



Vera V. Barinova

# Workplace factors affecting migrant workers' health

Chonnam National University, 61186, Gwangju, Republic of Korea

## ABSTRACT

**Introduction.** Migrant workers are individuals who relocate from their country of origin to another to engage in economic pursuits. Working conditions, the work environment and process, lifestyle and habits of workers have an impact on the results of work and the health of workers. These factors are called risk factors and cannot be completely eliminated, but they can be controlled.

**The aim of the study** was to examine the actual factors affecting the health of migrant workers at the workplace.

**Materials and methods.** Eighty Korean compatriots from different countries who resides in “Korean Compatriot Village” were interviewed using a questionnaire. To analyze the survey results, the SPSS Statistics program, version 25, was used.

**Results.** Migrants who work more than 12 hours a day have worse health over time. Noise can cause health problems and diseases. Time for work and rest, work responsibilities affect weight gain and lead to health changes.

**Limitation.** Migrant workers weren't asked about home country work experiences and start of work in Korean factories. The researcher didn't know Korean factories well, hence detailed questions couldn't be formulated.

**Conclusion.** Most respondents were young Korean compatriots who came to Korea to work. They experienced stress and fatigue due to the burden of responsibility and worry for their relatives. For elderly migrant workers it's difficult to find work in home country and the problems with the musculoskeletal system occur due to their lack of work experience in such production and their advanced age.

**Keywords:** overseas Koreans; Korean compatriots; migrant workers' health; health affecting factors; workplace

**Compliance with ethical standards.** To conduct this study, it was necessary to survey migrant workers working in the village of Korean compatriots in Gwangju Metropolitan city through a questionnaire. All questions were uploaded into a Google form, and everybody was asked to choose an answer option from the list provided or write your own answer. It was stated in advance that responses to the questionnaire would be kept confidential and used for scientific purposes only, in accordance with Articles 33 and 34 of the Statistics Law and the Personal Information Protection Law of South Korea.

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**For correspondence:** Vera V. Barinova, PhD student of the Department of Global Diaspora Studies, Chonnam National University, Gwangju, 61186, Republic of Korea. E-mail: [russtudy5@gmail.com](mailto:russtudy5@gmail.com)

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Баринаова В.В.

## Факторы, влияющие на здоровье трудящихся-мигрантов на рабочем месте

Национальный университет Чоннам, 61186, Кванджу, Республика Корея

### РЕЗЮМЕ

**Введение.** Рабочие-мигранты — люди, передвигающиеся из родной страны в другую для осуществления экономической деятельности. Условия труда, рабочая среда и рабочий процесс, а также образ жизни и привычки работников оказывают влияние на результаты их труда и здоровье. Данные факторы, называемые факторами риска, не могут быть полностью устранены, но их можно контролировать.

**Целью** данного исследования стало изучение факторов, влияющих на здоровье трудящихся-мигрантов на рабочем месте.

**Материалы и методы.** С помощью анкетирования были опрошены 80 корейских соотечественников из разных стран, проживающих в «деревне корейских соотечественников» столичного города Кванджу. Для анализа результатов опроса использовалась программа SPSS Статистика, версия 25.

**Результаты.** Было установлено, что у мигрантов, которые работают более 12 ч в день, со временем ухудшается здоровье. Шум также может стать причиной нарушений здоровья и возникновения болезней. Продолжительность рабочего времени и отдыха, трудовые обязанности влияют на увеличение массы тела и приводят к изменениям состояния здоровья.

**Ограничения исследования.** В опрос не вошли сведения о трудовом опыте рабочих-мигрантов в родной стране и времени начала работы на корейских фабриках. К тому же исследователь плохо знал специфику корейских производств, поэтому не удалось сформулировать более детальные вопросы.

**Заключение.** Большинство респондентов составили молодые корейские соотечественники, приехавшие в Корею на заработки. Установлено, что они испытывали стресс и усталость из-за груза рабочей ответственности и беспокойства о близких. Пожилым трудовым мигрантам гораздо сложнее найти работу на родине, они также испытывали стресс и напряжение из-за рабочих обязанностей на корейском производстве. Проблемы с опорно-двигательным аппаратом возникали по причине отсутствия опыта работы на подобном производстве в родной стране и в силу преклонного возраста.

