

# Study of the Social Responsibility of Ukrainian Employers for the Health of Employees on the Example of Enterprises of the Machine-Building Industry in the Kharkiv Region

Ganna Oganezova

*Department of Social Medicine, Organization and Management in Health Care, Educational and Scientific Institute of Postgraduate Education of the Kharkiv National Medical University, Ukraine*

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## Abstract

The work aims to develop a methodical approach to assessing the employer's level of social responsibility for employee health. Methods of statistical analysis, expert assessments, and content analysis were used. Developed a methodological approach to determining the level of social responsibility of the employer for maintaining the health of workers, which was tested in a sample of 18 enterprises of the machine-building industry of Kharkiv and Kharkiv region; it is determined by calculating an integrated indicator that combines quantitative and qualitative characteristics of the working environment in three planes (sections), which characterize the factors influencing human health: social conditions and lifestyle, the level of ecology of the working space, and the level of medical care at the enterprise. The results of the employer's efforts to preserve the health of the employee are transformed into the health of the employee, which is analyzed through the indicator "Health Index".

## Keywords

Employee health; The level of social responsibility of the employer; Working conditions; Workplace; Industrial health.

## Introduction

Employee health is not solely an individual matter; it is closely connected to the overall calibre of the workforce and has substantial implications for productivity, organizational stability, and even national economies. Studies such as those by [Krekoten \(2014\)](#) highlight the importance of this vital link. When employees encounter health problems, whether due to illness or injury, it results in absenteeism, elevated expenses for sick leave, and the difficulty of finding substitutes, all of which directly affect a company's financial performance. These issues can lead to a decrease in GDP, as emphasized by [Nahorna \(2018\)](#) and [Oganezova \(2020\)](#), particularly in regions such as Ukraine where there is a high rate of illness and death among the working-age population.

The situation in Ukraine is made more complex by the beginning of military operations, worsening pre-existing health challenges. [Antoniuk \(2022\)](#) emphasizes the importance of focusing on enhancing the quality of the workforce in post-war reconstruction endeavors. This emphasis is crucial for promoting technological progress, modernizing industries, and diversifying the economy.

In addition to conflict-related matters, demographic variables such as decreasing fertility rates, population ageing, and patterns of migration give rise to apprehensions regarding the future labor force. To tackle these challenges, employers must actively engage. Nevertheless, according to the findings of [Forinsurer Insurance \(2015\)](#) and [Zinchenko and Saprykina \(2017\)](#), a significant number of employers in Ukraine have not fully embraced their responsibility to protect the health of their employees. Regrettably, a considerable number of employers fail to implement any health preservation measures, with only a minority providing preventive measures or support, such as vaccinations or compensation for recovery during holidays.

The absence of employer dedication highlights the urgent requirement for systematic frameworks that can efficiently exhibit the advantages of investing

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**Corresponding author:** Ganna Oganezova – Department of Social Medicine, Organization and Management in Health Care, Educational and Scientific Institute of Postgraduate Education of the Kharkiv National Medical University, Ukraine, phone: +38 0999 605 036, e-mail: [g.oganezova@ukr.net](mailto:g.oganezova@ukr.net)

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in employee well-being. These frameworks could be used as persuasive evidence to motivate employers to implement measures that support a secure and conducive work environment. Enhancing the health of employees in the workplace is not only a social obligation but also a crucial strategic necessity to guarantee the enduring viability of businesses and the general welfare of economies.

The article aims to establish a systematic approach for evaluating the extent to which employers fulfill their social responsibility towards the well-being of their employees. The working hypothesis was formed for achieving this goal: a higher level of SRE for MHE provides a higher level of health for employees, which can be measured through indicators of morbidity and injury.

## Literature review

According to [Acemoglu et al. \(2004\)](#) and [Mitkina \(2012\)](#), in the economic literature, the preservation of employee health is considered from the standpoint of the social responsibility of the employer. [Zemlyanukhina \(2018\)](#) and [Chubarova \(2011\)](#) noted that it is an internal part of corporate social responsibility (which is more focused on external issues), is concentrated in the system of social and labor relations, and has a mixed nature of mandatory (by law or contract) and voluntary initiatives. Under the social responsibility of the employer for maintaining the health of employees (SRE for MHE), [Oganezova \(2019\)](#) means the obligations of the employer aimed at maintaining the health of workers, taking into account health risk factors, namely: the actions of the employer aimed at socio-economic well-being and the lifestyle of the employee as a carrier of health capital, ensuring the safety and efficiency of human capital; on the ecology of the working space, which shapes the environment; on the organization of medical care to employees, ensuring its quality and accessibility, embodies the health care system within the business entity. Health risk factors (determinants) are defined by the WHO: priority is given to socio-economic conditions and lifestyle: 50-57%; the existing health care system determines health by 8-10%; the state of the environment: 20-25%; and the genetic component: 15-20% ([Whitehead and Dahlgren, 1994](#)). For Ukraine, the impact of these factors on health is somewhat different: the socio-economic conditions that shape the way of life are 52%, the state of the environment is 20%, and the importance of medical care is 28%. The methodological framework for assessing the level of corporate responsibility is developed in the materials of the Global Reporting Initiative (GRI).

