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The level of health and safety promotion in workplaces of Czech family-owned manufacturing firms: a case study

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ABSTRACT

Purpose – The purpose is to evaluate the workplace health and safety promotion in small and medium-sized, very often family-owned companies in the Czech Republic which is currently a hot topic in the context of the coronavirus pandemic.

Aim – Based on the questionnaire previously created by authors, the aim is to implement research and to find out how Czech family manufacturing firms approach the workplace health and safety promotion.

Design/methodology/approach – Empirical research methods were used. The survey on a sample of 1056 respondents was implemented.

Findings – Data were processed using statistical methods. Also, Chi-square test and statistical test results were used. The most important finding is that although the situation in conceptual questions of workplace health and safety promotion is not good in Czech family manufacturing firms, they are still managing implementation of workplace health and safety promotion very well.

Limitations of the study – The limiting conditions of the survey can be seen in the return rate of questionnaires (27.1 %) and on the fact that findings are based on a one-sectional sample in one country. The further direction of research can be seen in focusing also on companies from other branches.

Practical implications – The conducted research can provide guidance on how to assess the level of health and safety promotion in workplaces of small and medium-sized companies. It presents criteria of KPIs, on which it is possible not only to evaluate the workplace health and safety support, but also to define activities of which implementation would lead to improvement of workplace health and safety promotion.

Originality/value – Based on the implementation of this original research, the article provides an insight into the current state of the addressed issue. The paper may be beneficial for practitioners involved in promoting workplace health and safety and in another small and medium-sized manufacturing companies.

KEY WORDS

health, safety, promotion, family manufacturing firm, level, research

JEL Code: I12, J28, M12

1 INTRODUCTION

The most important resource for the successful functioning of any enterprise, also the family firm, is its employees, its human resources. It is not financial resources, modern and efficient technology or a well-developed strategy, but people, effective employees play a crucial role in achieving performance and maintaining the stability of any enterprise. Nowadays, more and more enterprises are realizing benefits of taking care of this most important resource they need to their functioning (Horváthová, 2011). Having a motivated and healthy workforce can certainly be considered as a major competitive advantage (WCHS, 2016). A way to achieve this, is to implement health and safety promotion activities in the workplace, which lead to the promotion and maintenance of the physical and mental health of employees (Stenbeck & Persson, 2006).

Creation of a healthy and safety workplace improves the health and safety of employees, which leads to the reduction of short- and long-term sickness absence, to increase of their well-being, to improvement of workplace relationships, atmosphere and working environment, as well as to reduction of work-related illnesses and the number of work-related accidents. All this contributes to improving individual performance of employees, increasing

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productivity and thus the performance of the whole enterprise, and increasing the attractiveness of the enterprise (EASHW, 2016; Lipšov et al., 2005).

Workplace health and safety promotion in the Czech Republic is defined as a set of activities and measures aimed not only at preventing illnesses and injuries, but also aimed at improving the health and safety status of the individual and the whole enterprise (NIPH, 2018). Through these coordinated and comprehensive activities, the employer complements the mandatory system of preventive health and safety care at work (Lipšov et al., 2016).

Workplace health and safety promotion is not currently enshrined in legislation or tax benefits in the Czech Republic, it is a voluntary activity. However, many Czech employers already recognise its importance and implement these activities or prepare to implement such activities (Lipšov et al., 2016). Moreover, the pandemic of the virus disease covid-19 has clearly shown that health is the highest value of a human life and the value that influences the success of an enterprise. From the point of view of HR departments of companies, managing of pandemic was a challenge, which has helped to increase the interest in given problematics and has certainly led to a better workplace health and safety promotion (Hejlov, 2021).

Based on the previous research done by the authors of the article, it is a known fact that the issue of workplace health and safety is in the Czech Republic covered mainly by larger companies with foreign equity participation (Horvthov et al., 2020). But what is the situation in small and medium Czech, often family owned, businesses? The authors of the article assume that this problematic, beyond various obligations in the field of occupational health and safety given by law, is not given as much attention.

The Czech family business was defined by the resolution No. 535 of the Czech government from 11th May 2020 (MIT, 2019). Following this government resolution, the Association of Small and Medium-sized Enterprises and Tradesmen of the Czech Republic (AMSP CR) created the Register of Family Businesses of the Czech Republic. This register which was launched on 1 March 2020 not only provides approximate information on the number of Czech family businesses (registration is voluntary, so not all existing Czech family businesses need to be registered in the register), but also makes it easier for registered businesses to access state support (MIT, 2020). Currently, more than 800 family businesses are listed in the register (BusinessINFO, 2020). The issue of family firms is very important in terms of the development of the business environment and GDP generation in the Czech Republic, where family firms control almost 25% of GDP generated by business entities (Petr, 2020; AMSP R, 2021). Family firms are, therefore, crucial for economic progress (Porfirio et al., 2020; Sharma et al., 2012).

The goal of the article is to find out how Czech family manufacturing firms approach the promotion of health and safety in the workplace by using a questionnaire survey (using the questionnaire as a result of previous research of the authors; the questionnaire can be to interested parties sent by the authors by e-mail). The manufacturing industry was chosen because of its highest participation in the production of capital goods. Data were processed using statistical methods. Also Chi-square test and statistical test results (p-value compared to significance level 0.05) were used. Based on the overall evaluation of the acquired data, the result of the survey is to answer the research questions, disprove/confirm further formulated hypotheses and formulate conclusions in the research area as a basis for further directions of possible research for this issue. According to the authors and available facts, such a survey has not been conducted in the Czech Republic yet.

In the first section of the article theoretical bases of processed problematic thus interrelationships of work, health and enterprise are introduced. The second section includes the description of the research method and research questions formulation. The third section includes the evaluation of the acquired data, answers to the research questions, disproving/confirmation of formulated hypotheses and discussion of the results. The last section includes neat summary, limiting conditions of the survey and suggestions for future research.

2 BACKGROUND TO THE STUDY

Health is the most important value for most people. There have arisen a number of definitions of health for different purposes. The authors tend to use the World Health Organization (hereafter referred to as WHO) definition of health as full physical, mental and social well-being, where only the absence of disease or infirmity is not enough (see the Preamble of the Constitution of the WHO, approved at the International Health Conference in New York on 19 June-22 July 1946; the Preamble was entered into force on 7 April 1948). This definition has not been changed since 1948.

