
RESPONSIBILITY OF THE EMPLOYERS AND EMPLOYEES IN
HUNGARY: THE IMPORTANCE OF HYGIENE
DURING THE PANDEMIC.

József POÓR

Department of Management, Faculty of Economics and Informatics,
J. Selye University, Komárno, Slovakia

Szilvia MÓDOSNÉ SZALAI

Faculty of Economics and Informatics, J. Selye University, Komárno, Slovakia

Szonja JENEI

Faculty of Economics and Informatics, J. Selye University, Komárno, Slovakia

Judit MOLNÁR

Faculty of Agricultural and Food Sciences,
Széchenyi István University, Mosonmagyaróvár, Hungary

Received: 02. August 2021 Reviewed: 11. October 2021 Accepted: 05. November 2021

Abstract

Our aim with this paper was to describe the pandemic situation caused by COVID-19 and the liability issue of employees and employers. The research was conducted in Győr-Moson-Sopron County in Hungary, and the results were examined within the framework of quantitative research. We investigated the values experienced by the economic operators. The behavior of the employees was also evaluated from a psychological point of view. During the crisis, health protection and hygiene have become of particular importance. We found that governments and health authorities are usually questioned when examining liability, but employers and employees can also significantly prevent infections and save lives. We discussed in our study the former and current attitudes of the organizations towards ensuring general, food and sanitary hygiene, as well as behavior patterns of the employees. We believe that the findings and lessons of this article are well applicable and can be used in both present and post-pandemic situations.

Keywords: hygiene, pandemic, corporate responsibility, behavioral patterns, eating and sanitary circumstances.

JEL Classification: H12, M12, M14

Introduction

A relatively rare topic studied by researchers is the vulnerability and expectations of workers in their workplaces, even during a pandemic. There are growing appeals for acting. If we do not take action, we will lose an even more active and valuable labor force (ILO, 2020). We believe that our publication will fill a gap and be exploratory. We start our literature review on the history of epidemics because we can learn from the past (Diamond, 2019). Several factors can influence the impact of an epidemic on the population. These components differ from disease to disease and from pathogen to pathogen, but the development of population density and the route of spread of the disease are also significant factors (Mende, 2015). Influencing elements can also include occupational hygiene.

When creating our model, we consider the lessons and the characteristics of the pandemic and society and identified four interdependent leaders. Our publication focuses on employees, so we deal with the tasks and reactions of the management and the human resources (HR) department.

The previously mentioned HR organization has a significant role in developing and combining atypical and standard work schedules. After all, we point out that the development of occupational health and safety requires two factors: the responsible company and the other is the mature personality of the employees. We conclude our theoretical summary by presenting the pathogens and emphasizing the importance of food and personal hygiene. We believe that a quantitative procedure with online questionnaires is the most appropriate for our research. Although we cannot provide representativeness, we can shed light on essential contexts related to our topic. Thus, we examine, among other things, the relationships between managerial effort and employee compliance and further employee expectations and compliance as well.

Theoretical background

As mentioned in the introduction, our literature review covers several disciplines. In our view, the following information plays an essential role in compiling a cognitive questionnaire that fits our topic and in making a suitable study for testing our basic idea (Banerjee & Duflo, 2019).

History of epidemics

At the level of society, it is essential to distinguish between wars and epidemics among the threats lurking for humanity. Related to this topic is the book Diamond (2019). According to the author, wars and murders accompany our history. However, the technical development and the attitude arising from intelligence significantly influence their outcome on the number of deaths. Due to the low population density in tribal societies, epidemics are less destructive, wars are much more common, while in densely populated areas, infectious diseases are mentioned as the most common cause of death, and wars and murders are less common (Reyes et al., 2013). In this connection, it should also be mentioned that several studies have also highlighted that in densely populated regions, higher levels of health care often result in lower levels of communicable diseases and morbidity (Hamidi, Sabourih & Ewing, 2020).

Various researches have also shown that, out of these two threats examining their effects, epidemics are the winners because they claim far more lives

than wars and terrorist attacks (Kun et al., 2021). One of the most important findings of the author is that we can successfully prepare for the challenges of the future if we intelligently understand everything possible from the past (Christopher et al., 2004). In every crisis, there is the potential for development, for positive changes, for exploiting the opportunities arising from the crisis (Diamond, 2019). In addition, of course, we may encounter new areas and challenges where old, well-proven methods cannot be applied without modification. We can only rely on our previous knowledge (Sheffi, 2017).

It is worth mentioning the epidemics that have wreaked the most significant devastation locally or globally in human history. The plague, also known as the Black Death, struck Europe in the 14th century, killing millions of people, 60-70% of the population in some countries. Overcrowded areas and poor sanitary conditions accelerated the spread of the infection. In order to prevent the spread of the disease, the quarantine institution was first applied in Italy. The word 'quarantine' means 40 days. During this pandemic, the actual and potential carriers of the disease were first isolated (Forrai & Barcs, 2018). Many people are familiar with the great plague in London, which claimed nearly a hundred thousand lives. During this time, the importance of social distancing became clear (Turner, 2018).

During the cholera epidemic, the importance of various public health measures was highlighted. The spread of the epidemic and the collected statistical data were plotted on a map by a London-based doctor, John Snow. Thanks to his research, many lives have been saved by using clean water instead of sewage and realizing the importance of handwashing (Romsics, 2017).

The most effective defense in the fight against epidemics is the development of vaccines. In 1796, Edward Jenner, an English physician, invented the first vaccine in the world. He extracted the active ingredient of the smallpox vaccine from the blood of dairy girls who had previously undergone the infection (Opriessnig et al., 2021). The coronavirus, released in 2019, caused health and economic damage in all countries worldwide in the following year. Effective defense required innovative researchers and doctors like Edward Jenner. Hungary is proud of Katalin Karikó (Trouillard, 2020), who comes from Hungary and has played a crucial role in developing the COVID - 19 vaccine. The biologist graduated from the University of Szeged and currently fills a leading position at a company in Germany, which is revolutionizing cancer drug development. The Pfizer vaccine was developed based on high-speed technology. It does not contain the virus's entire genome and does not cause infection.

More than 900 innovators and business people participated in empirical research. Close to half of them believe that the lesson of the pandemic is that decision-makers, business people, and politicians all over the world may realize that much more money needs to be spent on education, science, and health care from the budget (Anderson, Rainie & Vogels, 2021). They can satisfy themselves that teachers who teach the future generation, researchers obsessed with finding solutions to eternal problems, and doctors, nurses who save us by putting their lives at risk, deserve our respect and financial esteem (Újszászi, 2020).

Many government models have been developed to deal with the crisis. The closure-based model has been used in most countries (Hale et al., 2021). A specific model was followed by the Swedish government, where the emphasis was put on individual responsibility. They survived the first three waves of the epidemic with relatively low mortality (14 people / 10,000 inhabitants), and in the value of GDP, there was a much smaller decline (-2.8%) in Sweden than in other countries (-4 and -6%), such as in the EU (Wéber, 2021).