The methodology for analyzing the relationship between the social responsibility of employers and employee health has not yet been finalized, although scientists are conducting research in some areas. In the study of [Zřsimova et al. \(2014\)](#), the most elaborate problem is the organization of workplace conditions conducive to maintaining the health of employees. [Piatek \(2018\)](#) points to a wide range of activities, covering not only the workplace but also the personal lives of employees. On the basis of a survey of managers of industry and services about their attitude toward employee health, an analysis of health support programs in enterprises is being held by [Kolosnitsyna and Lesnevsky \(2012\)](#). [Rybakov \(2015\)](#) concludes that it is necessary to implement corporate programs for health prevention because these programs have economic feasibility. ([Karpovich and Yu \(2016\)](#) proposed a method for assessing the sustainable development of an enterprise on the basis of health. [Popelyaeva \(2016\)](#) assessed the behavioral dysfunctions of employers in several regions and, based on the results, proposed a typology of regions for the state and dynamics of dysfunctional behavior of employers, which, according to the author, will identify the main areas for improvement of the regional health system.

The authors usually use comprehensive indicators to determine the health of any population group. [Podvysotska \(2009\)](#) built a comprehensive population health index, which includes components of mortality and life expectancy, as well as components of morbidity and reproductive health. [Shushpanov \(2019\)](#) introduces the Health Index, which is defined for each person as a compositional index that consists of an index of individual health and a life expectancy index.

The issues of assessing the relationship between the social responsibility of employers and the health of employees have not been sufficiently processed (as a manifestation of the sphere of social and labor relations), so the author attempted to continue research in this direction. The purpose of this work is to develop a methodological approach to assessing the level of social responsibility of the employer for the health of employees.

## Materials and methods

The working hypothesis was formed for achieving this goal: a higher level of SRE for MHE provides a higher level of health for employees, which can be measured through indicators of morbidity and injury. The indicator “level of SRE for MHE” shows to what extent the measures taken by the employer (existing conditions at the enterprise) are aimed at preserving

the health of employees from the standpoint of health risk factors: aimed at strengthening health-promoting factors, for example – more high wages, rising costs for labor protection, implementation of corporate health prevention programs, etc.; or reduction of the factors worsening health – reduction of the quantity of workplaces with harmful working conditions, the organization of a health center, a medical and sanitary part. Therefore, SRE for MHE is reflected in the level of quality of the formed working environment in three planes (sections), which characterize the factors influencing human health: social conditions and lifestyle; the level of ecology of the working space; and the level of medical care at the enterprise.

The total level of SRE for MHE is determined through the calculation of an integrated indicator, which combines the quantitative and qualitative characteristics of each of the sections. The quality of the integrated indicator depends, firstly, on a thorough study of the theoretical aspects of the phenomenon under study, because "what is poorly defined is likely to be poorly measured" (Nardo et al., 2005), secondly, on the quality of the selected data, and thirdly, on the selection of adequate data processing tools (Zhgun, 2017). The combination of these factors accumulates in the methodological approach to assessing the level of social responsibility of the employer for maintaining the health of employees (Fig. 1).

Objective: To enhance the ability to analyze the level of social and environmental responsibility (SRE) in domestic enterprises comprehensively and objectively. This analysis will serve as a solid foundation for developing an efficient mechanism to manage SRE. The methodology for determining the integrated index of SRE for MHE was developed by following a specific sequence of actions, which were organized into five stages (Tab. 1).

The following algorithm is used:

1. The list of indicators within the separate directions characterizing various kinds of medical care that are provided by the efforts of the enterprise and influence the level of health or ill health of workers is defined.
2. The normative values of indicators are established:
  - the availability of measures (1);
  - no measures (0).

The disadvantage of this approach is the inability to take into account the systematic nature of the individual activities carried out by the enterprise. Its elimination is possible with further improvement of the technique.

3. The authors conducted an expert survey to determine the importance of each measure to ensure the health of employees. Employees of medical institutions, students, and teachers of the Kharkiv Medical Academy of Postgraduate Education of the Ministry of Health of Ukraine acted as experts, which allowed them to combine the practical experience of doctors with the theoretical achievements of scientists. The experts were asked to rank the indicators from 1 to 12 according to the following principle:
  - the most important and effective measures that affect the formation of health and reduce morbidity (12 points);
  - the least important and effective measures that affect the formation of health and reduce morbidity (1 point).