There are many ways to promote health and safety, such as promoting health and safety-enhancing activities or encouraging the reduction of unhealthy and unsafety activities. Among key factors that influence people's health and safety can be ranked income, social status, education, social and physical environment and working conditions (WHO, 2010). Promoting the creation of a healthy and safety workplace, in other words, promoting health and safety in the workplace, is one of the main tasks of employers. So, what is involved in health and safety promotion in the workplace? We can find a lot of definitions of health promotion. One of the definitions, which was stated hereinbefore, is that it is a summary of activities and precautions, and their goal is not only to prevent

illnesses and injuries, but also to improve health condition of individuals as well as of the whole company (NIPH, 2018).

No one would disagree that work, health and enterprise are related. But how exactly? Firstly, work affects physical health and safety (Ferr et al., 2018). Among risks that endanger the physical safety of workers can be ranked for example mechanical risks, electrical hazards, slips and falls from heights, ergonomic risks such as repeated motion and uncomfortable posture, physical risks such as excessive noise or heat or the possibility of work-related motor vehicle accident. In spite of the likelihood that most countries have some sort of legislation to prevent these types of injuries, they continue to occur at a distressing rate. While it is customary to think only of physical hazards as having an effect on the safety of workers, this is not always the case. If there is suitable health and safety legislation, it usually covers safety hazards (WHO, 2010).

Secondly, work affects mental health and well-being. Research in the past years has revealed that various situations in the workplace can be a threat to mental health of workers and there are ranked mainly the psychological and social conditions of the workplace. Risks for the mental safety of workers can be following: workload, work schedule, equipment, organizational culture and function, interpersonal relationships at work or e.g. job content (Leka & Cox, 2008), see Table 1.

Table 1: Work-related psychosocial hazards

<i>Job content</i>	<i>lack of variety, short work cycles, fragmented or meaningless work, underuse of skills, uncertainty, continuous exposure to people through work</i>
<i>Workload and work pace</i>	<i>work overload or underload, machine pacing, time pressure, continually subject to deadlines</i>
<i>Work schedule</i>	<i>shift work, night shifts, inflexible schedules, unpredictable hours, long or unsociable hours</i>
<i>Environment and equipment</i>	<i>inadequate equipment availability, suitability or maintenance; poor environmental conditions such as lack of space, light, excessive noise</i>
<i>Organizational culture and function</i>	<i>poor communication, low levels of support for problem solving and personal development</i>
<i>Interpersonal relationships at work</i>	<i>social or physical isolation, interpersonal conflict, poor relations with supervisor or co-workers, lack of social support</i>
<i>Role in organization</i>	<i>role ambiguity, role conflict, responsibility for people</i>
<i>Homework interface</i>	<i>conflicting demands of work and home, low support at home, dual career problems</i>

Source: Leka & Cox (2008:2)

Thirdly, there are interrelationships between physical and mental health and safety. The preceding two sections discuss physical and mental health & safety separately. It is very important to know that these aspects of health and safety are not separate but there is a strong link between them. Mind is affected by damaged physical health and safety and on the contrary, the physical body is affected by damaged mental health and well-being (WHO, 2010).

Fourthly, there is the positive impact of work on health. The paragraphs above highlight the negative effects that work can have on workers' physical and mental health and safety. However, this paper would be incomplete and misleading if we did not point out the overall positive impact that working usually has on workers. Generally, speaking, work is good for physical and mental health, when compared to worklessness, or unemployment. Employment is usually the main means of obtaining adequate economic resources for material well-being and full participation in society, and is often central to individual identity and social status. In addition, the negative health effects of unemployment are also well documented. Those who are sick or have some form of disability are also generally better off in terms of health if they can be accommodated in some form of paid work (Waddell & Burton, 2006).

And how worker health affects the enterprise (i.e. company, business, firm, institution or organization designed to provide goods and/or services to customers)? Firstly, accidents and acute injuries affect the enterprise. If there are accidents and acute injuries in the enterprise, the greatest effect is usually the unquantifiable personal costs. The owner/operator and co-workers of an injured worker are affected emotionally to some degree whenever an employee, friend or colleague is injured. These effects may be devastating in a small firm, in the extreme case of a worker being killed. In addition to the personal effects, there are the economic costs to an enterprise. When someone suffers an acute injury at work, and is required to take time away from work, there are many direct and indirect costs to the employer, for example immediate payments to a physician or health care system, insurance costs, interruption in production immediately following the accident personnel and time allocated to investigating and writing up the accident etc. (Andreoni, 1986).

Secondly, the physical health of the workers affects the enterprise. The productivity of employees is decreased when they feel unwell. When an ill employee comes to work despite being ill, it can be considered as

“presenteeism” which is a phenomenon that includes reduced productivity of a person who is either physically or mentally ill and therefore their productivity is lower. If an employee cannot come to work because of their illness, costs linked with absenteeism occur. These costs are related to recruiting and hiring of a replacement employee, their training or reduced quality or quantity of that replacement employee's work (WHO, 2010).

Thirdly, the mental health of workers affects the enterprise. In current highly competitive environment, employers need engaged, innovative, creative and high-performing employees to keep ahead of the competitors. The trend is to demand that the minds of workers perform at a very high standard (WHO, 2010). The published Mental Health Strategy for Canada states, “In addition to improving overall mental health and well-being, such efforts can also help to improve the productivity of the workforce and reduce the growing costs of insurance claims for both physical and mental health conditions.” (MHCC, 2009:42). Depression, anxiety disorders and burnout belong among three most frequent mental illnesses or disorders and can lead to lower productivity or quality of work and therefore have a strong influence on the enterprise. Poor mental health or job dissatisfaction can affect also the degree of absence or intention to leave work. In addition to the already mentioned impact of poor mental health on the enterprise, there are implications for the society as a whole (Duxbury & Higgins, 2001).

Employees' health and enterprise success is influenced by the community or society in which the enterprise exists – and vice versa. As such, there are very big regional differences based on the level of development of countries. The examples listed in Table 2 are probably not issues in most of Western Europe, North America, or in more developed parts of the Western Pacific Region.

