
Multidimensionality of the Pandemic Crisis and Its Consequences

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Abstract:

Purpose: *The impact of the SARS COV-19 coronavirus pandemic on the basic areas of functioning of the state and society.*

Design/ Methodology/Approach: *The authors hypothesise that the pandemic caused a crisis in various areas of the state, economy and society. The methodology is based on the analysis of domestic and foreign literature and on the proposal of a model that includes the key areas strongly affected by the pandemic. Basic literature on pandemic, management and crisis theory was used.*

Findings: *The hypothesis was proven right. The pandemic has affected various areas of social, cultural, healthcare, demographic, economic, educational, scientific and technological activity. The estimates of the model indicate that its impact may last for years, still causing negative effects.*

Practical implications: *the analysis of the collected material proves that the pandemic will create crises in various spheres of social and public life in the future – which indicates the need to include them in plans and action strategies with a focus on building various future development scenarios. The aforementioned studies indicate the need to look for families of crises that form clusters which are easier to solve.*

Originality/Value: *The analysis of the collected material proves that pandemic crises may become a catalyst for changes in generating new technologies and lifestyle changes among the population, while influencing the population's attitudes. The paper presents a multidimensional model of crisis situation analysis.*

Keywords: *Pandemic, crisis, state, society, economy, technology, demography, health care.*

JEL: *J00, I10, H12, A1, O1.*

Research type: *Review article.*

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1. Introduction

Gary Hamel and Bill Breen claim that in the last half of the 20th century humanity experienced many radical changes that affected almost every walk of life. They swept from geopolitics to technology (Hamel and Breen, 2008, p.18). In the current half of the 21st century, the Earth was hit by the SARS-COV-2 coronavirus pandemic, which caused an unprecedented situation in the form of a crisis in all areas (Education in the time, 2020). The events of recent years have posed a serious challenge to not only individual countries, but also the world as a whole.

The coronavirus pandemic turned out to be a Black Swan. The metaphor introduced into the scientific literature by Nassim Taleb means sudden and unexpected events that are surprising in their nature (Taleb, 2014, pp. 17-20). The virus took the world by surprise. Few could have expected its emergence and the effects it would bring to the economy, society and countries around the world.

Mankind has been previously plagued by various diseases, but they have never spread to the whole world. Instead, they covered cities, countries, and individual continents. Due to the lack of developed international communication, the transmission of viruses has usually been difficult. Many dangerous diseases have been avoided by humanity in recent decades. This was the case with the first threat of SARS viruses, which occurred in 2002-2003, followed by bird flu, which posed danger between 2003 and 2006, and then swine flu which lasted from 2009 to 2010.

Another virus, Ebola, appeared between 2013 and 2016. One more can be added here – the measles virus that has lasted since 2019. These viruses have not evolved into as destructive, health-damaging a force as the last virus. It is simply because those previous ones had a smaller range and eventually turned out to be weaker (Długosz, 2021, p. 9).

The world was surprised by the news about the Chinese city of Wuhan, where the SARS-Cov-2 virus suddenly appeared and quickly became responsible for the COVID-19 disease. It spread rapidly around the globe. COVID-19 has become the plague of the 21st century (Długosz, 2021, p. 9).

According to the World Health Organization, as of 15th November, 2022, there were 632,533,408 cases of confirmed COVID-19; 6,592,320 died (WHO Coronavirus COVID-19, 2022).

Poland recorded its first case of the coronavirus infection on March 4, 2020. From then until November 15, 2022, there were 6,347,085 people who became infected with the virus on record in our country. During this time, 5,335,888 people recovered and 118,227 died (Ministry of Health, 2022).

The announcement of the COVID-19 coronavirus as a global pandemic resulted in the introduction of a sanitary regime, which was associated with numerous restrictions. In everyday life practice, a certain distance between people began to be implemented. Schools were closed in many countries to contain the transmission of the virus. Online learning was introduced. The coronavirus has put on the agenda the problem of school management and the learning process around the world (Ferri *et al.*, 2021, p. 75).

Both small or medium-sized countries and the largest ones had a problem with the pandemic. A huge number of infections affected the United States. The local health service had problems in this regard. In the US, the local health care system is considered to be a kind of "mosaic" made of mismatched components. In this kind of system, the emphasis is more on the disease management than on general health (Kotler *et al.*, 2013, p. 39).