To assess the extent of consensus among the experts, the coefficient of dispersion was computed using their rankings ranging from 1 to 12 for the significance of each medical care measure. The coefficient of dispersion is a standardized measure of variance that

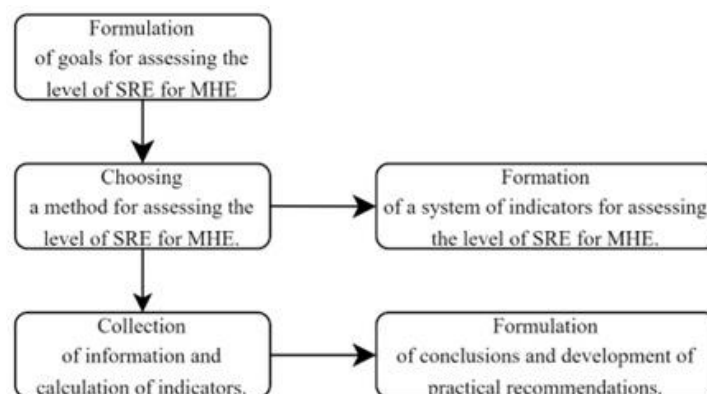


Fig. 1. The main stages of the methodological approach of the article

Table 1  
Methods for assessing the level of SRE for MHE

Stage	Characteristics of the stage	
1. Definition of a system of sub-indices for calculating the integrated indicator, taking into account their weight.	<p>The principle of selection of sub-indices: compliance with factors influencing human health.</p> <p>Subindexes:  <math>I_{secl}</math> – subindex of socio-economic conditions and lifestyle;  <math>I_{we}</math> – subindex of workspace ecology;  <math>I_{mc}</math> – subindex of medical care at the enterprise.            Weight: <math>I_{secl}</math> – 52%; <math>I_{we}</math> – 20%; <math>I_{mc}</math> – 28%.</p>	
2. Definition of a system of indicators for calculating subindices.	<p>Principles of selection of indicators:</p> <ul style="list-style-type: none"> <li>– quantitatively or qualitatively characterize the working environment at the enterprise;</li> <li>– directly or indirectly affect the health of employees;</li> <li>– available for measurement.</li> </ul>	
Selected indicators	subindex of socio-economic conditions and lifestyle;	the level of the average salary at the enterprise relative to the average industry indicators; labor protection costs per employee; (stimulants).
	subindex of workspace ecology;	the proportion of workers working in hazardous conditions relative to the average industry level (destimulator).
	subindex of medical care at the enterprise.	financing of sanatorium treatment of employees; maintenance of the health care service at the place of work; financing of measures aimed at prevention of specific occupational diseases related to the specifics of economic activity of the enterprise; making one-time payments if necessary; financing of voluntary health insurance programs – all indicators taking into account the importance (stimulants).
3. Mathematical processing of indicators.	<p>Purpose: reduction of indicators to a comparable type;</p> <p>Processing methods:</p> <ul style="list-style-type: none"> <li>– natural normalization of indicators for indicators of stimulants;</li> <li>– savage normalization for indicators of destimulators:</li> </ul> $x_i^N = \frac{x_{\max} - x_i}{x_{\max} - x_{\min}},$ <p>where <math>x_i^N</math> – the normalized value of the indicator on a scale from 0 to 1;  <math>x_i</math> – the estimated value of the indicator;  <math>x_{\min}</math> – the minimum value of the indicator in the aggregate;  <math>x_{\max}</math> – the maximum value of the indicator in the aggregate.</p>	
4. Calculation of subindexes $I_{secl}$ , $I_{we}$ , $I_{wo}$ .	<p>Purpose:</p> <ul style="list-style-type: none"> <li>– providing an information base for the analysis of enterprises;</li> <li>– inclusion of generalizing coefficients in the integrated indicator, taking into account the weight of groups of risk factors.</li> </ul> <p>Calculation methods:</p> <p><math>I_{secl}</math> – the method of geometric mean;</p> $K_j = \left[ \prod_{i=1}^n a_{ij} \right]^{\frac{1}{n}} ; j = 1, \dots, m;$ $I_{secl} = \left[ \prod_{i=1}^2 x_i^N \right]^{\frac{1}{2}} .$ <p><math>I_{we}</math> – includes one indicator and does not require generalization;  <math>I_{mc}</math> – arithmetic mean method with subsequent transformation according to the formula of natural normalization.</p>	

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Stage	Characteristics of the stage
5 Calculation of an integrated indicator of the level of SRE for MHE ( $I_{\text{SRE for MHE}}$ ).	Purpose: comparative analysis of enterprises. Methods: geometric mean method. $I_{\text{SRE for MHE}} = \sum_{i=1}^n x_i w_i, \quad \sum w_i = 1, 0 \leq x_i w_i \leq 1,$ where $x_i$ – normalized indicators, which are components of SVR; $w_i$ – coefficients that determine the importance of the contribution of individual indicators to the integral. $I_{\text{SRE for MHE}} = I_{\text{secl}} \times 0.52 + I_{\text{we}} \times 0.20 + I_{\text{wc}} \times 0.28.$
6. Determining the boundaries of intervals for grouping enterprises by the level of SRE for MHE.	Purpose: – identification of groups of enterprises with similar characteristics; – formation of recommendations for increasing the level of social responsibility of employers in groups; – use of information to determine the dependence of the level of "industrial" health on the level of social responsibility of the employer for maintaining the health of employees; Methods: at equal intervals.