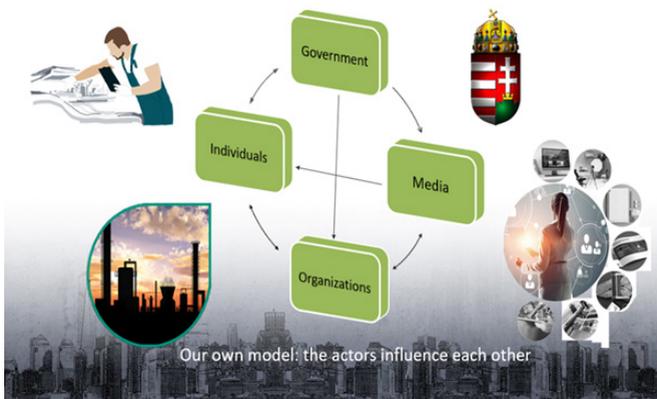
It is essential that we “do not limit our interest to some predatory microorganism.” It is essential to see the bigger picture (Honigsbaum, 2020: 15). In the same vein, it is worth highlighting that “such diseases always have broader environmental and social causes (Honigsbaum, 2020: 15). It is also important to point out in connection with the coronavirus (COVID-19) that the real threat to our civilization is not Covid, but climate change, resource depletion and globalization inequality (Diamond, 2019). Interdependent researchers go even further and believe that “ensuring our health is not possible without ensuring the health of all other living beings” (Einstein, 2021:42). The digital guru and philanthropist of our current world, Gates (2021:288), believes that “innovation, regulation and market structures” that can help solve the problems mentioned above need to be innovated and supported even more than at present.

Models that form the basis of our research

According to the model found in the literature related to our research, health protection includes proactive and preventive measures that became common during the pandemic. Proactive elements include steps to physically prevent the spread of the virus, such as making the use of a face mask mandatory, hand disinfection, frequent surface disinfection, and plexiglass walls when many people are working in large areas and the use of gloves. Preventive tasks aim at screening for potential infections. Among other things, special attention is paid to thermometry and monitoring of employees showing signs of infection. If there is a likelihood of illness, the worker is temporarily banned from work is required to undergo quarantine at home, after which he or she can return to work if the coronavirus test is negative (Cirrincione et al., 2020).

Our model identifies four responsible elements: government, media, organizations, and individuals. All governments have a general strategy to “control the pandemic by slowing down the transmission of the virus and reducing mortality associated with COVID-19” (WHO, 2020:7). The actors consciously and unconsciously influence each other’s actions (Figure 1). In the analysis, we focus not on the elements of the model but the relationships between them.

Figure 1 Responsibility for curbing the spread of the virus



Source: Authors' own research

We first mention the relationship between the organizations and the government. In Hungary, the last one and a half years caused such damage in some industries that the affected organizations cannot recover independently. The government's responsibility is to assess these situations and allocate scarce financial resources most needed. Saving small and medium-sized enterprises is crucial because they are the engines of the economy, the largest employers, the main actors in economic life at the local level (Karácsony, 2020). Government-supported organizations typically retain their employees, so government and organizations affect the individual-organization relationship.

The EY (2021), an international organization of multidisciplinary professional services, surveyed the relationship between individuals and organizations. Their most significant result is that more than half of the workers would change jobs if they were not provided with a certain amount of flexibility and the possibility of working from home even after the pandemic. Executives, civil servants, and employees who have worked for the company for at least ten years insist on their workplace under any circumstances. It is an exciting finding that 61% of the respondents would make vaccination mandatory for office workers. A German research publication listed three reasons for accepting the vaccine:

- news about the side effects of vaccines
- the use of mandatory vaccination
- the characteristics of the responding people (age, gender, income and education)

Regarding the relationship between government and employers, Kőmúves and Berke (2021) found that in order to deal with labor market anomalies and retain the workforce, enterprises alone are not enough. Practical government actions and measures are needed in both the field of education and tax policy.

Companies are thinking long-term and also focus on retaining the workforce during this crisis. In terms of the relationship between the organization and individuals, several firms struggled with a shortage of skilled labor before the pandemic, so retention management has become a key area of human resource management in recent years (Poór et al., 2021d). Teleworking plays a significant role, as employees who work at home during the crisis and perform their duties remain valuable organization members (Kőmúves and Berke, 2021). Regarding the coronavirus pandemic, it is worth noting that most workers were unfamiliar with the concept of health improvement before the crisis. A sense of well-being was enhanced by wages, appreciation from managers, and extra cash rewards. If the working atmosphere is more pleasant, calmer and more balanced, it will be better. Most of the stress is caused by high workloads, ensuring customer satisfaction, and improper contact with the leaders.

According to research by Berke, Schmidt and Kőmúves (2021), 55% of respondents do not like working in their current job. Improving the quality of the relationship between managers and subordinates can be vital to the solution. If we feel that the leader recognizes us, counts on us, and considers our opinions, it is often worth more than wages and other motivating factors. Improving social distancing and health safety measures can increase workers' aversions. Despite all good intentions, it is difficult to determine the sequence of steps that will best protect the health of citizens and make the economy work. Most governments responded to the crisis relatively quickly, even before the excessive increase in the number of deaths. However, the financial protection measures that affected and helped companies came later than the decisions that led to the closure of borders and shops. Measures that most affect individuals include restricting the opening hours of stores and switching to online education. Provisions

affecting companies include wage subsidies, rent freezes, and credit moratoriums (Hale et al., 2021). (Comments: In the next paragraph, we outline the relationship between the government and the media.)

A study finds that if the government is an active player in social media, it strengthens citizens' positive opinions and trust in government transparency (Song and Lee, 2015). In this way, governments can promote their measures to protect health. Many citizens still obtain information from local, print media. Newspapers around the world are struggling with funding problems. According to the financial model developed in Australia, advertising revenues, subscription fees, and sums from the disclosure of government information maintain the operation of newspapers. A \$ 4.5 million advertising support package was applied in the country. They were encouraged to show solidarity with the slogan found in the local print media: „We are all in this together.“

We need to draw attention to the dangers of online misinformation. According to research conducted in Arkansas, USA, false claims, misleading information, false cures and treatments published in the media during a pandemic undermine the government's efforts against the disease and threaten consumers' physical and financial security (Marcoux et al., 2021). Several factors influence the administration of vaccines against the COVID-19 virus. These include the informative and misinformative effects of the media. There is an urgent need and much work to be done through strategic communication to form an objective image (Viswanath et al., 2021). An international study has found that scientists, as a disseminator of factual and reliable information, have played a key role in improving resilience against misinformation at the societal level. Further research is needed to understand what influences the reception, processing, and dissemination of false information (Roozenbeek et al., 2020).

Dr Tedros Adhanom Ghebreyesus, the Director of the World Health Organization (WHO), set out the overarching concept of our model about responsibility. At the beginning of the crisis, in the spring of 2020, at the Virtual press conference on COVID-19, he stated: „This is not just a public health crisis, it is a crisis that will touch every sector – so every sector and every individual must be involved in the fight. We have said from the beginning that countries must take a whole-of-government, whole-of-society approach, built around a comprehensive strategy to prevent infections, save lives and minimize impact.“ (Ghebreyesus, 2020).

The impact of the pandemic on the operation of companies and HR activities International survey on Covid and HRM

A large-scale, international survey was conducted with several universities in Hungary, Austria, Bosnia-Herzegovina, Bulgaria, Romania and Slovakia, examining the changes in corporate and human resource management activities during the three phases of the pandemic. In our paper, Figure 2 shows the duration of the research phases in Hungary and the number of responding public and private organizations (Poór et al., 2021a and 2021b).

Figure 2 Data of the CoronaHR survey



Source: Authors' own research

One of the critical issues of the research is the change in the order of importance of human functions. In the present case, we focus only on health-preserving activities. Table 1 shows that health care plays an increasing role, moving from eighth to sixth place in the three phases of the pandemic, according to the CoronaHR survey presented in Figure 2.