**Ключевые слова:** русские корейцы; корейские соотечественники; здоровье трудящихся-мигрантов; факторы, влияющие на здоровье; рабочая среда

**Соблюдение этических стандартов.** Для исследования необходимо было с помощью анкеты опросить трудовых мигрантов, работающих в «деревне корейских соотечественников» столичного города Кванджу. Все вопросы загрузились в форму Google. Респондентам было необходимо выбрать вариант ответа из предложенного списка или написать свой ответ. Заранее указывалось, что ответы являются конфиденциальными и будут храниться и использоваться только в научных целях в соответствии с законодательством Южной Кореи — статьёй 33 Закона о статистике и статьёй 34 Закона о защите личной информации.

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Для корреспонденции: *Баринаева Вера Владимировна*, докторант колледжа социальных наук факультета глобальной диаспоры Национального университета Чоннам, Столичный город Кванджу, 61186, Республика Корея. E-mail: russtudy5@gmail.com

**Конфликт интересов.** Автор декларирует отсутствие явных и потенциальных конфликтов интересов в связи с публикацией данной статьи.

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## Introduction

Currently, the category of workers represents half of the world's total population and makes a major contribution to the economic and social development of countries and individual spheres [1]. Migrant workers are people who resettle from their home country to another country and engage in economic activities. According to International Labor Organization statistics, as of 2019, the number of migrant workers worldwide was 169 million, accounting for 4.9% of the global workforce [2]. In the case of Korea, as per statistics from the Ministry of Justice of the National Statistical Office, the number of foreigners residing as of February 2023 was 2,162,358, and the total number of foreigners residing with employment qualifications was 449,051, of which 396,607 were unskilled workers.

H-2 and F-4 labor visas, H-2 visas are usually held by Korean compatriot workers, the F-4 visa is received by compatriots from former Soviet Union countries. Conforming to statistical data as of February 28, 2023, the number of H-2 visa holders residing in Korea is 101,838, the total number of F-4 visa holders is 502,069 [3].

The World Health Organization defines human health as “a state of complete physical, mental and social well-being and not simply the absence of disease or infirmity.” In other words, it is the ability to function normally in all areas of life [4]. There is an age-old expression that only healthy workers can work well. The working environment is formed by the indoor conditions of the workplace that affect workers during the labor process. If the indoor conditions of the workplace produce various characteristic consequences that lead to diseases, these factors are called harmful and risk factors [5].

Although it is impossible to completely eliminate harmful and dangerous factors from the labor process. Nevertheless, their harmful effects can be controlled [6].

Migrant workers who come to Korea often have health problems because they frequently struggle to find a job and are often exposed to dangerous and difficult work. Furthermore, due to their age, health status, and the conditions of the workplace, their bodies are not adequately prepared, making it easy for them to face various problems and make mistakes while working.

Consequently, it is paramount to be cognizant of the labor risk factors that jeopardize the health of migrant workers in the workplace, so that these issues can be uncovered and scrutinized. This is the purpose of this study. As for the research question, it will be examined how the labor risk factors assessed have an impact on migrant workers. In regards to the research hypotheses, it can be hypothesized that first, the longer migrant workers are employed, the more frequently health issues arise. Second, the working environs and conditions at work are likely to affect the health of migrant workers. The study used a quantitative approach in order to obtain data that can be compared and analyzed.

## Theoretical background

**Prior research.** Let's take a closer look at the research conducted in Korea on the health of a workers. A study reported the interesting correlation between long working hours and allostasis overload among native Korean workers. In this study, it was conclusively confirmed that there was a definitive relationship between residents' excessively long working hours and the prevalence of musculoskeletal pain [7].

The B study was conducted to determine the health status of foreign workers living in Korea, factors affecting health, and using of medical service. The study found that nationality, social

support, depression, life events (stress), daily health awareness, health concerns, regular exercise, and smoking were all significant factors affecting their health status [8].

An overseas research data on factors affecting the health of workers show the following results. In F's study, consideration was given to working conditions and limited access to health services, and how changes in these conditions affect the health status of temporary migrant workers [9]. Furthermore, one more study aimed to identify health and safety services available to migrant workers and summarize work-related health problems found among migrant workers [10].

In summary, the studies in Korea have primarily concentrated on the health of local workers and the utilization of health services by migrant workers. The health of migrant workers in Korea is influenced by various factors such as unhealthy habits, daily life stress, and inadequate social support and health-related factors. Conversely, international research has focused on worker safety and healthcare accessibility. Consequently, this study seeks to investigate the working environment in Korean factories and the determinants impacting the health of migrant workers in their workplace.