The emergence of the pandemic made people wonder how to deal with similar situations in the future. An important problem of the modern world is the proper recognition and monitoring of emerging threats in various walks of life (Marciniak, 2008, p. 225). They pose serious threats to the functioning of entities not only on micro and macro scales.

2. Multidimensional Model of the Pandemic Crisis

The pandemic has brought about a crisis around the world. The notion has become fashionable. It appears frequently in the popular and scientific press. It is present in domestic and foreign daily news services (Czech *et al.*, 2020, p.9). It is the result of changes that are taking place in the world. So far, there have not been many pandemics in terms of number and scale. Despite the progress of science, there is still more to be discovered and the questions posed by man raise even more questions (Knight, 2006, 17).

The coronavirus pandemic has shaken strong societies. It clearly pointed out the flaws that began to appear in the globalised world. To name but a few – growing social and economic inequalities or the fragility of supply lines. It exacerbated international tensions. The US and China blame each other for the spread of the virus. Just as Europe in the 14th century suffered from a combination of various crises so today, problems and issues that developed in parallel are increasingly intersecting (MacMillan, 2020).

The COVID-19 pandemic has revealed the deep interconnectedness and strong interdependence of countries and peoples on our planet (Müller *et al.*, 2021). This results from globalization which has developed a globalised economy, in which each country is linked with others by a grid of dependence. On the other hand, it exposed the systemic weakness of the global economy (World Economics, 2021, p. 7). It caused an economic shock. Enterprises began to modify their operating strategies. In

their activities, they began to manifest flexibility, and to a large extent. Many institutions and organisations have switched to hybrid or only remote work (Dobska, 2021, p. 51).

The disease that spread around the world caused a health shock to people, which negatively affected demand and supply in the labour market (Fang, 2021, p. 3). The closure of various sectors of the economy negatively affected the condition of businesses, the mental health of people and the income of the state, enterprises and citizens.

Health service has become involved in the combat against the virus. It varied from country to country. The healthcare system changed. This is now most evident in the developed countries and is affected by demographic changes, the pace of introducing technological innovations, changing expectations of users and consumers as well as increasing costs (Walshe and Smith, 2006, p. 3).

The pandemic increased the costs of medical services and operations. The issue of ensuring an appropriate level of their financing arose. The analysis of the health care system distinguishes five areas related to health care: 1. Political/legal, 2. Economic, 3. Social/cultural, 4. Technological and 5. Demographic.

In the political and legal area, we analyse entities that are responsible for payments for the health service. In the case of the economic area, we focus on the extent to which the level of economic development affects who finances this area. As far as the social/cultural area is concerned, there are issues that determine sources and mechanisms of payment. In the case of the technological area, it is about technology which includes drugs, devices, and the functioning of the health service. This raises the question of drug safety and effectiveness. The demographic area is also important, and this is because the structure of the population determines who finances health care services (Shalowitz, 2005).

In the case of the coronavirus pandemic, we are dealing with a multidimensional impact of the pandemic crisis. What is important here is the very concept of crisis, which should be understood as a certain set of changes that appear suddenly and cause dire ramifications. They affect the state, society, economy and businesses. Changes usually occur in various dimensions that affect the development of society and the economy.

Crisis situations appear in the external environment, affect market entities and lead to disruption of their activity. It is worth pointing out the fear of the Ebola virus in 2014 (Griffin, 2021, p.99). Although the virus did not spread worldwide, panic spread in various countries.

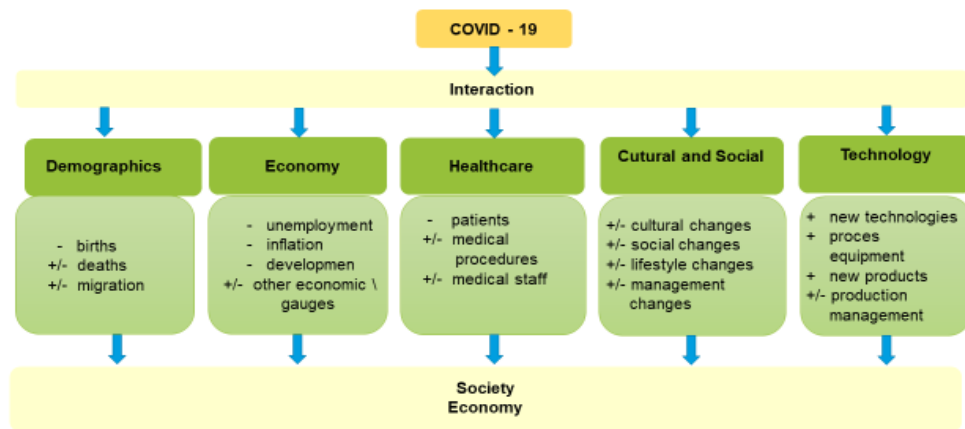
By analysing various situations, it can be seen that there are so-called "families" of crises. The research conducted indicates that in the case of the analysed crisis,

technological, organizational, human, cultural and emotional factors play an important role in its emergence (Mitroff and Pearson 1998, p. 27).