Table 1 Location of life and health-protecting measures among HR functions

Phase 1	Phase 2	Phase 3
Recruitment, selecting, headcounting, recruitment planning	Recruitment, selecting, headcounting, recruitment planning	Recruitment, selecting, headcounting, recruitment planning
Internal / online communication, providing information	Administration, labour law, labour issues	Workforce retention, motivation, benefit, commitment, satisfaction
Workforce retention, motivation, benefit, commitment, satisfaction	Workforce retention, motivation, benefit, commitment, satisfaction	Administration, labour law, labour issues
Education, trainings, development, e-learning	Internal / online communication, providing information	Internal / online communication, providing information
Wage subsidies, payroll	Education, trainings, development, e-learning	Education, trainings, development, e-learning
Work from home, teleworking, atypical employment	Wage subsidies, payroll	Health and safety in the workplace
Administration, labour law, labour issues	Tasks concerning the pandemic (providing safety tools, dealing with social and psychological problems)	Work from home, teleworking, atypical employment
Health and safety in the workplace	Work from home, teleworking, atypical employment	HR digitalisation, eHR

Source: Poór et al. (2021c)

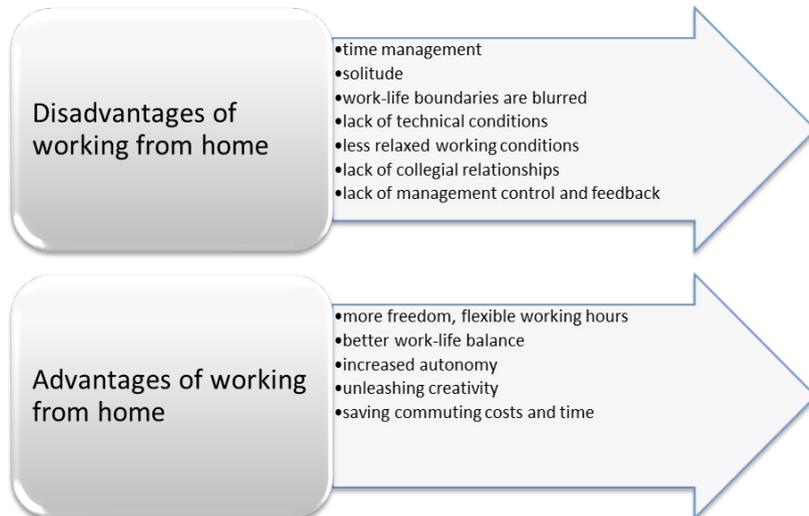
An international research team found that during the COVID-19 pandemic, the practice-oriented exercise of human management functions (training, development, occupational health and safety) had an increased impact on the organization's performance. Protecting health and lives was the most significant challenge for HR professionals in the critical period (Zhong et al., 2021).

Three options: work from home, from the office and hybrid employment

Before the pandemic, barely 3% of Hungarian workers worked from home, which increased to almost 18% during the crisis (CSO, 2020). Regarding working from home, we can say that the workload was reduced for some employees, while it meant full-time workload for others. The phenomenon was observed not only in Hungary but throughout Europe. For those who have never worked from home, 27% complained of reduced free time. The requirements expected by the employer could only be met by sacrificing weekends or extending working hours which has led to work-life balance disturbance, household failures, and difficulties in raising children (Eurofound, 2020). There has been an even more drastic change in the US. Where before the pandemic, 15% of employees worked from home. While during the first wave of the pandemic, almost half of them worked from home (Sull et al., 2020).

Employers should consider telework and hybrid solutions during the phase of recovery. Researches are still ongoing to suggest possible solutions to companies to reconcile the two types of work (Böcskei & Kis, 2020). Working from home is a cost-effective solution, as office costs and cleaning do not have to be counted. It also benefits employees because they do not have to travel and bear its costs. In most cases, personal presence promises specific benefits in sensitive business discussions and decisions. Figure 3 summarizes the advantages and disadvantages of working from home based on the literature (Kazainé, 2020). It is important to emphasize that the positive and negative features presented here are not only Hungarian features.

Figure 3 Advantages and disadvantages of working from home



Source: Authors' own research

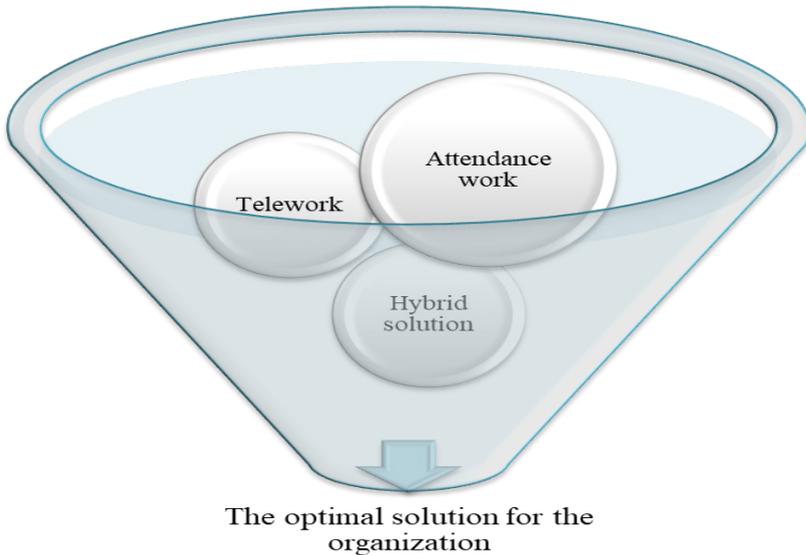
According to another survey conducted in Slovakia, teleworking did not reduce employee satisfaction. The number of people working from home has increased nearly seven times. Many people have only met this atypical form of employment

during the pandemic and, based on their experience, would continue to work from home to some extent. However, organizations need to be careful that isolation, barriers to the flow of information, and marginalization of career opportunities do not override the unquestionable benefits (Karácsony, 2021).

Attendance and teleworking are not the only solutions. A combination of them is also conceivable. It is not yet widespread in Hungary, but it was commonly used in the welfare and creative states (Germany, Great Britain, the Netherlands, Poland, Italy, Denmark, and Austria) before the pandemic, and researchers examined organizational difficulties (Mailand & Larsen, 2018).

In Hungary, work from home has spread due to the coronavirus; therefore, organizations have switched to flexible work forms (Karácsony, 2020). We hope this change in attitude will be enough to select the optimal solution after a pandemic situation.

Figure 4 *Teleworking, attendance work and hybrid employment*



Source: Authors' own research

Responsible organization

The responsible firm integrates self-regulation into the business model. It includes the followings:

- competes hard but fairly,
- provides an attractive return on capital for shareholders,
- manufactures products that consumers like,
- these products make their lives better,
- suppliers want to enter a deal with the company because they benefit from it,
- employees are willing to work for the company and are satisfied with their remuneration and professional development,

- behaves as a good citizen at its premises,
- pays tax on profits (Freeman, 2011).

In a pandemic situation, this list may be supplemented by measures and costs taken for the health and safety of employees. This activity does not contradict the need for long-term profitability. Employers must consider lost human lives and human knowledge capital leaving the irresponsible company.

The results of a survey conducted in Hungary in 2020, involving 277 responding organizations, draw attention to the fact that responsible companies place great emphasis on creating a pleasant work atmosphere, a safe work environment and the opportunity to work from home, which are essential conditions for the success of organizations (Antalik et al., 2020). In times of crisis caused by the coronavirus, ensuring the conditions mentioned before will be a priority. Health protection and safe working conditions are essential to curb the spread of the pandemic. Organizations are trying to introduce home office work in as many jobs as possible. It is essential that organizations, even in isolated circumstances, strive to maintain a pleasant atmosphere and ensure effective online communication between employees through technical devices.

Mature personality

Setting the criteria for a mature personality is worth starting from Erik Erikson's development theory. According to Erikson, the characteristics of a mature personality can be formulated concerning the current developmental state of the individual. Solving the crises and problems that arise in certain stages of life plays an essential role in this evolution. Unresolved crises can result in bottlenecks but are necessary for maturity to enter the next stage of development (Widick et al., 1978).