Table 2: Examples of how the community affects health of workers

<i>No matter how healthy and safe a workplace may be inside the doors of the enterprise, if there is no clean, safe water to drink in the community, workers will not experience good health.</i>
<i>If primary health care in the community is inadequate, and workers and their families are unable to get health care such as treatment or immunizations against communicable diseases, workers and their families will not experience good health.</i>
<i>If community tobacco control laws are weak, poorly enforced, or non-existent, community members (including workers) will be exposed to toxic fumes and are more likely to become ill, and/or addicted to tobacco.</i>
<i>If there are no sidewalks, public transport is poor, roads are hazardous, there is much crime or pollution, then inactive transport (cars or motorbikes) may be the only option for workers to get to and from work, reducing physical activity and limiting possibilities to counter work-induced physical inactivity.</i>
<i>If the air and water in the community are contaminated by factories belching toxins into the air, or dumping pollutants into the water, workers living in the community will experience a variety of illnesses.</i>
<i>If HIV/AIDS is common in the community, and infected workers are unable to afford the recommended antiretroviral medications, their health will rapidly deteriorate.</i>
<i>If the literacy rate in the community and among employees is low, they will be unable to read health and safety information and may put their health and safety at risk as a result.</i>
<i>If a natural disaster affects the community (e.g., flood, earthquake) the employees may be affected immediately, or may be overwhelmed trying to cope with the aftermath, and experience negative health consequences.</i>
<i>If road conditions and/or community driving practices are poor, workers who drive for work will be at increased risk of injury.</i>

Source: WHO (2010:95-96)

While these examples are generally not the legal responsibility of the workplace or employer, they are factors that can often be influenced by the enterprise. When employers choose to become involved in some of these issues, it may be referred to as Corporate Social Responsibility (CSR), or Enterprise Community Involvement.

The reverse is also true: the health of the community and society will be influenced by the physical and mental health of employees. For example, facing anger, violence, or abuse at work will not impact employees only in the workplace, but they will also carry negative feelings into their homes and communities. Increased social costs for law enforcement, social services and basic health and safety care may thus result from events in the workplace (Rautiainen, 2009).

Another relationship between work conditions and the community concerns the issue of disability. If workplaces make reasonable accommodations for people who have some form of disability, they will contribute to decreasing unemployment in the community, which will have positive outcomes for society (BDF, 2017).

In conclusion, it can be summarized that higher productivity and success of an enterprise will be influenced by good health and safety of employees, which subsequently increases the economic prosperity of a country and the individual well-being of employees (WHO, 2010).

The previous chapters paint a clear picture, showing that work and community environments and conditions can have serious impacts on the health, safety and well-being of workers; and that worker health impacts tremendously on the productivity and effectiveness of enterprises and of society as a whole. This provides a strong motivation for both workers and employers to wish to create healthier workplaces.

3 METHODOLOGY

As a starting point, the sector in which the paper is focusing was chosen. The sectors where family firms are most frequently active include agriculture, trading, transport, food, construction and manufacturing industry (Tharawat Magazine, 2016). For this case, the manufacturing industry was chosen because of its highest participation in the production of capital goods. It is estimated that Czech family firms generate 24 % of gross added value, produced by firms and around 27 % of employees are employed in this sector in the Czech Republic (CSO, 2021).

The aim of this article is to implement a research based on the created questionnaire and its goal was to find out how Czech family manufacturing firms approach workplace health and safety promotion. According to the authors and available facts, such a survey has not been conducted in the Czech Republic yet.

In order to meet this goal, research questions (Q1-Q3) and hypotheses (H1-H3) were formulated based on the foregoing findings:

Research question Q1: On which level do the Czech family manufacturing firms promote workplace health and safety promotion? The authors were interested in the level of leadership and participation in Czech family manufacturing firms in the area of health and safety promotion at the workplace, both conceptually (existence of a strategy and code of ethics) and practically (resources, measures, awareness), as well as from the point of view of the size of firms.

Research question Q2: Do Czech family manufacturing firms use any KPIs for evaluation of workplace health and safety promotion? Authors were interested if Czech family manufacturing firms use any KPIs suitable for micro, small or medium companies.

Research question Q3: If yes, were these changed during the pandemic? Authors were interested that if Czech family manufacturing firms use any KPIs suitable for micro, small or medium companies, if these changed during the pandemic.

The next step was the decision about the respondents. Respondents come from firms operating in all regions of the Czech Republic. According to data from the Czech Statistical Office in 2020, 179 462 enterprises operated in the manufacturing industry. To identify family industrial firms, the Companies Database of the Czech Republic and a definition of family firms was used. When selecting respondents from the official database, it was found that more than one third of companies did not have available information, which would allow to identify, if these were or were not family industrial firms. Only firms identified as family industrial firms, this means 3895 subjects, were considered for the initial population for sample selection.

Before research there had been carried out the pilot survey on a sample of thirty respondents from target group. The pilot test took place in the same way as the expected full test, i.e., sending emails with a link to an online questionnaire with the possibility of commenting on individual items. Based on evaluations and tests, minor changes were made to the formulations and a regulatory investigation could be triggered.

Primary quantitative research was conducted in May 2021. The questionnaire was anonymous and was implemented by the CAWI method. This ensured that there were no possible conflicts of interest or the possibility of data distortions by the researchers; the results were not dependent on the persons who analysed them. This ensured the objectivity.

Of the 3895 respondents surveyed, there was a return of 1056 (27.1 % return). Data were processed using statistical methods in May 2021. Based on the overall evaluation of the acquired data, the result of the survey is to answer the research questions, disprove/confirm formulated hypotheses and formulate more general conclusions in the research area as a basis for further directions of possible research for this issue.

4 RESEARCH RESULTS AND DISCUSSION

A total of 1056 respondents (Czech family manufacturing firms) were considered for the results of the research.

4.1 CHARACTERISTICS OF THE SURVEYED FIRMS

Due to differentiation between the size of Czech family manufacturing firms, common principle of evaluating number of employees, annual revenue and/or balance sum of assets was chosen (to avoid text heavy questionnaire, only one of the conditions was included – annual revenue, data were also collected in CZK and revaluated to EUR for this article). From the total number of 1056 respondents, majority of respondents represents small enterprises, where 612 (57.9 %) of respondents have between 11-100 employees and 192 (18.1 %) represents micro firms with less than 10 employees. 252 (23.8 %) of respondents recognized the category with 101-250 employees, which is possible to categorize as a medium firm.