**Workplace and occupational sanitation.** The International Labor Organization Convention No. 155 states that a workplace is a “place where workers are required to perform work connected with their employment and is managed directly or indirectly by the employer.” A determined workplace refers to a place where workers spend most of their working time (more than 50% or more than 2 hours continuously). If work is performed at different points in the work area, the entire work area is considered a permanent workplace. An undetermined workplace is a place where workers spend only a small amount of working time (less than 50% or less than 2 hours continuously)<sup>1</sup>.

Occupational sanitation is a branch of hygiene that studies the impact of the labor process and the working environment on a person's health. Plus, it develops sanitary standards and measures to ensure favorable working conditions and the prevention of occupational diseases. [11]. Occupational sanitation studies the forms and methods of organizing work and rest, the state and position of the body during work, the characteristics of work movements and working tools, process technology, and technical equipment<sup>2</sup>.

In the case of harmful labor factors, they are elements of the workplace environment and labor process that may affect workers due to certain conditions (intensity, duration,...), resulting in occupational diseases, other health disorders, temporary or permanent reduction in work capacity, and harm to the health of offspring [12]. It has been found that physical labor involving repetitive finger movements, lifting and moving heavy objects, spending time in uncomfortable positions, and being subjected to high levels of dynamic and static loads can cause fatigue in the neuromuscular system and lead to occupational diseases. Studies conducted by Khodzhivev in 2017 established that the greater the labor intensity, the higher the stress on the body, which can result in overexertion and the development of work-related illnesses such as hypertension, coronary heart disease, and neurotic disorders [13].

<sup>1</sup> ILO. C155 – Occupational Safety and Health Convention, 1981 (No. 155); 1981. Available at: [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C155](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C155) Accessed 06.04.2023 (in English).

<sup>2</sup> Гигиенические критерии оценки и классификация условий труда по показателям вредности и опасности факторов производственной среды, тяжести и напряженности трудового процесса. Руководство; 2003. Доступно: <https://files.stroyinf.ru/Index2/1/4294849/4294849845.htm> (ссылка активна на 14.03.2023 г.).

Table 1 / Таблица 1

**The results of regression analysis of the influence of the “working hours” variable on predictors<sup>a</sup>****Результаты регрессионного анализа влияния переменной «рабочее время» на предикторы<sup>a</sup>**

Model Модель	Unstandardized Coefficient Нестандартизированный коэффициент		Standardized Coefficient Стандартизированный коэффициент	T-test	Significance <sup>b</sup> Значимость <sup>b</sup>
	B	standard error стандартная ошибка	beta		
Workplace / Рабочее место	−0.029	0.013	−238	−2.291	0.31
Weight changes / Изменение массы тела	0.149	0.053	0.316	2.830	0.007
Day off / Свободный день	4.684	1.425	2.260	3.287	0.002
Health changes after work / Изменение состояния после работы	0.468	0.163	3.96	2.863	0.006
New illness after work / Новое заболевание после работы	0.290	0.142	0.253	2.041	0.046
Health problems after work / Проблемы со здоровьем после работы	0.370	0.147	0.314	2.522	0.015
Workplace’s noise / Шум на рабочем месте	0.379	0.143	0.322	2.655	0.011
Problem owing to noise / Проблемы в связи с шумом	−1.174	0.509	−2.72	−2.308	0.025
Workplace indoor microclimate Микроклимат в рабочем помещении	−0.013	0.006	−0.256	−2.361	0.022
Workplace lighting / Освещение на рабочем месте	1.454	0.633	0.282	2.295	0.026
Problem owing to lighting / Проблемы из-за освещения	−0.041	0.013	−2.187	−3.076	0.003

Note: <sup>a</sup> – Dependent Variable: working hours; <sup>b</sup> –  $p \leq 0.05$  – statistically reliable changes of predictors.

Примечание: <sup>a</sup> – зависимая переменная: рабочее время; <sup>b</sup> –  $p \leq 0.05$  – статистически значимые изменения предикторов.

**Hazardous work factors.** In this study, it will determine and examine how the following four hazardous work factors<sup>3</sup> affect migrant workers in the Korean workplace: indoor microclimate, noise, lighting and work intensity.