According to Jeffrey Young, a cognitive therapist and creator of the concept of schema theory, we are born with five primary emotional needs:

- The need for security, stability, acceptance and care.
- The need for autonomy, competence and a sense of identity.
- The need for free expression of emotions and demands.
- The need for spontaneity.
- The need for realistic boundaries.

The author states that if the five basic needs are adequately met in childhood, it plays a vital role in developing mental health. As a result, we can more easily adapt ourselves to the community and other people. Failure to meet the basic needs can lead to mental injuries such as low self-esteem or frequent mood swings. The injured person may be tormented by the following thoughts (Rafaeli et al., 2011).

- People I love always leave me.
- If they get to know me, they find me worthless.
- No one can be trusted.

As a result of early childhood traumas, he still sees the world the same way when a person grows up. In the absence of proper emotional care, fixed relationship patterns make it difficult to adapt to society, the individual's personality may be distorted, and harmful patterns may develop. These include the emotion deprivation scheme, which means that the individual cannot expect an empathic attitude and does not even ask for it after a while. Another such scheme may be low self-esteem, which causes the person to respond to criticism with excessive sensitivity (Bach et al., 2018).

Berentés (2012) developed the complex model of the mature personality. The author is a university lecturer and also practices as a psychotherapist. In the model, she outlined the human qualities necessary for success and happiness. The mature

personality model, supplemented by other significant characteristics identified by other psychologists and researchers, is summarized in Figure 5.

Let us examine each feature in more detail. Mature adults see themselves and the world around them realistically, while immature personalities distort the facts to obtain benefits. Mature individuals form equal relationships, have stable self-esteem, and therefore do not need the praise of others. On the other hand, an immature personality forces success and strives to build excellent relationships. A mature adult accepts other people and is aware that there are many different opinions in the world. As a result of acceptance, the individual does not criticize, qualify, or judge and does not even seek to defeat others (Berentés, 2012).

Figure 5 Characteristics of a mature personality



Source: Authors' own research

An individual with a mature personality is credible, taking responsibility for his actions, which is often preceded by a long journey of self-knowledge. One of the essential characteristics of a mature adult is that he does not blame the circumstances for his fate. Nothing is sure that we have built in our lives (Harwood, Beutler & Groth-Marnat, 2021). Everything can collapse, but we must not linger among the ruins for long; we must move on. Only the person who takes it responsibly can rebuild his life from a difficult situation. Self-pity and complaining refer to emotional deficiencies but not positive changes. The individual is stuck at the level where, in his own opinion, he constantly becomes a victim of the situations and events around him. The key is to recognize that, in fact, most of what happens starts from us, but at least we are

responsible for our reactions to the circumstances (de Vries, 2014).

Emotional immaturity, along with many defining events, in most cases comes from childhood, the early period of our development. As a result of the traumas we have experienced, a break in our personality may occur, constantly affecting our human relationships and responses to others as adults. We often suffer from a lack of love, attention, and care. If a child does not get enough positive reinforcement or perhaps receive too much negative feedback, he or she may suffer a lot later from not feeling lovable and good enough. He strives to meet unrealistic expectations without unconditional acceptance (Ita & Grünhut, 2020).

A significant characteristic of a person with a mature personality is controlling his ego. The primary guideline in our human relations must be the heart, and we must approach other human beings with love, humanity and acceptance. It is also a significant feature that emotionally mature individuals often exercise a sense of gratitude. They give thanks for everything given to them every day in the life, from the tiniest thing to the pains they have gone through. Responsibility is also manifested in their communication. They communicate assertively, they are not afraid to honestly express their opinions, but they also draw their limits, which is a measure of the degree of adult relationships. The mature person keeps his promises to others and himself. He avoids lies, which is often the reaction of a child afraid of punishment. Honesty is accompanied by self-acceptance (Williamson, 1992).

Examining the characteristics included in the model, we can conclude that, without exception, all of them play an essential role in managing the situation and effectively curbing the pandemic. Responsible, mature employees take the use of protective equipment seriously. Their behavior is honest, and if they perceive the symptoms of the disease, they go to quarantine. They face the problems caused by the viral situation, and if disagreement develops with any of their colleagues in a stressful situation, full of fear and uncertainty, they try to resolve it in a mature, patient manner. They realistically perceive the situation and evaluate the rules necessary for defense. They treat their immediate co-workers with understanding, acceptance and patience. They do not give control to the ego.

They are not dominated by selfishness, and they put the community's interests first instead of individual interests. Dedicated employees also consider it essential that the organization continues its operation smoothly and that the required number of employees can work at all times. To this end, they seek to curb the spread of the infection and use protective equipment. Last but not least, we must not forget that individuals with mature personalities are grateful for all the good things they have, including their health, which is the most significant value in life, and its importance in the pandemic situation caused by COVID-19 has become even more significant. As the German philosopher Arthur Schopenhauer briefly stated: „Health is not everything, but without health, everything is nothing.“

Pathogens in the workplace, eating, bathing

The discovery of the viruses has named after Russian research biologist Dmitry Ivanovsky. Viruses are only a few hundred nanometers in size, so an electron microscope can detect them. Their structure consists of a protein coat and a hereditary material in terms of their structure. Mapping their properties is addressed by virology

as a discipline (Lomniczi, 2020). Viruses can only multiply as parasites, so plants, animals, and fungi can also have unique viral diseases. Only a robust immune system can protect against them, and vaccination can help the immune system achieve the most effective protection against the virus.

As a branch of microbiological science, bacteriology deals with studying the scientific, primarily physiological, properties of bacteria (Deák et al., 2006). Bacteria belong to prokaryotic organisms. Their size varies between 0.5-20 µm. The fundamental feature that separates them from eukaryotes is that their genetic stock is not membrane-separated from the cytoplasm (Komáromy, 1996). Most bacteria are harmless or beneficial, but there are also pathogenic pathogens. Antibiotics can be used to fight infections caused by pathogenic pathogens.

Viral control, i.e., adherence to hygiene requirements, the importance of disinfection, and daily testing require even more attention thanks to COVID-19 (Song et al., 2021). In addition to heat treatment during a pandemic, irradiation, use of chemical disinfectants, natural antimicrobials, and other antimicrobial procedures, individual health and immune protection can also be included.

In addition to maintaining personal hygiene, environmental hygiene is also of paramount importance with the emergence of the COVID-19 pandemic. Accordingly, food that does not contain microorganisms (e.g. *Salmonella spp.*, *Escherichia coli*, *Listeria monocytogenes*, *Campylobacter jejuni*), toxins produced by them, or metabolites in quantities that make their consumptions unacceptable to health may serve from the food business premises. However, the catering establishments and self-contained kitchen units where increased compliance and hygiene rules were prioritized before the epidemic.

Factors influencing the activity of microbes, such as temperature, water activity, pH, oxygen demand, also require increased attention during food and food-related operations. The establishment of microbiological criteria guides comprehensive food and food establishments processes.

These criteria, i.e. the revision of critical limits, are carried out through Hazard Analysis and Critical Control Points (HACCP) and other quality assurance systems (GHP (Good Hygiene Practices), ISO (International Organization for Standardization), TQM (Total Quality Management)). Compliance with these rules is strictly monitored by both internal auditors and the authorities when providing workplace meals and stand-alone kitchen units, so the quality products can always be presented to the consumer.