Second important condition to categorize firms according to their size was annual revenue in EUR. Largest category is with 672 (63.6 %) answers annual revenue between 2M and 10M EUR, which characterizes a small firm. With less than 2M EUR in annual revenue, 360 (34 %) responses were registered. Only 24 responses (2.3 %) were identified from firms with annual revenue in between 10M and 50M EUR.

Firm size was determined according to the conditions in the table 3.

Table 3: Firm size identification

Staff headcount	Absolute frequency	Relative frequency	Definition
<10 employees	192	18.1 %	micro
11-100 employees	612	57.9 %	small
101-250 employees	252	23.8 %	medium
Annual revenue (in EUR)	Absolute frequency	Relative frequency	Definition
<2M EUR	360	34%	micro
>2M <10M EUR	672	63.6%	small
>10M <50M EUR	24	2.3%	medium

For further analysis, only one condition was used to determine firm category. Thus, final count of firms in respective categories (micro, small, medium) is in the table 4.

Final number of firms in respective categories are: micro (192 – 18.1%), small (612 – 57.9%) and medium (252 – 23.8%).

Table 4: Final firm categorization

Firm definition	Absolute frequency	Relative frequency
micro	192	18.1%
small	612	57.9%
medium	252	23.8%

4.2 LEADERSHIP AND PARTICIPATION IN WORKPLACE HEALTH AND SAFETY PROMOTION

The level of leadership and participation in workplace health and safety promotion in Czech family manufacturing firms was found out based on questions presented in the table 5, where an overall evaluation is as well. Answers to each question depending on the size of Czech family manufacturing firms are in the tables 6 to 10.

Table 5: Principals and process of workplace health and safety promotion

Question	Answer	Absolute frequency	Relative frequency
Does your firm have explicitly stated strategy that support health and safety in the workplace?	yes	563	53.3 %
	no	493	46.7 %
Does your firm have code of ethics whose principles support health and safety in the workplace?	yes	360	34.1 %
	no	696	65.9 %
Does your firm have sufficient resources (financial, personnel, spatial, further education, etc.) to support health and safety in the workplace?	yes	736	69.7 %
	no	320	30.3 %
Are workplace health and safety promotion measures integrated into existing structures and procedures?	yes	847	80.2 %
	no	209	19.8 %
Are all employees informed about health and safety promotion projects?	yes	824	78 %
	no	232	22 %

The first two questions cover the concept (principles) of workplace health and safety promotion, the remaining three questions cover the practical implementation (processes).

For further identification, Chi-square test was used to determine whether there is a relationship between specific health principle or process and the firm size. Results are in the tables 6 to 10 with their respective absolute frequencies and statistical test results (p-value compared to significance level 0.05).

H₀: Existence of explicitly stated strategy that support health and safety in the workplace and firm size are not dependant.

H₁: Existence of explicitly stated strategy that support health and safety in the workplace and firm size are dependant.

First question was targeted at the firms' explicitly stated strategy that support health and safety in the workplace. Even though, there was only a minor difference in the total ratio of 'yes' to 'no' answers, more differences are visible between various firm sizes. From 192 micro firms, only 84 have explicit strategy that support health and safety in the workplace. In the second category, small firms, from 612 in total, most of the answers were positive (331 'yes' to 281 'no'). Lastly, out of 252 medium firms, 156 answered 'no' and only 96 'yes'. It is also possible to state, that firm size and existence of explicitly stated strategy that support health and safety in the workplace are not related (p-value <0.05). Thus null hypothesis was rejected (see table 6.).

Table 6: Does your firm have explicitly stated strategy that support health and safety in the workplace?

Answer	Firm size			Total
	Micro	Small	Medium	
No	108	281	104	493
Yes	84 (43.8 %)	331 (54.1 %)	148 (57.7 %)	563
Total	192 (100 %)	612 (100 %)	252 (100 %)	1056
P-value	0.000*			

* P-value <0.05

H₀: Code of ethics, whose principles support health and safety in the workplace and firm size are not dependant.

H₁: Code of ethics, whose principles support health and safety in the workplace and firm size are dependant.

Principles that support health and safety in the workplace are a part of code of ethics in only 360 firms out of 1056 in total (695 answered 'no'). Therefore, majority of micro, small and medium firms answered 'no' to the question. Biggest difference is in the category small firms, where only 192 firms have code of ethics whose principles support health and safety in the workplace. According to the calculated p-value (0.003), null hypothesis was rejected, results are statistically important and there is significant difference in the answers and firm category (see Table 7).

Table 7: Does your firm have code of ethics whose principles support health and safety in the workplace?

Answer	Firm size			Total
	Micro	Small	Medium	
No	132	420	144	696
Yes	60 (31.3 %)	192 (31.4 %)	108 (42.9 %)	360
Total	192 (100 %)	612 (100 %)	252 (100 %)	1056
P-value	0.003*			

* P-value <0.05

H₀: Sufficient resources to support health and safety in the workplace and firm size are not dependant.

H₁: Sufficient resources to support health and safety in the workplace and firm size are dependant.

From 1056 firms in total, 736 (69.7 %) believe, that they have sufficient resources to support health and safety in the workplace. Unfortunately, there is still a significant number of firms that lack the resources for this goal to achieve. Even though the resources are not divided here into the categories, we can mention, that 36 micro, 188 small and 96 medium firms are lacking fundamental resources for support health and safety in the workplace. With p-value lower that the significance level (p-value 0.000<0.05), we can also reject null hypothesis and state, that firm size and resources for health and safety in the workplace are dependant (see Table 8).

Table 8: Does your firm have sufficient resources (financial, personnel, spatial, further education, etc.) to support health and safety in the workplace?

Answer	Firm size			Total
	Micro	Small	Medium	
No	36	188	96	320
Yes	156 (81.3 %)	424 (69.3 %)	156 (62 %)	736
Total	192 (100 %)	612 (100 %)	252 (100 %)	1056
P-value	0.000*			

* P-value <0.05

H₀: Health and safety promotion measures integration into the existing structures and procedures and firm size are not dependant.

H₁: Health and safety promotion measures integration into the existing structures and procedures and firm size are dependant.