Like any crisis, the coronavirus pandemic is both a challenge and an opportunity. It brings people, states, world leaders and ordinary citizens a chance to reflect on how to do better in the future and avoid repeating their mistakes and shortcomings of the past (Gardini, 2020, p. 1).

In order to be able to identify the causes of the crisis and then characterise them and determine their direction and strength of their impact on society and the economy, a model approach was adopted to study the phenomenon.

Figure 1. The multidimensional nature of the pandemic crisis



Source: Author's own study.

The crisis model presented in Figure 1 is characterised by three basic phases, which are:

- determining the main dimensions in which phenomena and processes appear, which affect society and the economy as a result of the pandemic,
- detailed characteristics of identifiers of individual dimensions in which crisis phenomena occurred
- valuation, analysis and evaluation of individual identifiers that present the effects of the crisis.

The model distinguishes five main dimensions in which the post-pandemic crisis is evident. These include demography, economy, health care, cultural and social changes as well as development of selected technologies, which was different than previously. Each of the dimensions was identified and described in a simplified

form, and then an attempt was made to analyse and evaluate the occurring phenomena and processes.

The methodically formalised model approach should greatly facilitate the understanding of the integrative and holistic impact of the pandemic crisis on society and the economy. According to the authors of the paper, only such an approach without distinction and detailed study of the selected determinant makes it possible to understand the real impact of the pandemic on the future social and economic development of a given country.

3. Post-Pandemic Demographic Changes vs. Economic and Social Development

While considering the changes occurring in society and the Polish economy, which are a consequence of the Covid-19 pandemic, it is essential to note the changes appearing in the demographic dimension. These changes concern the human factor which is very important for the development of every society and economy, and may turn out to be very important in the future due to their deep and far-reaching impact on the development of society.

This thesis has been confirmed by statistical data from both 2020 and 2021 (Central Statistical Office, 2022). They concern both births and deaths, and in both cases they are negative (a rapid decrease in births and a rapid increase in deaths). While the rapid increase in deaths should be considered unfavourable from the social point of view, indifferent or even beneficial from the economic point of view, the decrease in births over a longer period of time is bound to turn out very unfavourable both socially and economically – especially that the trends occurring in the last two years have been observed in Poland for many years (this applies primarily to a decrease in births).

Due to the occurrence of Covid-19, they have only deepened. In order to conduct a proper analysis and assessment of the situation, it seems necessary to conduct detailed and in-depth holistic research related to demographic processes. Due to the importance of the issue of how to solve the demographic crisis, much more attention should be given to it in the future and research should be carried out in many different aspects.

The result of these works should be the emergence of detailed and comprehensive research and publications, which would make it possible to determine the actions necessary to solve a very complicated situation which is, at the same time, very harmful for the further development of the country.

When analysing the demographic factor, it should be pointed out that human health is a very special social value. It is embedded in the activities of social policy (Dobska, 2021, p. 69). A healthy society is more creative than a sick one. When in

good health, people have the opportunity to develop their own personality and implement various life plans.

The uniqueness of the challenges faced by management in healthcare organisations includes the uniquely personalised nature of health services as well as particular vulnerability to threats. There is a need for support; the complexity of the care process and the increasingly advanced nature of technology are equally important (Walshe and Smith, 2006, p. 4).

Advances in medicine have increased the average age of people. In an aging society, it is important to ensure proper care for the elderly and the sick. An interesting solution is used in the Netherlands. Since the nineteenth century, each local household has been assigned a health visitor. In late 2006, a nurse founded the organisation called *Buurtzorg* which introduces self-managed teams where there is no leader as decisions are made collectively. Each team of 10 to 12 nurses looks after 50 patients. They plan work, draw up work schedules and holidays. The emphasis is placed on the autonomy of the patient (Laloux, 2016, pp. 79-83).

