Often	Always
When you are at work						
1	do you get behind with your work?	0	1	2	3	4
2	do you have enough time to finish your work?	0	1	2	3	4
3	do you need to work at a higher speed?	0	1	2	3	4
4	do you work at a high speed all day?	0	1	2	3	4
5	does your work put you emotionally disturbing situations?	0	1	2	3	4

※ Read the questions and check the answer choice that matches your thought.

No	Items	Yes	No	Not sure
1	The company provides a health checkup once a year	0	1	2
2	The company provides meals at its cafeteria	0	1	2
3	The company has workout facilities where I can work out	0	1	2
4	The company has a relaxation area	0	1	2

※ Read the questions and fill up the answer

1. How many hours does your employer want you to work **each week**?

Total _____ **hours**

2. How many hours have you worked over the **past 7 days**?

(refer to the examples).

Total _____ **hours**

How to calculate the hours you have worked over the past 7 days (illustration)

If you have worked 8 hours a day for 5 days of the week = 40 hours

If you have worked 7 hours for 5 days of the week = 35 hours

If you have worked 8 hours for 4 days of the week and worked 4 hours on 1 day = 36 hours

If you have worked 7 hours for 3 days of the week and worked 4 hours on 2 days = 29 hours

3. When you compare yourself with your coworkers, which score do you want to give to yourself between 0 and 10? (circle the number)

Worst performance					Best performance					
0	1	2	3	4	5	6	7	8	9	10

4. If you rate your performance over the past 7 days, which score do you want to give to yourself between 0 and 10? (circle the number)

Worst performance					Best performance					
0	1	2	3	4	5	6	7	8	9	10

- ※ **Please make sure that you have checked your answer choice for all the questions. We will work with this study to contribute to the health of immigrant workers.**

-Thank You -

국문초록

건강한 일터가 이주근로자의 건강과 조직의 생산성에 미치는 영향

이 수정

연세대학교 일반대학원 간호학과

건강한 일터는 “근로자의 건강과 웰빙의 목표와 조직의 생산성의 목표를 통합적으로 최대화하는 것”으로 정의하고 있으며, 2010 년 WHO 에서 “건강한 일터” 에 대한 개념이 발표되면서, 급속도로 건강한 일터에 대해서 곳곳에서 많은 관심을 가지게 되었다. 따라서 국내에서도 근로자의 건강과 조직의 생산성에 미치는 영향요인을 평가하는 연구가 매우 필요하게 되었다.

본 연구는 특히 국내 이주 근로자들을 대상으로 하고 있으며, 이는 현재 국내에 저출산 고령화 사회와 3-D 업종 기피현상으로 많은 이주 근로자들은 생산직, 건설직, 농업 및 수산업에서 종사하고 있으며, 해마다 이주 근로자의 수가 증가하고 있는 실정으로 우리나라에서 가장 취약한 근로환경에 노출되어 있는 집단으로서 이들의 건강과 조직의 생산성에 미치는 영향요인을 파악하여, 다문화사회에서의 이주 근로자들의 건강불평등을 해소할 수 있는 건강한 일터 조성을 위한 근거를 마련하는 것이 매우 필요할 것으로 사료되었다.

이에 본 연구는 이주 근로자의 건강한 일터가 근로자의 건강과 조직의 생산성에 미치는 영향요인을 파악하는 서술적 조사연구로서, Shain 의 일터에의 건강증진에 대한 이론적 모형을 바탕으로 이주 근로자의 건강과 조직의

생산성에 미치는 영향요인을 파악하고, 개인의 건강행위와 건강자원, 건강한 일터 요인들이 조직의 생산성에 미치는 영향요인에서 근로자의 건강이 직접 또는 간접 효과의 정도를 파악하기 위해서 연구를 실시하였다.

본 연구의 대상자는 서울, 경기 소재 99 인 이하 사업장에서 E-9 비자를 소지하고 근무를 하고 있는 10 개 국가의 이주 근로자들로서 2019 년 6 월부터 8 월까지 총 250 명을 대상으로 자가보고식의 구조화된 설문지를 이용하여 수집하였으며, 최종 240 명의 자료를 SPSS 25.0 프로그램을 이용하여 다중회귀분석과 프로세스 SPSS Macro 3.4 를 이용하여서 매개변수 확인 및 효과를 측정하여 다음과 같은 결과를 도출하였다.

첫째로, 이주 근로자의 건강에 영향을 미치는 요인으로 건강증진행위 ($\beta=-.25, p=.001$), 심리사회적 업무 환경($\beta=-.19, p=.005$), 물리적 업무 환경 ($\beta=-.18, p=.009$), 주관적 건강 상태 ($\beta=-.15, p=.026$), 나이 ($\beta=-.15, p=.026$), 종교($\beta=.24, p=.003$)가 영향을 미치는 것으로 나타났다.

둘째로, 이주근로자의 생산성은 업무성과, 결근률, 프리젠티즘으로 각각 나누어 영향요인을 파악하였으며, 업무성과의 경우, 업무 관련 자기 효능감($\beta=.27, p<.001$), 건강증진행위 ($\beta=.18, p=.007$), 심리사회적 업무 환경($\beta=.18, p=.006$), 물리적 업무 환경($\beta=.13, p=.050$)으로 파악되었으며, 결근율의 경우 심리사회적 ($\beta=-.14, p=.043$), 주관적 건강상태 ($\beta=-.13, p=.050$), 프리젠티즘의 경우, 나이 ($\beta=-.28, p<.001$)와 급여($\beta=.41, p=.016$)로 나타났다.

마지막으로, 이주 근로자의 건강이 개인 건강행위 및 자원과 건강한 일터가 조직의 생산성과의 관계에서 매개효과변수로 의미가 있는 지에 대해서 확인하였으며, 건강증진 행위 ($p<.001$) 및 심리사회적 업무 환경($p=.014$)에 대한 변수와 업무 성과와의 관계에서 이주근로자의 건강이 매개효과변수로 확인 되었으며, 결근율에서는 건강증진행위(effect=-.023, LLCI, ULCI; -.237-.047), 심리사회적 업무환경(effect=-.031, LLCI, ULCI; -.012-.000), 물리적

업무환경(effect=-.004, LLCI, ULCI; -.015- -.001)에 대해서 이주 근로자의 건강이
간접효과가 있는 것으로 확인되었다.

이와 같은 결과를 토대로, 이주 근로자들의 건강을 증진시키기 위한
건강증진 프로그램 및 물리적 업무환경 및 심리사회적 업무 환경의 개선
프로그램 개발이 필요하며, 이는 조직의 생산성 측면에서도 반드시
고려되어야 할 사항으로 이주 근로자들의 건강관리 정책을 마련하고자 할 때,
건강관리 시스템 및 환경 개선에 대한 전략을 수립할 것을 제안하고자 한다.
또한 본연구는 국내에서 실시되지 않았던 이주 근로자 대상으로 건강 측면과
조직의 생산성 측면을 통합적으로 살펴본 바 이 연구를 토대로 이주
근로자들의 일터에 대한 연구의 기초자료로 활용될 수 있을 것이다.

핵심되는 말: 이주 근로자, 건강한 일터, 생산성, 건강증진 행위