Fourth question was about integration of health and safety promotion measures into the existing structures and procedures. Only 209 (19.8 %) firms responded negatively. Most of firms (847 - 80.2 %, out of 1056 in total) stated, they have already integrated these measures into their procedures. Only small number of firms in respective categories (24 micro, 137 small and 48 medium) responded with 'no' to the question. From the statistical point of view, it is possible to accept null hypothesis, whereas p-value of 0.011 was lower than significance level (0.05). Therefore, firm size and integration of health and safety promotion measures into the existing structures and procedures are not dependant (see Table 9).

Table 9: Are workplace health and safety promotion measures integrated into existing structures and procedures?

Answer	Firm size			Total
	Micro	Small	Medium	
No	24	137	48	209
Yes	168 (87.5 %)	475 (77.6 %)	204 (81 %)	847
Total	192 (100 %)	612 (100 %)	252 (100 %)	1056
P-value	0.011*			

* P-value <0.05

H₀: Employees information about health and safety promotion projects and firm size are not dependant.

H₁: Employees information about health and safety promotion projects and firm size are dependant.

Lastly, respondents were surveyed about their information sharing in the health and safety projects area. Out of 1056 companies, 219 (20.7 %) answered 'no' and 837 (79.3 %) answered positively 'yes'. Similarly, as in the previous question, only handful of micro (36), small (111) and medium (72) firms do not inform fully their employees about health and safety promotion projects. To interpret results of statistical testing, p-value at 0.002 level, which is less than significance level 0.05, means, that it is possible to reject null hypothesis. Information about health and safety promotion projects and firm size are dependant (see Table 10).

Table 10: Are all employees informed about health and safety promotion projects?

Answer	Firm size			Total
	Micro	Small	Medium	
no	36	124	72	232
yes	156 (81.3 %)	488 (79.7 %)	180 (71.5 %)	824
total	192 (100 %)	612 (100 %)	252 (100 %)	1056
P-value	0.002*			

* P-value <0.05

It is possible to deduce from the above stated results that when it comes to conceptual (principle) questions about workplace health and safety promotion, the situation is not positive in Czech family manufacturing firms even when it comes to strategies that support health and safety in the workplace, or when it comes to existence of ethical codes whose principles support health and safety in the workplace. Even though small, medium firms show in 54.1 % (respectively 57.7 %) cases existence of strategy, it is only smaller majority above 50 %. In micro firms the percentage of firms, which have strategy, reaches only level of 43.8 %. Based on tests of dependency we can state that with the growth of the size of the company existence of strategy that support health and safety in the workplace grows as well.

When it comes to existence of the code of ethics, whose principles support health and safety in the workplace, situation is even worse – not even one size category of companies reaches at least 50 % of the level of existence of the codex (micro 31.3 %, small – 31.4 % and medium – 42.9 %). Based on tests of dependency we can state that with the growth of the size of the company existence of the code of ethics, whose principles support health and safety in the workplace grows as well.

When it comes to sufficient resources (financial, personnel, spatial, further education, etc.) to support health and safety in the workplace, the situation is much more positive. All size categories of Czech family manufacturing firms reach good level of existence of these resources (micro – 81.3 %, small – 69.3 % and medium – 62 %). Based on tests of dependency we can state that with the growth of the size of the company, resources to support health and safety in workplace decrease.

The situation of integration of health and safety promotion measures into the existing structures and procedures is also positive. Most of firms (micro – 87.5 %, small – 77.6 % and medium – 81 %), without relevance, if it is micro, small, or medium firm, have promotion measures integrated into the existing structures and procedures.

Informedness about health and safety promotion projects in the workplace is in all size categories on high level (micro – 81.3 %, small – 79.7 % a medium – 71.5 %). Based on tests of dependency we can state that with the growth of the size of firm, informedness of workers about health and safety promotion projects in the workplace decreases.

Overall, we can say that even if the situation in conceptional (principle) questions of workplace health and safety promotion is not good, to authors' surprise, Czech family manufacturing firms manage implementation (processes) of workplace health and safety promotion very well. Probably it is not necessary to have explicitly stated strategy that supports health and safety in the workplace and code of ethics whose principles support health and safety in the workplace to reach good or very good level, and that owners or the highest managers of firms are, even without these two documents, clear on how to approach workplace health and safety promotion. However, these two documents can complement these activities not only in order, but can also be a sort of formal declaration of the approach of the company to the questions of workplace health and safety promotion.

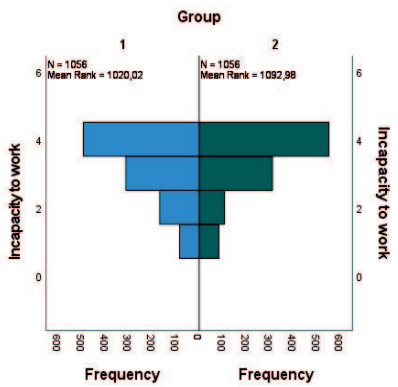
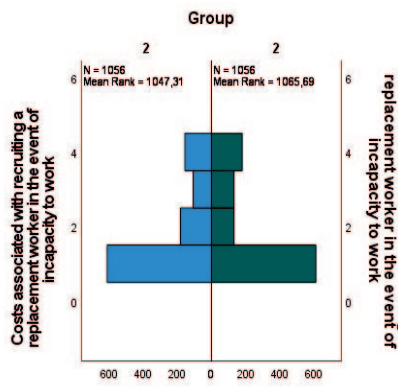
That is why the authors of this article recommend Czech family industrial firms of all sizes to focus not only on forming the strategy and ethical code of workplace health and safety promotion, but also on the practical implementation (processes) of workplace health and safety promotion to try to reach even better results, especially when it comes to small and medium companies in providing resources to support health and safety in workplace.