Source: The author's compilation.

ranges from 0 (indicating complete agreement) to 1 (indicating maximum disagreement). The coefficient of dispersion, calculated to be 0.32, suggests a moderate level of disagreement among the experts regarding the importance of the medical care measures provided by the enterprises. For the following inclusion of indicators in a complex subindex, the received ranks  $q_i$  are transformed into weighting factors of the importance of each indicator according to the formula (1):

$$k_i = \frac{q_i}{\sum_{i=1}^m q_i}, \quad (1)$$

where  $m$  is the total number of indicators.

This procedure allows us to normalize the criteria while maintaining the classical balance condition  $\sum_{i=1}^m k_i = 1$ . The results of the employer's efforts to preserve the health of the employee are transformed into the health of employees, which can be analyzed through the indicator "Health Index" ( $I_h$ ), the method of calculation of which is presented in Table 2.

Table 2 explains the calculation of the "Health Index", which is proposed to indicate the results or outcomes of the employer's efforts as measured by the indices in Table 1.

The proposed methodology was tested on 18 medium – to large-sized enterprises, consisting of over 251 employees, in the machine-building industry of Kharkiv and the Kharkiv region between 2013 and 2017. The

rationale for selecting industrial enterprises was that this sector has the highest number of workers who are employed in hazardous working conditions (as of December 31, 2019, 72.1%, according to the [State Statistics Service of Ukraine \(2020\)](#)). Although the presented sample is not representative, it does reflect the characteristics of the general population under study, and it will either support or disprove the working hypothesis. This study can be regarded as a pilot; future analysis can be extended and expanded. Data on the enterprise's activities were sourced from the Main Department of Statistics in Kharkiv.

## Results

To ensure maximum compliance of the results with the external conditions of operation of enterprises as a basis for calculating the level of average wages and the proportion of workers working in harmful working conditions, indicators for the processing industry were used.

According to the results of calculations of sub-indices and integrated index, enterprises were divided according to the general level of SRE for MHE into groups with equal intervals: in the group with a low level of SRE for MHE, there were enterprises whose integrated indicator took values from 0 to 0.33; in the group with the average level of SRE for MHE, there were united enterprises, the integrated indicator of which took the value from 0.34 to 0.6; and in the

Table 2  
Methods for determining the current level of health of employees

Stage	Characteristics of the stage
1. The formation of a system of indicators that directly or indirectly characterize the health of employees and are available for measurement.	Selected indicators: – the rate of accidents resulting in disability for at least one working day, including fatal cases, per 1000 registered full-time employees; – the average duration of work incapacity per victim.
2. Choice of a base for comparison.	Purpose: – definition of benchmarks for understanding the quality of the obtained values; – comparative analysis of enterprises; – identification of groups of enterprises with similar characteristics. Principle: the most accurate description of the operating conditions of enterprises. Selected base: industry average indicators.
3. Transformation of indicators into a system of markers.	Purpose: unification (or use) of indicators for the calculation of the Health Index. The principle of transformation: the degree of deviation relative to the base. Transformation order: – comparison of indicators with industry average values; – labeling of indicators by assigning them to one of three groups: (1) – low quality of occupational health, characterized by a high level relative to the average industry level of occupational injuries and short duration of disability; (2) – average quality of occupational health, characterized by closeness to the average industry level of occupational injuries and duration of disability; and (3) – high quality of occupational health, characterized by a low level relative to the average industry level of occupational injuries and short duration of disability.
4. Calculation of the Health Index.	Purpose: – comparative analysis of enterprises; – use of information to determine the dependence of the level of “occupational” health on the level of social responsibility of the employer to preserve the health of employees. Methods: the arithmetic mean method is applied to the marker system.

Source: The author's compilation.

group with a high level of SRE for MHE, there were enterprises whose integrated indicator took the value from 0.67 to 1 (Tab. 3).

As of 2017, more than half of enterprises are characterized by an average level of SRE for MHE; a third do not provide sufficient socio-economic, ecological, and medical conditions, which increases the risk of health loss; and only two enterprises out of 18 (about 11%), namely, DP “KhZSM” and PrAT “VAZ”, are characterized by a high level of SRE for MHE. It is noteworthy that enterprises have different organizational and legal forms and different numbers of staff. 145 people work in DP “KhZSM”, and the number of employees in PrAT “VAZ” is about 1000. 8 enterprises out of 18 belonging to a certain group for the period from 2013 to 2017 have not changed, and DP “KhZSM” has improved the level of social responsibility. In particular, the company significantly increased wages and brought them to a level 1.2 times higher than the industry average,

increasing labor protection costs with a slight deterioration of the working environment. An unambiguous decrease in the level of SRE for MHE was noted at DNVP “Obiednannia Komunar”, AT “KhARP”, Kh-DAVP, PrAT “Zavod Frunze”, and PrAT “KhZTU”, which was mainly due to a relative reduction in wages compared to the average.