In 2018, following the revision of Korea’s Labor Standards Act, working hours were shortened from a maximum of 68 hours a week to 52 hours (40 hours a 5-day week, 12 hours of overtime and holiday work)<sup>4</sup>. In conformity with a report by the Migration and Human Rights Research Institute, the average working hours of migrant workers in Korea were found to be 54.4 hours per week, and the average number of holidays per week was found to be 1.3 days [14]. Therefore, working in such environmental conditions naturally affects the health of workers by making them more vulnerable to health problems. Hence, in this study, will be identified and investigated factors that affect health status during the labor process, focusing on migrant workers.

## Materials and Methods

This study conducted a survey of migrant workers from various countries, living and working in a “Korean compatriot’s village” in Gwangju Metropolitan City to identify and analyze factors that affect the health status of migrant workers during the work process. The first round of the survey was conducted in February 2022, only due to a lack of responses, a second round of the survey was conducted again in May 2023 through a social site group of overseas Koreans. Participants’ answers were collected anonymously, and the survey results were analyzed using quantitative research methods.

The findings of the theoretical background appear to have a significant impact on the health of migrant workers in the workplace. Grounded on these results, it can be assumed that they will have an impact on migrant workers working in the “Korean compatriot’s village” in Wolgok-dong district of Gwangju Metropolitan City. On the grounds, the factors that affect the health of migrant workers had been selected and classified.

<sup>3</sup> Опасные и вредные производственные факторы. Классификация. ГОСТ 12.0.003–2015 ССБТ; 2017. Доступно: <https://docs.cntd.ru/document/1200136071> (ссылка активна на 25.03.2023 г.).

<sup>4</sup> 문화체육관광부, 2021. Available at: <https://www.mcst.go.kr/kor/main.jsp> Accessed 07.02.2023. (in Korean)

The basic items in this study were age, gender, country of origin, and residency status. Items related to the working environment, such as workplace, type of labor, days off, weight changes, workplace lighting, problem owing to lighting, workplace indoor microclimate, workplace’s noise, problem owing to noise, health problems and health changes, new illness were classified as predictors. Working hours had been determined as a dependent variable.

For analysis, IBM SPSS version 25.0 was used. Descriptive statistical analysis helped to identify the social characteristics of overseas Korean migrant workers who were the subjects of the study. Regression analysis was conducted to examine the relationships between key variable and predictors.

## Results

The results of the study confirming whether the explained variable of “working hours” affects the health of migrant workers are shown below.

Regression analysis, which is shown in Table 1, revealed that the workplace (factory) where the migrant worker works had an effect on the working time that workers spend on labor activities. It has been confirmed that as migrant workers work more, they eat more frequently, which of course is detrimental to weight gain.

Working 12 hours or more than 12 hours indicates that the worker does not have enough time for proper rest and recovery after the workday. It was revealed that if there is a lack of rest time, migrant workers see changes in their health compared to when working in their home country, and the likelihood of contracting new diseases increases, ultimately leading to health problems.

Due to the nature of the workplace, workers working in a “noisy workplace” may feel an impact on their condition during work, which in turn may have a negative impact on their condition at the end of the working day. Even if good lighting systems are installed in the workplace, the more time migrant workers spend at work, the more often they begin to notice that the lighting affects their work activities, which leads to health problems. It can be seen that the air temperature in the workroom in conjunction affects the health status and mood of workers after the work process.

In this study, it was confirmed that the longer a migrant worker has to work, the worse their health becomes. These findings

Table 2 / Таблица 2

**The significance analysis of the impact of the variable "working hours" on other independent variables**

Анализ значимости влияния переменной «рабочее время» на другие независимые переменные

Model Модель	R	R-square R-квадрат	Adjusted R-Square Скорректированный R-квадрат	Std. Error of the Estimate Стандартная ошибка оценки	Durbin – Watson Дурбин – Ватсон
1	0.971*	0.944	0.911	0.64683	2.209

Note: \* – Dependent Variable: working hours.

Примечание. \* – зависимая переменная: рабочее время.

Table 3 / Таблица 3

**Testing the hypothesis about the influence of the dependent variable "working time" on predictors**

Проверка гипотезы о влиянии зависимой переменной «время работы» на предикторы

Model Модель	Sum of Squares Сумма квадратов	Degree of Freedom Степень свободы	Mean square Средний квадрат	F	p*
Regression / Регрессия	350.281	29	12.079	28.870	0.000**
Residual / Остаток	20.919	50	0.418	–	–
Total / Всего	371.200	79	–	–	–

Note: \* –  $p \leq 0.05$  – statistically reliable changes; \*\* – Dependent Variable: working hours.Примечание. \* –  $p \leq 0.05$  – статистически значимые изменения; \*\* – зависимая переменная: рабочее время.

suggest that the factors indicated above have a significant impact on the health of migrant workers the longer their working hours (Table 2).