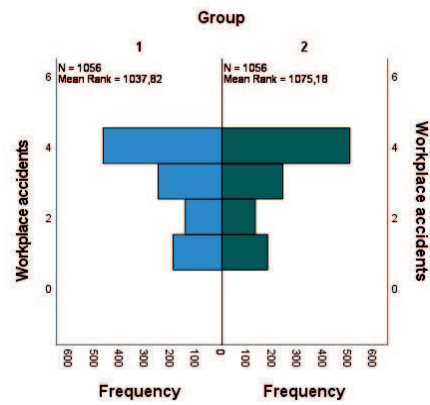
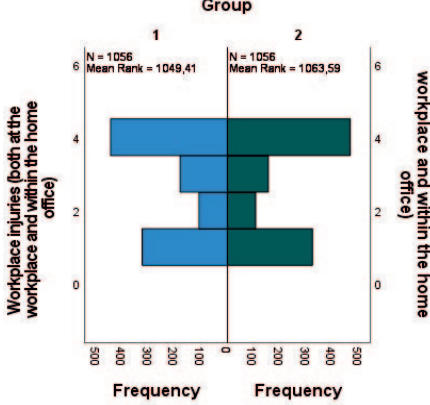
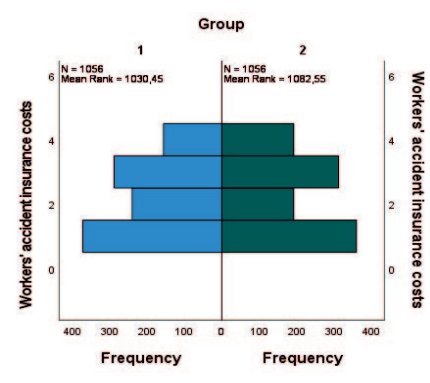
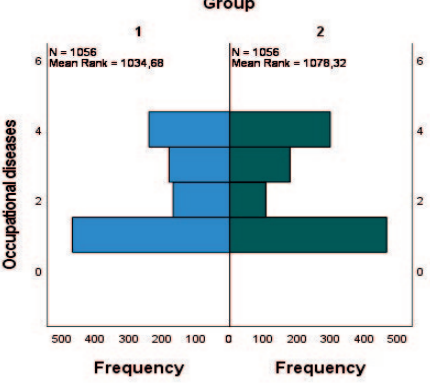
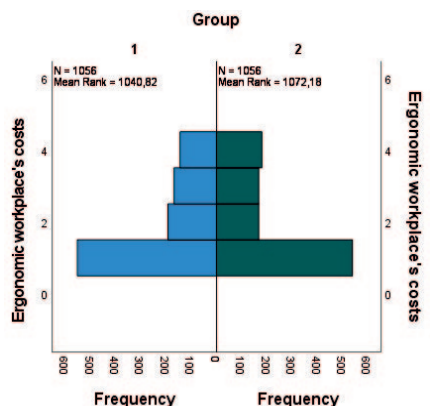
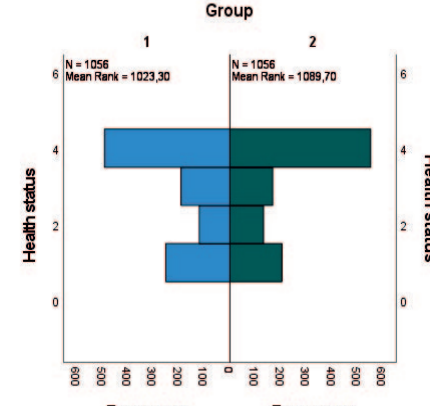
4.3 PHYSICAL HEALTH AND SAFETY KPIS

First category of KPIS was used to determine, whether firms in question use any significant and explicitly stated physical health and safety measures appropriate for micro, small and medium firms. From the collected answers, 10 KPIS out of 11 recommended were registered: incapacity to work; costs associated with recruiting a replacement worker in the event of incapacity to work; workplace accidents; workplace injuries (both at the workplace and within the home office); worker's accidents insurance costs; occupational diseases; ergonomic workplace's costs; health status; job related risk level and workers' physical health and safety costs. The fact that firms use 10 out of 11 recommended indicators (they do not use only costs associated with training a replacement worker in the event of incapacity to work) can be seen as a very positive result. The questionnaire allowed an addition of own indicators, which are used, however none were added.

To find out the importance of specific KPI (how frequently is KPI used, how important it is to management, how many resources are allocated), scoring system on a 4-degree scale was used, where 1-indicator not in use, 2-indicator in use, but with minor significance, 3-indicator in use, with moderate significance, 4-indicator in use with high significance. Due to our survey design, it was also highly important to notice changes in the scoring. Specifically, change from the before pandemic time and after the pandemic spread. Changes were tested with non-parametric Wilcoxon signed rank test. Indicators changes are visible in the table 11 with graphs (positive ranks – count of increased scores, negative ranks – count of decreased scores, ties – same score in both groups).

Table 11: Physical health and safety KPIS statistical results

1. Incapacity to work	2. Costs associated with recruiting a replacement worker in the event of incapacity to work
	
<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 144 Ties = 900 Total = 1056</p>	<p>P-value = 0,000* Negative ranks = 24 Positive ranks = 84 Ties = 948 Total = 1056</p>

3. Workplace accidents	4. Workplace injuries (both at the workplace and within the home office)
	
<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 60 Ties = 984 Total = 1056</p>	<p>P-value = 0,134* Negative ranks = 36 Positive ranks = 48 Ties = 972 Total = 1056</p>
5. Workers' accidents insurance costs	6. Occupational diseases
	
<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 108 Ties = 936 Total = 1056</p>	<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 120 Ties = 924 Total = 1056</p>
7. Ergonomic workplace's costs	8. Health status
	
<p>P-value = 0,000* Negative ranks = 0 Positive ranks = 84 Ties = 972 Total = 1056</p>	<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 132 Ties = 912 Total = 1056</p>

9. Job related risk level	10. Workers' physical health and safety costs
<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 144 Ties = 900 Total = 1056</p>	<p>P-value = 0,000* Negative ranks = 12 Positive ranks = 144 Ties = 900 Total = 1056</p>