Material and methods

Aim of the research, research questions

Our research aims to examine the individual's responsibility and the organization based on the outlined model. The study was conducted in the region of Western Hungary. Our research questions are the followings:

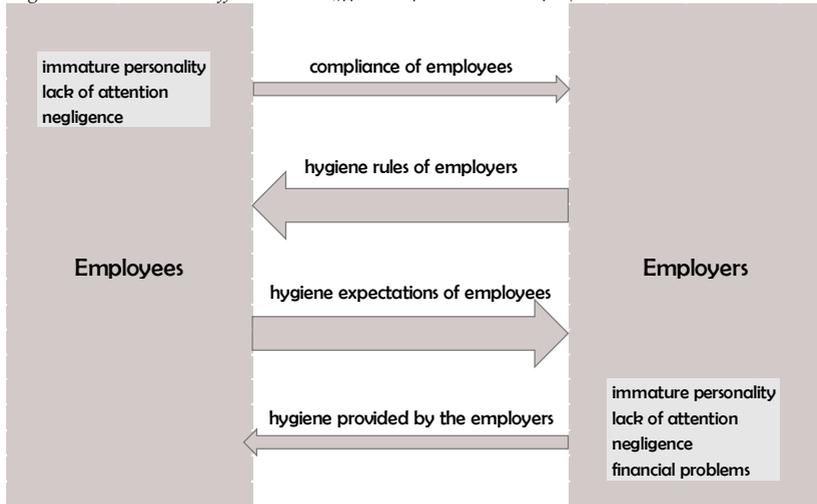
- What hygiene expectations do employees have towards their employer in general and during the pandemic?
- As a mature person, how compliant are the employees? How much do they contribute to preventing the spread of the virus?
- What managerial or subordinate behavior can cause the most significant risk of infection based on the employees' opinion?

Significant differences in hygiene expectations and performance play an essential role in our research (Figure 6). As part of the quantitative study, we performed

computer-assisted data collection. After cleaning and filtering the data, we processed 150 valid responses. Our questionnaire contained only closed questions, and a six-point Likert scale was applied. We used IBM SPSS Statistics 26 and MS Excel programs to process the data.

In addition to the empirical analysis, such as calculating the mean, standard deviation and distribution (Hunyadi and Vita, 2008), we conducted a cross-tabs analysis to explore the correlations (Sajtos & Mitev, 2007). Although our sample cannot be considered representative (Kerékgyártó et al., 2009), our study is exploratory due to the unprocessed nature of the topic, and we consider our conclusions suitable for further research.

Figure 6 Differences in hygiene expectations and performance



Source: Authors' own research

Structure of the questionnaire

In the first part of our questionnaire, we asked about the respondents' demographic data and the essential characteristics of their employers. The following block is about the hygiene of eating circumstances; four cases had to be evaluated with a six-point Likert scale:

- current hygiene
- currently expected hygiene
- pre-pandemic hygiene
- Hygiene required before the pandemic

The third block examines the hygiene of sanitary facilities with a similar structure to the second part but also of great importance. The fourth block was also asked about by Likert scale; we gathered information about the fear and the possibilities of infection in the workplace and management efforts. The fifth section is about assessing

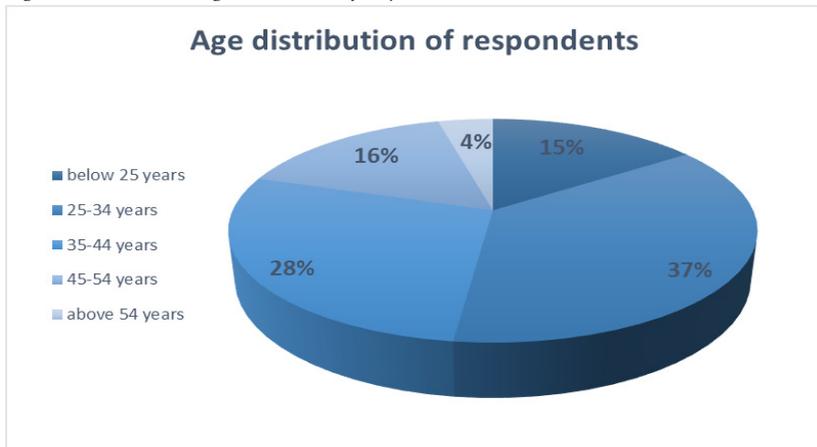
compliance, while the sixth part is about ranking sources of risks.

Demographic and organizational composition of the sample

During the quantitative survey, we received 150 evaluable responses. There were 91 women and 59 men who helped us. Regarding the age distribution (Figure 7), the majority of respondents (37%) are between 25 and 34 years old, while a significant group (28%) are between 35 and 44 years old. The proportion of people under 25 years and between 45 and 54 years, is almost the same, 15% and 16%. The proportion of the respondents over 54 is 4%, but as employment was a condition for completing the questionnaire, we could not expect too many older respondents.

The distribution of respondents by position is characterized by the predominance of white-collar workers (54%). Blue-collar workers are represented by 21%, while the proportion of entrepreneurs and different levels of management remained below 10% (Figure 8). Most respondents could not classify their company's activities in any category (44 people).

Figure 7 Age distribution of respondents

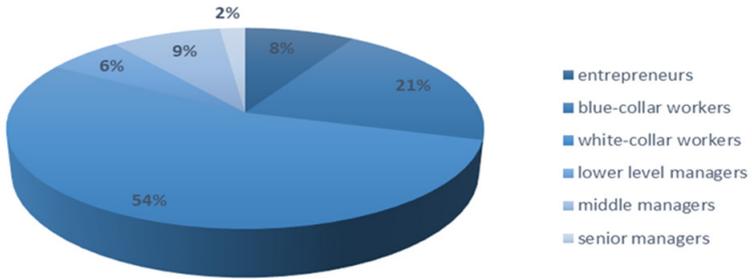


Source: Authors' own research

Figure 8

Distribution of respondents by position

Distribution of respondents by position



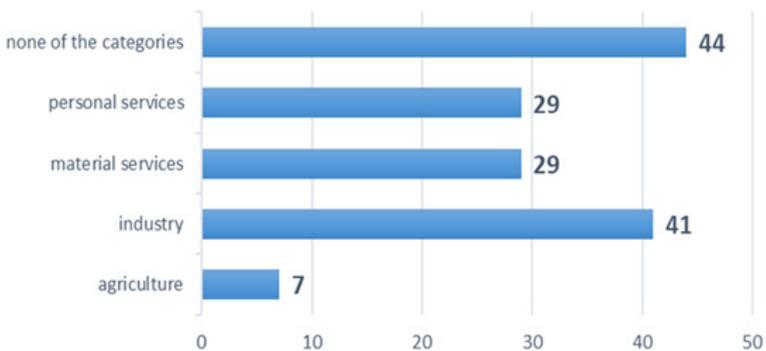
Source: Authors' own research

Forty-one people work in the industry, seven people in agriculture. Employees working in personal and material services were included in the sample with 29 people (Figure 9). Forty-one respondents work for large companies and 40 for medium-sized enterprises. Thirty people are employees of small businesses, 29 work for micro-enterprises, and ten are self-employed (Figure 10).