Using the regression analysis model, the results are interpreted by interpreting the R-value, R-square, Durbin-Watson statistic, and adjusted R-squared. The R-value shows a simple correlation, and explains the high correlation. The R-square shows a statistic that indicates how much the independent variable can explain the dependent variable. The coefficient of determination is ,944, which means that this research model explains 94.4% of the change in the dependent variable. In other words, it can be said that it explains around 95% of the health impact of migrant workers as they work. The fact that the adjusted R-squared is not significantly different from the R-square means that it is a proper model. The Durbin-Watson statistic is a test that verifies the independence of residuals in a statistical model or regression analysis, and statistical values in the range of 1.5 to 2.5 are relatively normal. The analysis result is 2,209, which is interpreted to mean that residual independence is met.

Our findings indicate that there is a direct correlation between the duration of work and the deterioration of health in this population. Specifically, as the length of time spent working increases, migrant workers are more likely to experience a decline in health and the emergence of new diseases. This study highlights the importance of considering the impact of working conditions on the health of migrant workers and the need for policies and interventions to address this issue.

The analysis of variance that was conducted is shown in Table 3 and reports how well the regression equation can predict the dependent variables in the data. It is important to know the significance probability index to check the significance of the variable. The P-value is less than the 0.05 significance index, which means that the dependent variable of migrant workers' working hours has a significant effect on the independent variables.

The F-test is a common statistical test used to check whether there is a linear relationship between an independent variable and one or more dependent variables in a dataset. In this case, the F-value checks whether there is a linear relationship between the variable "working hours" of migrant workers and of the 29 predictors. Since the F-value is greater than the rejection value (1.69423617), it means that it is possible to reject the null hypothesis and accept the alternative hypothesis. In particular, this means that the variable "working hours" has a statistically significant effect on predictors.

The results of the research hypotheses indicate that migrant workers who engage in prolonged work are more susceptible to health issues. Additionally, the working conditions and environment have a detrimental impact on their physical condition. These findings suggest that measures should be taken to improve the work environment and conditions for migrant workers to safeguard their health and well-being.

## Discussions

Conforming to the descriptive statistical analysis, a total of 80 migrant workers participated in this survey, and among the respondents, those in their 30s accounted for the most at 35%, followed by those in their 50s at 26.3%. The result appears to be that the workers who responded were mainly male compatriots who had entered Korea from Uzbekistan and Russia and held F-4 visas. 85% of respondents work in factories in Korea, more than half (60%) of respondents engage in manual labor, and 40% of Korean compatriots engage in mechanized labor. It was confirmed that 60% of those surveyed worked 12 hours or more than 12 hours a day.

After all nearly 94% of respondents reported having a day off during the week, 62.5% expressed concern that this was not enough, and an estimated 64% confirmed that they gained weight while working in Korea. In other words, a whopping 32.1% of those in their 30s and 33.3% of those in their 50s equally reported that they gained "a little" and "a lot" weight, respectively.

In order to improve workplace lighting, the survey results showed that even if 77.5% of respondents had good lighting installed, about half (46.8%) mentioned eye pain. This result was 47.3% in their 30s and 52.4% in their 50s. It was found that about 18% of respondents indicated that workplace lighting was the cause of defective work. In other words, the results show that people in their 30s accounted for 20% and people in their 50s accounted for 14.3%. These results indicate that workplace lighting can have a negative impact on worker productivity and health.

While the majority of migrant workers (55%) surveyed described the indoor climate as «normal», around 40% of participants reported that they had to work at high indoor temperatures. This finding suggests that the indoor climate in some factories may not be as comfortable as it should be, and that there may be a need for factory managers to take steps to ensure that their workers are not working in uncomfortable conditions.

With regards to noise, a whopping 60% of respondents reported the presence of noise in the workplace, resulting in an astounding

30% of workers not being able to sleep normally at the end of the working day, and the same number of respondents reported experiencing headaches. In particular, an astounding 23.2% of those in their 30s an equally staggering 31% of those in their 50s said they felt sleep disorder impairment, and the same figure for headaches was 21.4%.