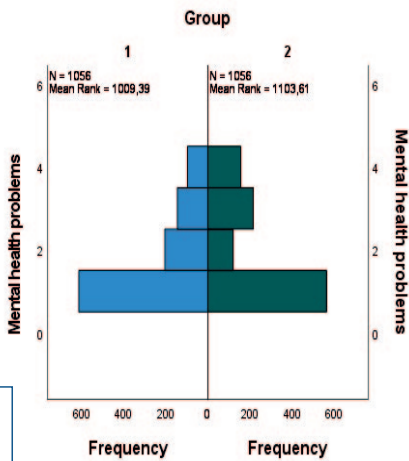
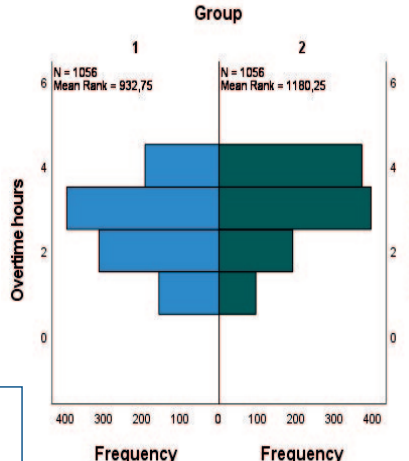
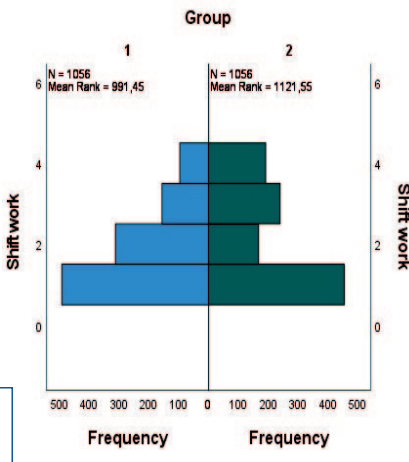
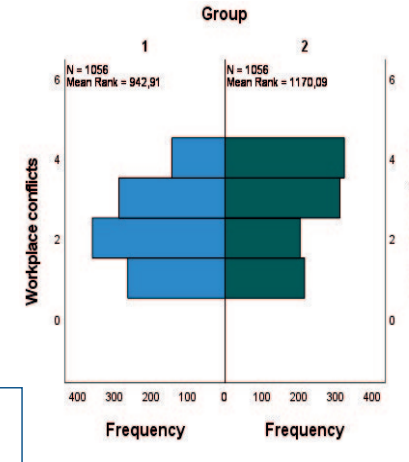
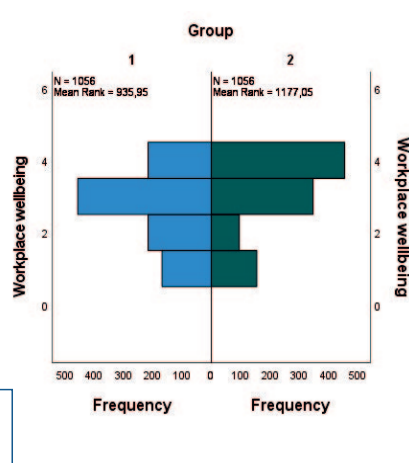
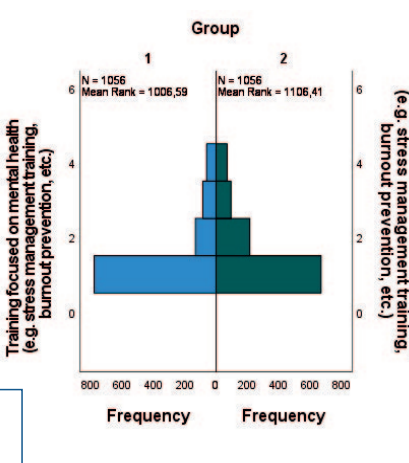
H₀: There is not a difference in physical health and safety KPIs scores before and during pandemic.

H₁: There is a difference in physical health and safety KPIs scores before and during pandemic.

To analyse results from physical health and safety KPIs, it is possible to evaluate positive and negative ranks, which signifies the change before and during pandemic of Covid-19. In all of the 10 cases, change in scoring was mostly positive (number of positive ranks is higher than negative ranks), thus importance of KPIs in physical health and safety category increased during pandemic. Specifically, in 9 cases out of 10 (all KPIs, except workplace injuries, which is logical, because large part of (in some cases all) workers worked from home, the difference was statistically significant (p-value <0.05). Therefore, null hypothesis was rejected and physical health and safety KPIs scoring before and during Covid-19 pandemic changed significantly. Firms really realised that workers and their physical health and safety is the most important assumption for firm's functioning and competitiveness.

4.4 MENTAL HEALTH KPIs

Second sub-category of health workplace KPIs, consisted of KPIs related to mental health. From the collected answers, all 8 KPIs out of 8 recommended were registered: mental health problems; overtime hours; shift work; workplace conflicts; workplace wellbeing; training focused on mental health (e.g. stress management training, burnout prevention, etc.); healthy lifestyle programmes/benefits; workers' mental health costs. Same system of scoring as in the previous category was used. Respondents scored on the 4-degree scale importance of selected KPIs in the time before and during pandemic. Again, due to our survey design, it was also highly important to notice changes in the scoring. Specifically, change from the before pandemic time and after the pandemic spread. Indicators changes are visible in the table 12 with graphs (positive ranks – count of increased scores, negative ranks – count of decreased scores, ties – same score in both groups). The fact that firms use all 8 recommended indicators, can be seen as a very positive result. Also, in this case there was the possibility to add their own indicators which they use, but it also did not happen in a single case.

1. Mental health problems	2. Overtime hours
 <p>Group</p> <p>1 N = 1056 Mean Rank = 1009,39</p> <p>2 N = 1056 Mean Rank = 1103,61</p> <p>Mental health problems</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 12 Positive ranks = 216 Ties = 828 Total = 1056</p>	 <p>Group</p> <p>1 N = 1056 Mean Rank = 932,75</p> <p>2 N = 1056 Mean Rank = 1180,25</p> <p>Overtime hours</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 0 Positive ranks = 348 Ties = 708 Total = 1056</p>
3. Shift work	4. Workplace conflicts
 <p>Group</p> <p>1 N = 1056 Mean Rank = 991,45</p> <p>2 N = 1056 Mean Rank = 1121,55</p> <p>Shift work</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 0 Positive ranks = 288 Ties = 768 Total = 1056</p>	 <p>Group</p> <p>1 N = 1056 Mean Rank = 942,91</p> <p>2 N = 1056 Mean Rank = 1170,09</p> <p>Workplace conflicts</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 12 Positive ranks = 396 Ties = 648 Total = 1056</p>
5. Workplace wellbeing	6. Training focused on mental health (e.g. stress management training, burnout prevention, etc.)
 <p>Group</p> <p>1 N = 1056 Mean Rank = 935,95</p> <p>2 N = 1056 Mean Rank = 1177,05</p> <p>Workplace wellbeing</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 12 Positive ranks = 372 Ties = 672 Total = 1056</p>	 <p>Group</p> <p>1 N = 1056 Mean Rank = 1006,59</p> <p>2 N = 1056 Mean Rank = 1106,41</p> <p>Training focused on mental health (e.g. stress management training, burnout prevention, etc.)</p> <p>Frequency</p> <p>P-value = 0,000* Negative ranks = 0 Positive ranks = 144 Ties = 912 Total = 1056</p>