In general, it can be noted that in different periods, from 22% to 27% of the enterprises provided wages higher than the industry average. Stably high wages were paid by PrAT “Zavod Frunze” and DP “KhMZ FED”. According to the sub-index of socio-economic conditions and lifestyle, it is worth noting the shift of some enterprises in 2014–2015 to lower groups, with the gradual restoration in 2017 of the distribution structures of 2013–2014. The obvious reason is the economic crisis of 2014–2015 against the background of socio-political changes and the destruction of economic affairs with the CIS countries. This period is character-

Table 3  
Dynamics of the integrated indicator of SRE for MHE on a group of enterprises in the Kharkiv region

Enterprise	2013	2014	2015	2016	2017
AT "KhELZ Ukrelektromash"	low	average	low	low	low
PrAT "Zavod Pivdenkabel"	average	average	average	average	average
PrAT "Elektromashyna"	average	average	average	average	average
PrAT "KhVZ"	low	low	low	low	low
PrAT "Zavod Frunze"	average	average	average	average	average
KhKEPOP	average	average	average	average	average
AT "KhTZ"	average	average	average	average	average
AT "Turboatom"	average	high	high	high	average
AT "KhARP"	average	average	low	low	low
DP "KhZSM"	low	average	average	average	high
DNVP "Obiednannia Komunar"	average	average	average	average	low
KhDAVP	average	average	average	average	low
PrAT "VAZ"	high	high	high	high	high
DP "KhMZ FED"	high	high	average	average	average
DP KhPZ im. T.H. Shevchenka	average	low	low	low	average
DP Zavod im. V.O. Malysheva	average	average	low	average	average
PrAT "KhZTU"	average	low	low	low	low
TOV "Mashhidropryvod"	average	average	average	average	average
The share of enterprises in the group with the corresponding $I_{CBP}$ , %					
$I_{SRE}$ for MHE low	16.7	16.7	33.3	27.8	33.3
$I_{SRE}$ for MHE average	72.2	66.6	55.6	61.1	55.6
$I_{SRE}$ for MHE high	11.1	16.7	11.1	11.1	11.1

Source: The author's compilation.

ized by a general deterioration in the living standards of the population of Ukraine. The ecological environment of the enterprises in the group is of sufficient quality. Only one enterprise (PrAT "Zavod Pivdenkabel") has a share of employees working in harmful working conditions close to 50%. In other enterprises, this share does not exceed 30% and ranges close to the industry average. The stability of enterprises hitting in groups according to the sub-index of workspace ecology responds to the stability of technological processes, but it characterizes a certain stagnation: there are no significant improvements in working conditions at enterprises. Regarding medical care, 10 enterprises out of 18 do not carry out any measures related to the medical care of employees; among them, 3 enterprises have the state form of ownership (KhKEPOP, DP KhPZ im. T.H. Shevchenka, DP Zavod im. V.O. Malysheva). At least the following data were obtained as a result of the survey: 7 enterprises maintain health services; 6 enterprises finance measures aimed at disease prevention; 6 enterprises periodically make one-time

payments related to treatment costs; 5 enterprises partially or fully finance sanatorium treatment of employees; and none of them finances voluntary health insurance programs (Oganezova, 2020). According to the set of measures, the highest level of medical care is provided by PrAT "VAZ", PrAT "Zavod Pivdenkabel", and AT "Turboatom" (Tab. 4).

The health index was calculated according to the methodology presented in Table 2, which characterizes most enterprises as having an average level of employee health (Table 5). In contrast to the economic, ecological, and medical measures applied by enterprises on a systemic basis, injuries and morbidity largely depend on the self-preserving behavior of employees (the subjective factor), which causes less stability of the Health Index compared to the SRE for the MHE Index. In the vast majority of observations, enterprises move between two adjacent groups. Noteworthy is the consistently positive change in the indicators of PrAT "Zavod Pivdenkabel", KhKEPOP, and AT "Turboatom", the consistently negative change of the indicator at the

Table 4  
Indicator of medical care for employees according to the results of the survey, taking into account the weight