Figure 9

Main scope of activities of companies

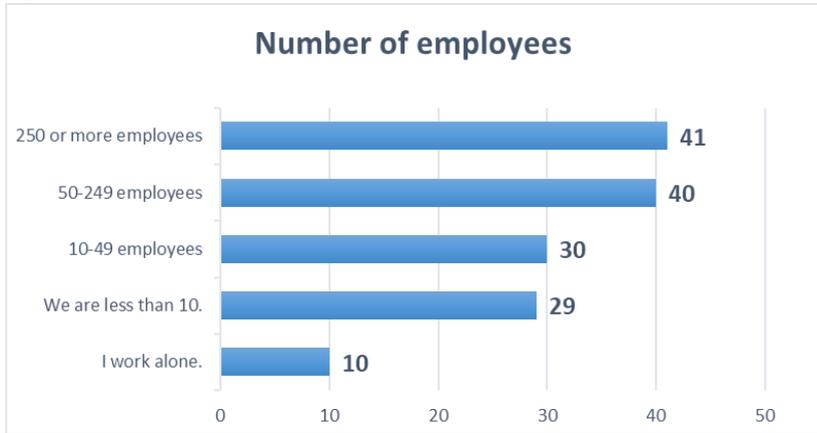
Scope of activities of companies



Source: Authors' own research

Figure 10

Number of employees



Source: Authors' own research

Results and discussion

Empirical analysis

We measured the importance of food and sanitary hygiene on a six-point Likert scale. In both cases, we formed four categories:

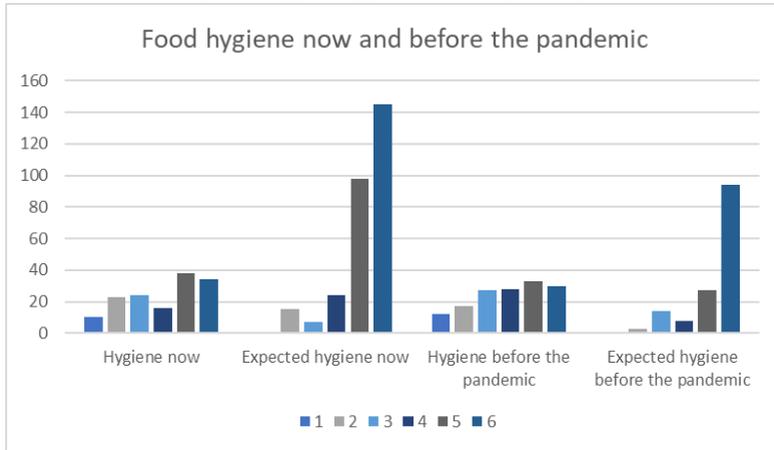
- current real hygiene
- currently expected hygiene
- actual hygiene before the pandemic
- regular hygiene before the pandemic.

In our analysis of hygiene expectations, we must also consider that the gender ratio in the workplace has changed. Typically, the working hours of male workers decreased, women remained at home due to layoffs or family coercion (Eurofound, 2021).

During a pandemic, the expected level of food hygiene is higher (Figure 11). The average values calculated on a scale of 1 to 6 are 5.125 and 5. Expectations are strikingly higher than the actual level of hygiene (5.125 and 4.625).

Figure 11

Importance of food hygiene now and before the pandemic



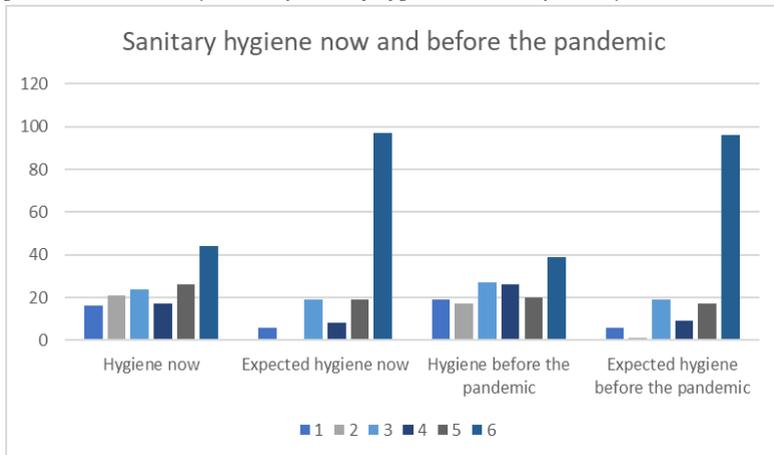
Source: Authors' own research

Based on Figure 12, we found similar correlations concerning sanitary hygiene. (Average value of basic hygiene during a pandemic: 4.625; the average value of expected hygiene during the pandemic: 5, the average value of the actual hygiene before a pandemic: 4.25, the average value of the expected hygiene before a pandemic: 4.875).

In the case of extreme opinions, intense fear or the lack of it is observed, and the attitude focused on the workplace is stronger. However, in the case of moderate fear or caution, life outside the workplace is a more significant source of danger (Figure 13).

Figure 12

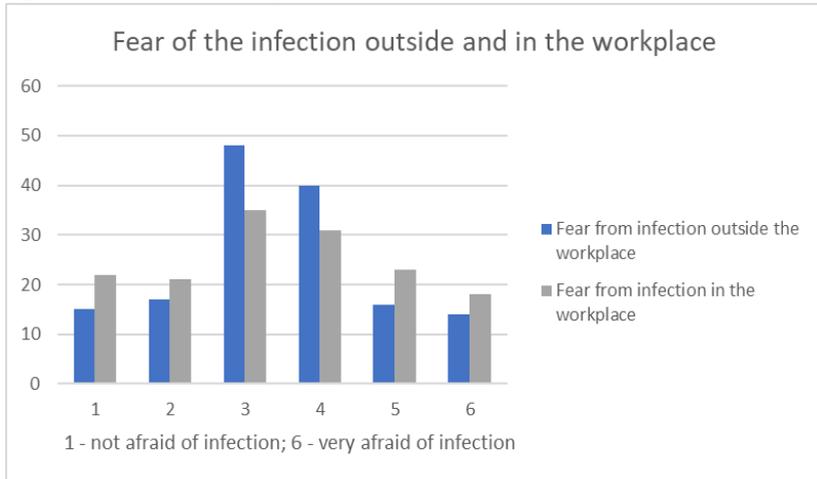
Importance of sanitary hygiene now and before the pandemic



Source: Authors' own research

Figure 13

Fear of infection



Source: Authors' own research

Conclusion

We found the following significant outcomes in our study:

- based on the respondent's position, the expected food hygiene in the workplace is different, and we experienced higher demand for white-collar workers ($p < 0.001$),
- based on the respondent's position, the expected sanitary hygiene in the workplace is different, and there is a higher demand for white-collar workers ($p < 0.001$),
- based on the respondent's position, we found differences in the change of clothes in the workplace, and blue-collar workers changed their clothes frequently even before the pandemic, there is a minimal change during the crisis ($p = 0.001$),
- based on the respondent's position, the degree of observance of hygiene rules is different in the workplace. There is a high level of compliance with the rules among senior managers and entrepreneurs ($p < 0.001$),
- based on the number of employees, toilet hygiene is different in the workplace during the pandemic à individual workers are in a better position, worse hygienic conditions can be observed in large companies ($p = 0.015$),
- the efforts of the management are considered to be more significant, and the workers wash their hands more often ($p = 0.001$),
- as a result of the managers' efforts, the value of cleaning increased or cleanliness had a high value in the past ($p = 0.001$),
- the activity of colleagues is a different source of danger based on the age of the respondents. The middle age group considers colleagues' behavior hazardous ($p = 0.031$).

There are physical causes of workplace infections (Figure 14). These reasons are lack of protective equipment, distance or hygiene.

Figure 14

Hazards of occupational hygiene according to respondent



Source: Authors' own research

However, there are also so-called background reasons that create physical causes. We examined them based on employee opinions. The order of the hazards and the average value are the followings:

1. inattention (average: 3.125),
2. behavior of colleagues (average: 3),
3. lack of leadership, attention (average: 2.75),
4. work activity (2.625).

Limitations and future research

Each constraint is also a chance to continue the research. The analysis was performed in Hungary, but data collection in Slovakia is already underway for comparison, considering Hofstede's cultural dimensions if possible. We only collected employee opinions, but there is the opportunity to examine employer views. Our research took place during the third wave of the pandemic, and sometimes we also asked respondents about the times before the crisis. It would be advisable to conduct a study covering the whole period to follow the changes.