7. Healthy lifestyle programmes/benefits	8. Workers' mental health costs
<p>P-value = 0,000* Negative ranks = 0 Positive ranks = 276 Ties = 780 Total = 1056</p>	<p>P-value = 0,000* Negative ranks = 0 Positive ranks = 156 Ties = 900 Total = 1056</p>

H₀: There is not a difference in mental health KPIs scores before and during pandemic.

H₁: There is a difference in mental health KPIs scores before and during pandemic.

Due to increase in all 8 KPIs scores (all 8 KPIs have more positive ranks than negative), it is possible to note, that mental health KPIs were given more importance during Covid-19 pandemic. It is also vital to mention, that in 5 cases out of 8, there were no negative ranks. This means, that there was no negative change in scores in more than half of the cases. To evaluate hypothesis, statistical test Wilcoxon signed rank test was used. Due to levels of p-values less than significance level 0.05 in all 8 cases, null hypothesis was rejected. Therefore, there was found a difference between scoring of mental health KPIs before and during pandemic. In other words, pandemic situation changed (positively) significance of selected mental health KPIs.

To sum up, when it comes to health KPIs, firms use (with one exception) all recommended indicators, which shows that they realised that workers and their, especially mental health, not only physical health, and safety, is the most important assumption of firm's functioning and competitiveness.

5 CONCLUSION

This article focused on the questions of workplace health and safety promotion in family manufacturing firms in the Czech Republic. The theoretical basis of this study is based on the literature; foreign literature, in particular, from the point of view of research in the Czech Republic, is very rich—Czech literature dealing with this issue is very limited. Therefore, it was drawn mainly from foreign sources.

Within the methodology of the paper the first step in solving the scientific problem was to conduct a vast literature review, which resulted in the purpose of this article which was to find out with questionnaire survey, how Czech family manufacturing firms approach workplace health and safety promotion. In the next step the stated goal resulted in the formulation of three research questions: (Q1) How do the Czech family manufacturing firms promote workplace health and safety?: (Q2) Do Czech family manufacturing firms use any KPIs for evaluation of workplace health and safety promotion?: (Q3) If yes, were these changed during the pandemic? This also led to formulation of corresponding hypotheses.

Subsequently, in May 2021, a survey was conducted in the form of an online questionnaire survey based on a structured questionnaire (previously developed by the authors and verified by the Focus Group method and tested by pilot study). The initial population for sample selection included 3895 enterprises of the family manufacturing firms in the Czech Republic, where the return was 27.1 % (a total of 1056 questionnaires were returned). The results of the survey were processed and evaluated using IBM SPSS Statistics 23.0 software. Also statistical test results (p-value compared to significance level 0.05) and non-parametric Wilcoxon signed rank were used for evaluation of the data obtained. During the discussion, the results of the survey were analysed and commented on in detail, from which more general conclusions were drawn in the researched area, which served as a starting point for formulating further directions of possible research on this issue, which are outlined below.

The results of the questionnaire survey and hypotheses testing answered the three formulated research questions in the following way. The answer to research question Q1 is: Czech family manufacturing firms promote workplace health and safety on relatively very good level (81.3 % micro, 69.3 % small and 62 % medium firms have sufficient resources (financial, personnel, spatial, further education, etc.); 87.5 % micro, 77.6 % small and 81 % medium firms have workplace health and safety promotion measures integrated into existing structures and procedures; 81.3 % micro, 79.7 % small and 71.5 % medium firms ensure that employees are informed about health promotion projects), surprisingly even without conceptual basis of this activity, when it comes to practical implementation (processes) of health and safety promotion. The level of conceptual (principle) questions about workplace health and safety promotion is not good (only 43.8 % micro, 54.1 % small and 57.7 % medium firms have explicitly stated strategy that support health and safety in the workplace and only 31.3 % micro, 31.4 % small and 42.9 % medium firms have code of ethics whose principles support health and safety in the workplace. This area should be improved very much.

The answer to research question Q2 is: Yes, Czech family manufacturing firms use 10 out of 11 physical and 8 out of 8 mental health and safety KPIs proposed as suitable for micro, small and medium sized firms to evaluate the promotion of health and safety in the workplace, which is a positive result, because only based upon clearly set KPIs, it is not only possible to measure the actual state, follow progress of workplace health and safety promotion in the firm, but especially draft activities of which implementation would lead to improvement of quality of workplace health and safety promotion of workers. No other indicators are used, which shows high quality of the content of the questionnaire drafted by authors for evaluation of workplace health and safety promotion in Czech family manufacturing firms.

The answer to research question Q3 is: Yes, because of pandemic there were changes in KPIs used for evaluation of workplace health and safety promotion. It is obvious that pandemic situation changed (positively) significance of selected health and safety KPIs.

The answers to most questions, with the exception of question related to sufficient resources (financial, personnel, spatial, further education, etc.) to support health and safety in the workplace, correspond with the authors' expectations. The results obtained by the survey cannot be compared with any similar survey, as none have been carried out in the Czech Republic so far.

The limiting conditions of the survey can be seen in the return rate of the questionnaires sent, which was 27.1 %. Generalizing the findings of this study must be taken with care, as the findings are based on a one-sectional sample in one country, moreover, probably do not include all family manufacturing firms, because of the reason of non existing information in Companies Database of the Czech Republic, which would allow to identify, if these are or are not family industrial firms. Future research can build on the findings of this research, which can be considered as a pilot research.

The authors see further direction of research in focusing also on companies from other branches, because the criteria of KPIs, on which it is possible not only to evaluate the workplace health and safety promotion, but also to define activities of which implementation would lead to improvement of quality of workplace health and safety promotion of workers, are different in other branches.

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