Enterprise	Measures to provide medical care					Indicator of medical care, taking into account the weight
	Financing of sanatorium treatment (full payment for the rehabilitation of employees; partial payment for the rehabilitation of employees)	Maintenance of the health care service at the place of work (medical sanitary unit, health center, dispensaries)	Financing of measures aimed at the prevention of specific occupational diseases related to the specifics of the economic activity of the enterprise (organization of periodic medical examinations; medical examination)	One-time payments if necessary (payment for treatment, medicines, vaccination of employees, financial assistance)	Financing of voluntary health insurance programs	
AT "KhELZ Ukrelektromash"	–	–	–	–	–	0.00
PrAT "Zavod Pivdenkabel"	0.13	0.13	0.24	0.23	–	0.73
PrAT "Elektromashyna"	–	–	–	–	–	0.00
PrAT "KhVZ"	–	–	–	–	–	0.00
PrAT "Zavod Frunze"	–	–	–	–	–	0.00
KhKEPOP	–	–	–	–	–	0.00
AT "KhTZ"	–	0.13	0.24	0.02	–	0.38
AT "Turboatom"	–	0.30	0.13	0.23	–	0.66
AT "KhARP"	–	–	–	–	–	0.00
DP "KhZSM"	0.05	0.13	–	0.02	–	0.20
DNVP "Obiednannia Komunar"	0.05	–	0.24	0.02	–	0.30
KhDAVP	–	0.13	0.13	–	–	0.26
PrAT "VAZ"	0.13	0.19	0.24	0.23	–	0.78
DP "KhMZ FED"	0.05	0.13	–	–	–	0.18
DP KhPZ im. T.H. Shevchenka	–	–	–	–	–	0.00
DP Zavod im. V.O. Malysheva	–	–	–	–	–	0.00
PrAT "KhZTU"	–	–	–	–	–	0.00
TOV "Mashhidropryvod"	–	–	–	–	–	0.00

Source: The author's compilation.

DNVP "Obiednannia Komunar", and the consistently low value of the indicator at PrAT "KhVZ".

Analyzing the components of the Health Index, it can be noted that most enterprises (from 55.6% to 88.3% in different periods) are characterized by a higher level of occupational injuries than the in-

dustry average. At the same time, the enterprises in total are characterized mainly by an average (from 11.1% to 55.6% in different periods) and a low (from 22.2% to 55.6% in different periods) level of duration of incapacity for work relative to the industry average. In 2015–2016, there was a temporary decrease



Table 5  
Dynamics of the Employee Health Index by group of enterprises

Enterprise	2013	2014	2015	2016	2017
AT "KhELZ Ukrelektromash"	low	average	low	low	average
PrAT "Zavod Pivdenkabel"	low	average	average	average	high
PrAT "Elektromashyna"	average	average	high	average	average
PrAT "KhVZ"	low	low	low	low	low
PrAT "Zavod Frunze"	high	average	average	average	average
KhKEPOP	low	average	average	average	high
AT "KhTZ"	average	average	average	average	average
AT "Turboatom"	low	average	average	average	high
AT "KhARP"	average	average	low	average	average
DP "KhZSM"	low	average	average	average	average
DNVP "Obiednannia Komunar"	high	high	high	average	low
KhDAVP	average	average	high	high	low
PrAT "VAZ"	high	high	high	high	average
DP "KhMZ FED"	high	average	high	high	average
DP KhPZ im. T.H. Shevchenka	average	low	average	average	average
DP Zavod im. V.O. Malysheva	average	average	low	average	average
PrAT "KhZTU"	average	low	average	high	average
TOV "Mashhidropryvod"	average	average	high	average	average
The share of enterprises in the group with the corresponding $I_h$	%	%	%	%	%
$I_h$ low	33.3	16.7	22.2	11.1	16.7
$I_h$ average	44.4	72.2	44.4	66.7	66.7
$I_h$ high	22.2	11.1	33.3	22.2	16.7

Source: The author's compilation.

in occupational injuries in some enterprises, but this was due to a decrease in business activity during the crisis. A stably low level of injuries was noted at the DNVP "Obiednannia Komunar". The gradual shift of enterprises, starting in 2014, to groups with a shorter duration of incapacity for work is typical. This is probably due to the crisis period in the economy, the fear of losing a job, and the desire to earn more.

To eliminate the impact on the calculated indicators of random or temporal factors and to identify general trends and relationships, the average integrated indicator of SRE for MHE and Health Index for the period from 2013 to 2017, with the subsequent formation of a consolidated matrix (Table 6) and its analysis (Table 7).

In 27.78% of cases, a low level of SRE for MHE was observed, which consisted of 11.11% of observations with a low Health Index level, 16.67% of observations with an average Health Index level, and no observations

with a high Health Index level. The average level of SRE for MHE was found in 61.11% of observations, with 55.56% corresponding to the average Health Index level and 5.56% corresponding to the high Health Index level. Observations with a high level of SRE for MHE accounted for 11.11% of the total, and no low level of the Health Index was observed in this group. 5.56% of these observations corresponded to the average level, while another 5.56% corresponded to the high level of the Health Index.

The analysis indicated that more than 50% of the enterprises exhibited an average level of socially responsible employment, whereas approximately 33% had a low level, thereby elevating the risk to worker health. Just 11% of the sample demonstrated a significant degree of socially responsible employment practices. The composite measure of socially responsible employment showed a positive correlation with the employee health index, indicating that higher levels of socially respon-

Table 6  
Grouping of enterprises according to the average integrated indicator of SRE for MHE and Health Index

$I_h$	$I_{SRE}$ for MHE		
	Low	Average	High
High		1. DP "KhMZ FED"	1. PrAT "VAZ"
Average	1. AT "KhARP" 2. DP KhPZ im. T.H. Shevchenka 3. PrAT "KhZTU"	1. PrAT "Zavod Pivdenkabel" 2. PrAT "Elektromashyna" 3. PrAT "Zavod Frunze" 4. KhKEPOP 5. AT "KhTZ" 6. DP "KhZSM" 7. DNVP "Obiednannia Komunar" 8. KhDAVP 9. DP Zavod im. V.O. Malysheva 10. TOV "Mashhidropryvod"	1. AT "Turboatom"
Low	1. AT "KhELZ Ukrelektromash" 2. PrAT "KhVZ"		

Source: The author's compilation.