The global labor market will change as a result of the Covid-19 pandemic. We can state that occupational hygiene can become a goal of human resource management (Cotofan et al., 2021). Cleanliness of the work environment is part of employee well-being.

Bibliography

1. Accenture (05/03/2021). *COVID-19: Huge crisis but an unexpected teacher*. Source: <https://www.accenture.com/us-en/blogs/industrialist-blog/covid-19-huge-crisis-but-an-unexpected-teacher>.
2. Adikaram, A. S., Priyankara, H. P. R. & Naotunna, N. P. G. S. I. (2021). Navigating the Crises of COVID-19: Human Resource Professionals Battle Against the Pandemic. *South Asian Journal of Human Resources Management*, 8(1), 1-27.
3. Anderson, J., Rainie, L. & Vogels, A. E. (18/02/2021). *Experts Say the 'New Normal' in 2025 Will Be Far More Tech-Driven, Presenting More Big Challenges*. PEW Research Center. Source: <https://www.pewresearch.org/internet/2021/02/18/experts-say-the-new-normal-in-2025-will-be-far-more-tech-driven-presenting-more-big-challenges/>
4. Antalík, I., Csapó, I., Karácsony, P., Kovács, Á. & Poór, J. (2020). The reasons for the transformation of the Hungarian labor market in the light of domestic empirical research. (In Hungarian.) *Opus et Educatio*, 7(4), 390-401.
5. Bach, B., Lockwood, G. & Young, J. E. (2018). A new look at the schema therapy model: organization and role of early maladaptive schemas, *Cognitive Behaviour Therapy*, 47(4), 328-349.
6. Banerjee, V.A. & Duflo, E. (2019). *Good Economics for Hard Times*. New York: Hachette.
7. Berentés, É. (2012). *The mature personality - The personality background of human success, efficiency, and happiness*. (In Hungarian.) Budapest: Pro Personal Publishing House.
8. Berke, Sz., Schmidt, M. & Kórműves, Zs. (2021). Wellbeing at workplace – health promotion and types of stress in Southern Transdanubia. *Régió kutatás Szemle*, 6(1), 58-66.
9. Böcskei, E. & Kis, V. (2020). *The Effects of the Pandemic on the Companies with Special Regard of the Digitization*. (In Hungarian.) Sopron: „XIV. Sopron Financial Day Conference,„.
10. Christopher, J., Murray, L., Lopez, D.A. & Mathers, D.C. (eds.) (2004). *The global epidemiology of infectious diseases*. Geneva: World Health Organization.
11. Cirrincione, L., Plescia, F., Ledda, C., Rapisarda, V., Martorana, D., Moldovan, R. E., Theodoridou, K. & Cannizzaro, E. (2020). Protocol. COVID-19 Pandemic: Prevention and Protection Measures to Be Adopted at the Workplace. *Sustainability*, 12(9), 3603.
12. Cotofan, M., De Neve, J-E., Golin, M., Kaats, M. & Ward, G. (2021). Work and Well-being during COVID-19: Impact, Inequalities, Resilience, and the Future of Work. In Helliwell, J. F., Layard, R. & Sachs, J. D., *World Happiness Report 2021* (pp.: 153-190). New York: Sustainable Development Solutions Network.
13. Deák T., Kiskó G., Maráz A. & Mohácsiné Farkas Cs. (2006). *Food-microbiology*. (In Hungarian). Budapest: Mezőgazda Publishing House.
14. Diamond, J. (2019). *Guns, Germs, and Steel: The Fates of Human Societies*. (In

Hungarian.) Budapest: Akkord Publishing House.

15. Diamond, J. (2020). *Upheaval – Turning points for nations in crisis*. New York: Little, Brown and Company.
16. Einstein, Ch. (2021). *Climate – A new story*. (In Hungarian.) Budapest: Édesvíz Publishing House.
17. Eurofound (28/09/2020). *Living, working and COVID-19. First findings – April 2020*. Source: https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20058en.pdf
18. Eurofound (2021). *COVID-19: Implications for employment and working life, COVID-19 series, Publications*. Luxembourg: Office of the European Union.
19. EY (21/052021). *Multidisciplinary professional services organization EY Study: More than half of employees globally would quit their jobs if not provided post-pandemic flexibility*. Source: https://www.ey.com/en_ro/news/2021/05/ey-study--more-than-half-of-employees-globally-would-quit-their-
20. Forrai, J. & Barcs, I. (2018). *Public Health 1.: A college note for students at the Faculty of Health Sciences at Semmelweis University*. Budapest: Semmelweis University
21. Freeman, I. & Hasnaoui, A. (2011). The Meaning of Corporate Social Responsibility: The Vision of Four Nations. *Journal of Business Ethics*, 100(3), 419-443.
22. Gates, B. (2021). *How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need*. (In Hungarian.) Budapest: Libri Publishing House.
23. Ghebreyesus, T. A. (11/03/2020). *Virtual press conference on COVID-19 – 11 March 2020 (WHO)*. Source: https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf?sfvrsn=cb432bb3_2
24. Graeber, D., Schmidt-Petri, Ch. & Schröder, C. (10/05/2021). *Attitudes on voluntary and mandatory vaccination against COVID-19: Evidence from Germany*. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0248372>
25. Hale, T., Angrist, N., Goldszmidt, R., Kira, B., Petherick, A., Phillips, T., Webster, S., Cameron-Blake, E., Hallas, L., Majumdar, S. & Tatlow, H. (2021). A global panel database of pandemic policies. Oxford COVID-19 Government Response Tracker. *Nature Human Behaviour*, 5(4), 529–538.
26. Hamidi, S., Sabourih, S. & Ewing, R. (2020). Does Density Aggravate the COVID-19 Pandemic? Early Findings and Lessons for Planners. *Journal of American Planning Association*, 86(4), 495-509.
27. Harwood, T.M., Beutler, E.L. & Groth- Marnat, G. (2021). *Integrative Assessment of Adult Personality*. New York: The Guilford Press.
28. Henter, I., Mramurác, É. & Szabó, Zs. (2013). *Knowledge of nutrition and food science*. (In Hungarian.) Eger: Líceum Publishing House.
29. Honigsbaum, M. (2020). *The Pandemic Century: A History of Global Contagion from the Spanish flu to Covid-19*. London: Penguin Random House.
30. Hunyadi, L. & Vita, L. (2008). *Statistics I*. (In Hungarian.) Budapest: Atula Publishing House.
31. Ita, M. & Grünhut, Z. (2020). *Trust: Humanity and Space: School Psychological*