In compliance with the survey findings, it was confirmed that 57.5% of migrant workers developed new diseases. This indicates a change in their health status after starting to work in Korean factories. This was confirmed by nearly 43% of people in their 30s and 64.3% of people in their 50s. Not to mention that, nearly 65% of respondents said they experienced musculoskeletal and joint problems, health problems that had not been observed before coming to Korea. For those in their 30s, musculoskeletal pain and joint problems were the same at 26.8%, followed by headaches at 19%. On the other hand, among those in their 50s, musculoskeletal problems were the most common at 31%, followed by joint problems at 21.4% and headaches at 25%.

Over and above that, a recent study found that 29.5% of Korean compatriots responded that they felt fatigued, 23% experienced stress, and 16.3% experienced constant tension at work. In particular, pursuant to the answers of workers in their 30s, stress (24.3%) and tension (23.6%) were the most common at similar levels, followed by fatigue at 17%. Workers in their 50s had the highest level of fatigue at 43.8%, followed by tension at 23.8% and stress at 15.2%. These findings indicate that employees are experiencing emotional and physical strains at work.

Consequently, to summarize the survey results, it is common for Korean compatriot workers in their 30s to work in Korea. Because they have a high sense of responsibility toward their relatives in their home country, they choose opportunities to work in Korean workplaces where they can make good money with the feeling that they will send money back home. This can be said to be the reason for their decision to work in Korea. Whereas, because the work is hard and there is not enough time to rest and recover, joint problems can occur, and people can feel stress and tension, which can lead to the conclusion that their health changes.

Originally, physical labor is considered to be a work that is doing by using the hands, and figuratively speaking, it is a work that does using all the muscles and bones of the body. This places a load on the musculoskeletal system, which is the system of joints that support the bones. As specified by survey responses from people in their 50s, problems with the musculoskeletal system and joint pain were the most frequent and common problems reported. This is likely due to the natural wear and tear of age, in spite of that it is important to reduce the burden and change physical activity as we age. Nonetheless, this may explain why some migrant workers feel fatigued because they have to work continuously due to a lack of jobs in their home country, and often feel tension and stress due to work responsibility.

**Limitations.** As for the shortcomings of the study, first of all, questions regarding migrant workers' work experiences of migrant workers in their home countries were omitted. Second, unfortunately, one of the study's shortcomings was that workers were not asked when they started working in Korean factories. Third, because the researcher did not have insufficient knowledge about the characteristics of Korean factories, detailed questions could not be formulated. So that end, it can be concluded that for future research targeting migrant workers, it is necessary to reconsider, select specific targets, and formulate more detailed questions.

## Conclusion

Most workers do physical work, so "working hands" are very important for the economic and social development of any country. Physical labor, which is characterized by increased physical activity and sometimes exposed to harmful conditions, can be viewed in a negative light, and overload in the workplace has harmful effects on the human body. Of course, working conditions affect the health of workers, and considering that it is impossible to completely exclude harmful factors from the production process,

still the possibility of harmful effects can be controlled. In other words, relative to the WHO declaration, ensuring conditions that protect labor from the effects of negative factors in the industrial environment is a notable aspect of ecological safety of life.

In the course of this study, had been examined the actual conditions of causes affecting the health of overseas migrant workers living in the Korean compatriot's village in Gwangju Metropolitan City at their workplaces, and the results of the practical confirmation and investigation were as follows.

First of all, the majority of the respondents were young migrant workers in their 30s or workers in their 50s who found it difficult to make money or find a job in their country of origin. The results of the explained variable "working hours" confirmed that migrant they were usually doing voluntarily chosen physical labor in Korean factories for 12 hours or more than 12 hours. However, workers in their 30s and 50s work under the same conditions, but due to their age characteristics, older workers inevitably experience more deterioration in health due to overwork. In other words, it was revealed that the two categories of migrant workers developed joint pain almost equally. In tandem with, young workers experienced stress and tension due to the burden of responsibilities and worries about their relatives, while workers in their 50s experienced fatigue and musculoskeletal problems due to heavy workloads and advanced age.