Table 7  
Generalized statistics of groupings of enterprises by average indicators of SRE for MHE and Health Index

$I_h$	$I_{SRE}$ for MHE			
	Low	Average	High	Together
High	0.00	5.56	5.56	11.11
Average	16.67	55.56	5.56	77.78
Low	11.11	0.00	0.00	11.11
Together	27.78	61.11	11.11	100

Source: The author's compilation.

sible employment practices were consistently linked to a higher employee health index, without any instances of a low health index. Although some enterprises occasionally offered wages that exceeded the industry average, there was a lack of progress in enhancing working conditions and ensuring sufficient medical care for employees in many of the examined companies. The results emphasize the necessity for businesses to improve their socially responsible employment practices, specifically about the work environment and healthcare benefits, to better protect the health and well-being of their employees.

## Discussion

Amanawa (2022) assessed the role of corporate social responsibility in the face of the COVID-19 crisis. The scientist points out that, given the realities of the pandemic, companies should devote much more time to ways of protecting their employees and other people

with whom they interact directly. Thus, the pandemic has highlighted the fundamental role of business in maintaining the quality of life for different population groups, and businesses should focus not only on surviving the pandemic for their shareholders but also on rebuilding the job structure and infrastructure that society relies on. While companies should try to maintain business as usual whenever possible, they should also pay attention to regulatory compliance, protect people and the environment, and conduct their operations in a manner that is mindful of the potential negative impacts on the public. Thus, they need to make wise decisions in the course of their activities to keep the level of corporate social responsibility at a sufficient level. At the same time, the hypothesis that the level of employee health and working conditions (corporate social responsibility) are correlated with each other was only partially confirmed in the study above for the case of Ukraine. This may also be due to the low spread and development of corporate social responsibility, which is most often adhered to only by large foreign companies, while among national companies it

is the exception rather than the rule. Thus, this topic requires further research, especially in the post-war environment and with the attraction of a significant amount of foreign capital, which is expected after the end of hostilities.

Alonso-Nuez et al. (2022) also studied the relationship between public health and the level of corporate social responsibility. First of all, the researchers point out that there is a lack of studies that examine the impact of corporate social responsibility on the well-being of citizens and their health, which may be one of the reasons why not all companies (including those in Ukraine) are trying to provide appropriate conditions for the population in the current environment. Nevertheless, those managers who understand the role of this component can devote a lot of effort to ensuring appropriate conditions for employees. Moreover, recently, an increasing number of countries at the national level have been requiring companies to comply with the relevant rules on corporate social responsibility. For these regulations to be more equitable and effective, health-care professionals should be more actively involved in discussions about the potential impact of internal corporate social responsibility on employee health and should try to ensure that employers and employees can more actively engage in understanding each other's needs. Particular attention should be paid to these issues given the consequences of the COVID-19 crisis and, for Ukraine, also because of the beginning of a full-scale invasion and the deterioration of the psychological state of most citizens (Burlakova, 2012).

According to Shubalyi and Yefimov (2023), guaranteeing satisfactory working conditions is closely connected to establishing a secure work environment and reducing occupational health hazards for workers. Equitable compensation and prospects for professional growth additionally enhance employee welfare by mitigating stress levels. Yaroshenko et al. (2020) investigated the potential investments in staff professional development, which encompass safety training programs, first aid skills, and the promotion of a healthy workplace culture. Čižo et al. (2022) found that employees who engage in prosocial behavior are more likely to demonstrate increased dedication to corporate wellness programs, actively participate in health promotion activities, and provide mutual support to colleagues in maintaining their health.

According to Pürhani et al. (2022), investing in human capital, particularly in the health sector, directly affects the nation's health and the quality of the workforce, which is crucial for sustainable economic growth. Ihnatenko et al. (2022) examined marketing strategies that companies can employ to advertise corporate well-

ness programs, involve employees in health campaigns, and improve their reputation as a socially conscious employer. During times of war, it is crucial for Ukrainian companies to prioritise occupational health and safety, social guarantees, and health conditions in order to effectively attract and retain staff, as highlighted by Dzhulai (2023). The CSR assessment methods developed by Konstantynovskiy and Zmicerevska (2023) are valuable tools for conducting a thorough analysis of companies' performance in employee health protection. These methods also help identify areas for improvement in relevant programs.