- Reflections on a Theoretical Problem. (In Hungarian.) *Tudásmenedzsment* 21(1-2), 229-240.
32. ILO (18/03/2020). *Almost 25 million jobs could be lost worldwide as a result of COVID-19, says ILO*. Source: https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_738742/lang-en/index.htm.
 33. Karácsony, P. (2020). Effects of the Coronavirus Crisis on Hungarian Small and Medium-Sized Enterprises. *Polgári Szemle*, 16 (Spec.), 434-444.
 34. Karácsony, P. (2021). Impact of teleworking on job satisfaction among Slovakian employees in the era of COVID-19. *Problems and Perspectives in Management*, 19(3), 1-9.
 35. Kazainé, Ó. A. (2020). *The future of teleworking. The potential of telecommuting based on the opinions of employees*. (In Hungarian.) 179 Blog study. Budapest: Corvinus University of Budapest.
 36. Kerékgyártó, Gy., L. Balogh, I. & Szarvas, B. (2009). *Statistical methods and their application in economic and social analyzes*. (In Hungarian.) Budapest: Aula Publishing House.
 37. Komáromy L. (1996). *Fundamentals of Cell Biology*. Pécs: University of Pécs.
 38. Kómáves, Zs. & Berke, Sz. (2021). Labor retention in the domestic SME sector in Somogy county. *Régiókutatás Szemle*, (6)1, 66-77.
 39. KSH (07/04/2020). *Teleworking has become more valuable in the shadow of Covid19*. (In Hungarian.) Source: <https://www.ksh.hu/docs/hun/xftp/idoszaki/koronavirus-tavmunka/index.html>
 40. Kun Á., Kozák E., Mokos J. & Rózsa L. (eds.) (2021). *Covid is like the flu, only more deadly*. (In Hungarian). Budapest: Typotex Publishing House.
 41. Lomniczi B. (2020). We play the score (partiture) of the virus. There is no life for it outside the cell. (In Hungarian.) *UNIVET - Journal of the University of Veterinary Medicine*, (4), 9-11.
 42. Mailand, M. & Larsen, T. P. (2018). *Hybrid Work – Social Protection of Atypical Employment in Denmark*. WSI – Institute of Economic and Social Research. No. 11 · March 2018 · Hans-Böckler-Stiftung.
 43. Marcoux, T., Galeano, K., Galeano, R., DiCicco, K., Al Rubaye, H., Mead, E., Agarwal, N. & Galeano, A. (2021). A public online resource to track COVID-19 misinfodemic. *Social Network Analysis and Mining*, 11, (1):45.
 44. Mende, B. G. (2015). *Everyday life with epidemics, diseases of historical times*. (In Hungarian.) Colloquium material for 2015/16. I. semester. Introduction to Historical Epidemiology. For ELTE BTK lecture. Source: https://ri.abtk.hu/images/letoltes_publ/mende.balazs/jarvanytan.pdf
 45. Opriessnig, T., Mattei, A. A., Karuppannan, A. K. & Halbur, P. G. (2021). Future perspectives on swine viral vaccines: where are we headed? *Porcine Health Management*, 7 (1):1.
 46. Poór, J., Dajnoki, K., Pató, G. Sz. B. & Szabó, Sz. (2021.a). *Coronavirus Crisis: Phase One and Two -Challenges and HR Responses*. Gödöllő: Hungarian University of Agricultural and Life Sciences.

47. Poór, J., Balogh, G., Dajnoki, K., Karoliny, M., Kőműves, Zs., Pató, G. Sz. B. & Szabó, Sz. (2021.b). *COVID-19 - Coronavirus Crisis: Phase III Challenges and HR Responses*. Gödöllő: Hungarian University of Agricultural and Life Sciences.
48. Poór, J., Módosné Szalai, Sz., Jenei, Sz., Dajnoki, K., Jarjabka, Á., Szabó, K. & Pató, G. Sz. B. (2021c). *The Effects of the Pandemic on Hungarian Public and Private Organizations, Similarities and Differences*. Cluj-Napoca, Romania, MCCC Conference, 4-5 June.
49. Poór et al. (2021d). Labor Shortage in Seven Central and Eastern European Countries in Transition: before and during COVID 19. *Journal of Corporate Governance Research*. 5(1), 62-92.
50. Rafaeli, E., Bernstein, D. P. & Young, J. (2011). *Schema Therapy*. Distinctive Features. USA: Routledge.
51. Reyes, R., Ahn, R., Thurber, K. & Burke, F.T. (2013). Urbanization and Infectious Diseases: General Principles, Historical Perspectives, and Contemporary Challenges. In Fong, I. W. *Challenges in Emerging Infectious Diseases of the 21st Century*. Springer. 123-146.
52. Romsics, I. (2017). *History of Hungary*. (In Hungarian) Budapest: Kossuth Publishing House.
53. Roozenbeek, J., Schneider, C. R., Dryhurst, S., Kerr, J., Freeman, A. L. J., Recchia, G., van der Bles, A. M. & van der Linden, S. (2020). Susceptibility to misinformation about COVID-19 around the world. *Royal Society Open Science*, 7(10), 1-15.
54. Sajtos, L. & Mitev, A. (2007). *SPSS research and data analysis manual*. (In Hungarian.) Budapest: Alinea Publishing House.
55. Sheffi, Y. (2017). *The Power of Resilience. How the Best Companies Manage the Unexpected*. Cambridge: MIT Press.
56. Song, C. & Lee, J. (2015). Citizens' Use of Social Media in Government, Perceived Transparency, and Trust in Government. *Public Performance & Management Review*, 39(2), 430-453.
57. Song, M., Yang, M. & Hao, J. (2021). Pathogenic Virus Detection by Optical Nanobiosensors. *Cell Reports Physical Science*. 2(1), 100288.
58. Sull, D., Sull, C. & Bersin, J. (2020). Five Ways Leaders Can Support Remote Work. *MIT Sloan Management Review*, 61(4), 1-10.
59. Trouillard, S. (18/12/2020). *Katalin Kariko, the scientist behind the Pfizer Covid-19 vaccine*. France 24. Source: <https://www.france24.com/en/americas/20201218-katalin-kariko-the-scientist-behind-the-pfizer-covid-19-vaccine>
60. Turner, J. G. (2017). *The Oxford History of the Novel in English: Volume 1: Prose Fiction in English from the Origins of Print to 1750*. Cross-Sections (3): 1666-1670.
61. Újszászi, I. (2020). Katalin Karikó, an alumnus of SZTE, is one of the founders of one of the most promising vaccines against the coronavirus *University Szeged Magazine*, (1), 14-15.
62. Viswanath, K., Bekalu, M., Dhawan, D., Pinnamaneni, R., Lang, J. & McLoud, R. (2021). Individual and social determinants of COVID-19 vaccine uptake. *BMC Public Health*, 21 (1), art. no. 818.

63. de Vries M.F.R.K. (2014). *Are You a Victim of the Victim Syndrome? In: Mindful Leadership Coaching*. INSEAD Business Press. Palgrave Macmillan, London, 68-86.
64. Wéber, B. (24/04/2021). *What about the Swedes now? We looked at where the special route model was going.* (In Hungarian.) Source: <https://privatbankar.hu/cikkek/makro/mi-van-most-a-svedekkel-megneztuk-hol-tart-a-kulonutas-modell.html>
65. WHO (14/04/2020). *Covid-19 Strategy Update*. World Health Organization, Geneva. Source: <https://www.who.int/publications/m/item/covid-19-strategy-update>.
66. Widick, C., Parker, C. A. & Knefelkamp, L. (1978). Erik Erikson and psychosocial development. *New Directions for Student Services*, 1978(4), 1-17.
67. Williamson, M. (1992). *A Return to Love. Reflections on the Principles of a Course in Miracles*. New York: HarperCollins.
68. Zhong, Y., Li, Y., Ding, J. & Liao, Y. (2021). Risk Management: Exploring Emerging Human Resource Issues during the COVID-19 Pandemic. *Journal of Risk and Financial Management*, 14(5), 228.

Correspondence address:

Prof. Dr. József Poór, DSc., Department of Management, Faculty of Economics and Informatics, J. Selye University, Bratislavská cesta 3322, SK-94501 Komárno, email: poorj@ujs.sk

Szilvia Módosné Szalai, Ph.D. student, Faculty of Economics and Informatics, J. Selye University, Bratislavská cesta 3322, SK-94501 Komárno, email: mszalaiszilvia@citromail.hu

Szonja Jenei, Ph.D. student, Faculty of Economics and Informatics, J. Selye University, Bratislavská cesta 3322, SK-94501 Komárno, email: jenei.szonja@gmail.com