Secondly, with regards to "weight", the fact is that workers usually come home after working 8 hours in their home country, eat dinner, and rest. Nevertheless, in Korea, it has been confirmed that working over 12 hours does not allow enough time for proper rest, leading to overeating and weight gain. Furthermore, because the working environment is unfamiliar, stress and tension can increase appetite. In other words, snacking causes a person to overeat because some people are expending more physical energy to do a job and need to replenish that energy. Alternatively, when workers come home from work, they eat again, which increases the number of meals and causes weight gain, it will be concluded that the body needs time to adapt to new working conditions.

Third, it was confirmed that even if bright lighting is installed, migrant workers said that they quiet experience noticed eye pain or defects in work, indicating that the problem may not be resolved with the use of light.

Fourth, the variable called "noise" was found to have an effect on migrant workers too. It may be related to the presence of production equipment, machines or other mechanisms, as well as a large number of workers in the workplace, the nature of which can cause noise. It has come to be known that the longer a worker works, the more noise he feels, and that continuous noise can cause sleep disturbances and headaches. For this reason, it could be explained that the body has not yet adapted and needs more time. This could be attributed to the fact that the body has not yet acclimated to the new environment and is trying to adjust.

Fifth, through extensive research on workplace indoor microclimates, it was discovered that there are abnormal factories in Korea.

Ergo, through this study, labor risk factors that affect the health of migrant workers in the workplace were clearly identified, investigated, and interpreted. Through the analysis, it was investigated that labor factors affected migrant workers by a whopping 94.4%. In other words, it was found that the longer the working hours of migrant workers, the more health problems occur, and that the working situation and conditions in the workplace affect the health of migrant workers. This finding indicates that it is important for employers to take steps to prevent and reduce the risks of work-related ill health for migrant workers in Korea.

The proposition to develop programs for post-shift rehabilitation among migrant workers aged 50 and above, while providing leisure time for younger migrant workers to recover from physical stress at the workplace, constitutes a crucial step towards ensuring the health and well-being of the workforce. The organization of specialized activities and programs aimed at promoting the physical and emotional recovery of workers,

improving their overall health, and enhancing motivation and work efficiency is necessary. These measures not only demonstrate concern for the workforce but also reduce the risk of occupational diseases and enhance the work environment.

For migrant workers aged 50 and above, post-shift rehabilitation may encompass a range of activities. Primarily, light exercise or yoga is recommended to augment blood circulation, alleviate muscle tension, and promote general well-being. Subsequently, massage or breathing exercises may be extended to relax and invigorate the body. It is also imperative to facilitate access to warm showers or baths to ease muscle fatigue and mitigate pain. Finally, it is advisable to offer warm beverages such as tea or herbal infusions for overall wellness.

The recuperation of young migrant workers from the physical demands of their workplace can be achieved through the provision of organized leisure activities. Specifically, offering a range of recreational pursuits, such as fitness or outdoor games, can serve to invigorate their physicality and bolster their overall well-being following a taxing workday. Additionally, culturally-oriented events, such as attending a cinema or exhibition, can diversify leisure time and afford individuals a respite from work-related anxieties. It is also essential to provide opportunities for social interaction with colleagues or other migrant workers, which can foster friendships and bolster psychological health. Finally, the provision of healthy food and beverages is recommended to replenish depleted reserves and restore energy levels after a challenging day of work.

### Литература

(п.п. 1, 2, 4, 9, 10 см. References)

3. 2023년 2월 출입국외국인정책 통계월보. Доступно: <https://www.immigration.go.kr/bbs/immigration/227/568801/artclView.do>
5. Красовский В.О. Производственно-обусловленные заболевания и эволюция болезней, связанных с работой (аналитический обзор). *Вестник Тверского государственного университета. Серия: биология и экология*. 2008; (8): 51–3. <https://elibrary.ru/jvuwwz>
6. Соколова Л.А., Теддер Ю.Р. Современные проблемы в проведении медицинских осмотров работников промышленных предприятий г. Архангельска. *Экология человека*. 2007; (4): 55–9. <https://elibrary.ru/hyqlsx>
7. 김정원. 국내에 외국인 노동자의 건강상태와 의료서비스 이용. 연세대학교 대학원 국내석사논문; 2008. (in Korean)
8. 이지현. 수도권에 거주하는 외국인근로자의 건강인식과 의료이용. 연세대학교 보건대학원 국내석사논문; 2011. (in Korean)
11. Навроцкий В.К. *Гигиена труда*. М.; 1967.
12. Тарасенко Н.Ю., Волкова З.А. Профессиональные вредности. В кн.: Петровский Б.В., ред. *Большая медицинская энциклопедия*. М.; 1976.
13. Ходжиев М., Измеров Н.Ф., Бухтияров И.В. Результаты оценки физиологической адаптации и риски нарушений здоровья у трудовых мигрантов из Таджикистана. *Анализ риска здоровью*. 2017; (3): 48–59. <https://doi.org/10.21668/health.risk/2017.3.06> <https://elibrary.ru/zianxz>
14. 이주와 인권연구소. 최저보다 낮은, 2018 이주노동자의 노동조건과 주거환경 실태조사; 2021. Доступно: <https://mihu.re.kr/archives/?vid=69> (in Korean)