This study primarily aimed to establish a methodological framework for evaluating the extent of employers' social responsibility in promoting employee health within the industrial sector in Ukraine. However, it is important to note that the notion of employers' social responsibility holds broader implications across various industries, regions, and areas of influence (Posylkina and Bratishko, 2019). The concept of employers' social responsibility encompasses the ethical principles, policies, and practices that organizations adopt to uphold their obligations to both internal and external stakeholders. This entails obligations towards employees, the communities in which they conduct their operations, society as a whole, and the local environment. There are several fundamental dimensions that encompass employer social responsibility (Polukarov et al., 2022):

1. Labor practices ensure equitable remuneration, reasonable working hours, occupational health and safety, the absence of bias, freedom of association, and protection of other labor entitlements.
2. Human rights encompass the prevention of child labor, forced labor, and human trafficking, as well as the preservation of the fundamental rights and dignity of all individuals affected by business operations.
3. Environmental sustainability refers to the practice of minimizing the negative impact on the environment by effectively utilizing resources, decreasing emissions, and mitigating waste and pollution throughout the entire lifespan of a product.
4. Community engagement involves actively participating in the advancement of local communities by providing employment opportunities, enhancing their capabilities, engaging in philanthropic activities, and fostering partnerships.
5. Business ethics encompasses adhering to ethical principles by implementing anti-corruption strategies, ensuring fair competition, promoting transparency and accountability in governance, and facilitating accurate reporting and disclosure.

Organizations must systematically identify and manage economic, social, and environmental risks and opportunities to implement comprehensive social responsibility (Delini, 2017). Efficient tactics encompass involving stakeholders, implementing policies and management systems, establishing objectives, implementing initiatives and programs, and providing reliable performance reports. Organizations are progressively acknowledging the business rationale behind social responsibility, which was initially perceived as a moral duty and a strategy to bolster corporate reputation. This recognition encompasses various aspects such as enhancing employee recruitment and retention, improving operational efficiencies, mitigating regulatory risks, and facilitating access to new markets (Mavrina and Belopolskiy, 2023).

The COVID-19 pandemic and the war in Ukraine have emphasized the crucial obligation of businesses to safeguard the health, safety, and well-being of their employees as a component of their corporate social responsibility (CSR) initiatives. The previous study discovered a limited connection between CSR and employee health conditions in Ukrainian companies. This is likely because domestic firms have not fully embraced strong CSR practices. However, there is an increasing acknowledgement of the significance of investing in human capital, implementing occupational safety programs, initiating employee wellness initiatives, and fostering an organizational culture that prioritizes health. Comprehensive corporate social responsibility (CSR) encompasses the commitment to ethical labor practices, the protection of human rights, the pursuit of environmental sustainability, active engagement with local communities, and the adherence to strong business ethics and transparency. As Ukraine undergoes reconstruction and becomes more appealing to foreign investors after the war, companies will feel a growing need to give priority to corporate social responsibility (CSR). This includes safeguarding the health of their employees, not only as a moral obligation but also as a means to improve productivity, attract talent, enhance operational efficiency, comply with regulations, and enhance their overall reputation as socially responsible entities.

The author concurs with other authors regarding the significance of corporate social responsibility, particularly in regard to the well-being and safety of employees. Investing in human capital, establishing favorable working conditions, implementing wellness programs, and cultivating a culture that promotes healthy lifestyles in businesses are essential for sustainable economic growth and effective business operations. Hence, Ukrainian enterprises must give utmost

importance to these matters during their post-conflict recuperation to allure a proficient labor force and fulfill the escalating requirements for socially conscientious business operations.

## Conclusion

The article creates a scientific basis for assessing the level of formation of SRE for MHE. The analysis allowed us to differentiate enterprises according to the level of SRE for MHE and to the level of the “industrial health” of employees. The hypothesis of the dependence of the health of employees on the level of SRE for MHE is partially confirmed: a higher level of SRE for MHE corresponds to a higher level of the Health Index, and the level and severity of injuries are the same or lower than the industry average. The low level of SRE for MHE does not ensure a high level of health among employees, at the same time, the medium and high level of SRE for MHE is not characterized by a low level of health among employees.

Under the influence of the war, processes are taking place that create new opportunities for positive changes in the country, including improving the quality of the workforce by increasing the social responsibility of employers to preserve the health of workers. According to the author, the methodical approach presented in the article to assess the current level of SRE for MHE provides a basis for solving an important task: determining the dependence of the level of health of employees on the activities carried out by employers. This, in turn, lays the foundation for the formation of a mechanism of state influence on the behavior of employers, which should be implemented in the context of the formation of social responsibility for citizens through the institutionalization of social responsibility by the employer for the health of workers, creating conditions for decent work. Employers, on the other hand, must find the right approach in terms of corporate social responsibility to ensure the greatest benefit to society and maximize their profits.

In today’s environment, it is important to continue researching the role of social responsibility in Ukraine during the war, including in the context of individual regions: Kherson, Zaporizhzhia, Mykolaiv, Kyiv, and other regions. In addition, it is important to consider its overall impact on various components of the country’s development, including the corruption component or the judicial system.

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