### References

1. Organisation for Economic Co-operation and Development. Employment rate. Available at: <https://data.oecd.org/emp/employment-rate.htm>
2. ILO. C155 – Occupational Safety and Health Convention, 1981 (No. 155); 1981. Available at: [https://www.ilo.org/dyn/normlex/en/?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C155](https://www.ilo.org/dyn/normlex/en/?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C155)
3. February 2023 Immigration and Foreign Policy Statistics Monthly. Available at: <https://www.immigration.go.kr/bbs/immigration/227/568801/artclView.do> (in Korean)
4. Grad F.P. The Preamble of the Constitution of the World Health Organization. *Bull. World Health Organ*. 2002; 80(12): 981–84.
5. Krasovskii V.O. Contemporary problems in arrangement of medical examinations of workers of Arkhangelsk industrial enterprises. *Vestnik tverskogo gosudarstvennogo universiteta. Seriya: biologiya i ekologiya*. 2008; (8): 51–3. <https://elibrary.ru/jvuwwz> (in Russian)
6. Sokolova L.A., Tedder Yu.R. Modern problems in conducting medical examinations of workers of industrial enterprises in the city of Arkhangelsk. *Ekologiya cheloveka*. 2007; (4): 55–9. <https://elibrary.ru/hyqlsx> (in Russian)
7. Kim Jong-won. The health status of foreign workers in the country and the use of medical services. Graduate School of Yonsei University Domestic Master's Thesis; 2008. (in Korean)
8. Lee Ji-hyun. Health awareness and medical use of foreign workers living in the metropolitan area. Domestic Master's Thesis, Graduate School of Health, Yonsei University; 2011. (in Korean)
9. Sally C.M., Schenker M. Migrant workers and their occupational health and safety. *Annu. Rev. Public Health*. 2018; 39: 351–65. <https://doi.org/10.1146/annurev-publhealth-040617-013714>
10. Aktas E., Bergbom B., Godderis L., Kreshpaj B., Marinov M., Mates D., et al. Migrant workers occupational health research: an OMEGA-NET working group position paper. *Int. Arch. Occup. Environ. Health*. 2022; 95(4): 765–77. <https://doi.org/10.1007/s00420-021-01803-x>
11. Navrotskii V.K. *Occupational Health [Gigiena truda]*. Moscow; 1967. (in Russian)
12. Tarasenko N.Yu., Volkova Z.A. Occupational hazards. In: Petrovskii B.V., ed. *Big Medical Encyclopedia [Bol'shaya meditsinskaya entsiklopediya]*. Moscow; 1976. (in Russian)
13. Khodzhiyev M., Izmerov N.F., Bukhtiyarov I.V. Results of physiological adaptation assessment and health risks for labor migrants from Tajikistan. *Analiz riska zdorov'yu*. 2017; (3): 48–59. <https://doi.org/10.21668/health.risk/2017.3.06> <https://elibrary.ru/zianxz> (in Russian)
14. [Report] Lower than the lowest, 2018 Survey of Migrant Workers ' Labor conditions and Residential Environment; 2021. Available at: <https://mihu.re.kr/archives/?vid=69> (in Korean)

### Информация об авторе

**Барينوва Вера Владимировна**, докторант колледжа социальных наук, факультета глобальной диаспоры Национального университета Чоннам, Столичный город Кванджу, 61186, Республика Корея. E-mail: [russtudy5@gmail.com](mailto:russtudy5@gmail.com)

### Information about the author

**Vera V. Barinova**, PhD student of the Department of Global Diaspora Studies, Chonnam National University, Gwangju, 61186, Republic of Korea, <https://orcid.org/0009-0002-1794-0608> E-mail: [russtudy5@gmail.com](mailto:russtudy5@gmail.com)