The COVID-19 disease has had a significant impact on extreme poverty in the world. For the first time in 20 years, poverty is on the rise across the globe. It is estimated that the pandemic has pushed 119 to 124 million people into extreme poverty in 2020 (How Covid-19, 2021, p. 32).

4. Post-Pandemic Economic Changes vs. Economic and Social Development

We live in a world that is interdependent. There is a deep systemic interdependence here. All risks in it interact with one another. This is due to complex relationships. The view that economic risk will be limited only to the economic sphere cannot be accepted (Schwab and Malleret, 2020, p. 13).

The economic dimension is most frequently considered the most important determinant of post-covid changes. These changes should have a significant impact on the development of the economy and society in the coming years. There are many examples of this type of phenomena, such as a significant increase in inflation or deepening of debt that manifests itself by an increase in public debt.

The outbreak of the pandemic caused fear and anxiety among entrepreneurs and customers (Dobska, 2021, p. 7). The introduction of lockdown caused many entrepreneurs to face a crisis. The effects of the emergence of the pandemic became all too visible in various spheres of life. Therefore, attention should be paid to this problem.

The research conducted in 2021 shows that the pandemic had a negative impact on micro and small enterprises from March 2020 to April 2021. Lower economic

effects have been identified. In addition, there was a slowdown in development prospects, etc., (Stawasz, 2021, p. 22).

When approaching the presented issues comprehensively and holistically, it can be assumed that the most significant changes that arise from the Covid-19 pandemic occur in the economic dimension. Post-pandemic effects are reflected in basic phenomena, processes and economic indicators, such as:

- a decline in consumption, mainly services,
- a possible increase in the unemployment rate,
- reduction of production in many industries due to the mandatory isolation of consumers,
- a slump in production and logistics chains, which disrupts or prevents reaching planned sales volumes,
- formation of a budget deficit, which causes an increase in the indebtedness of the economy in the future.

Each of these issues is reflected in the relevant phenomena or processes and requires a thorough cause-and-effect analysis.

5. Post-Pandemic Health Changes and Economic and Social Development

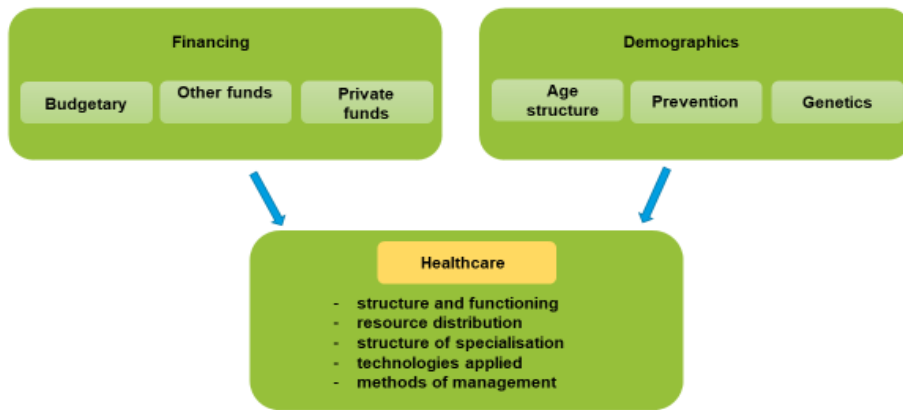
People with COVID-19 are more likely to experience neurological, neuropsychiatric and psychiatric symptoms (Clinical Management, 2022, p. 87). Many people, having recovered from the illness, must remain under the supervision of medical services.

One of the most important consequences of the Covid-19 pandemic seems to be the need to improve the functioning of healthcare in order to raise the general level of health care awareness in the society. The importance of the presented thesis is emphasised by the opinion of many experts who, by raising the importance of the health dimension, consider it the most important from the point of view of post-pandemic effects.

However, in the paper it was presented only as the third one, because the authors' views are consistent with the thesis that the condition and possibilities of functioning of health care depend strictly on the condition and functioning of the economy (due to financing) and the condition and demographic structure of a given society (due to the level of health and mortality, which is related to age). This thesis is reflected in Figure 2.

There are many conditions that determine the functioning of healthcare. Therefore, both in the near and distant future, in the conditions of economic development, efforts should be made to reduce the limitations and conditions that exist in the field of health service provision. These conditions clearly affect the general state and functioning of healthcare.

Figure 2. Healthcare and its conditions of functioning



Source: authors' own study.

The most important determinants that affect the state of healthcare include:

- too little funding, and (in some cases) simply incorrectly targeted funding,
- incomplete staff in many professional specialties,
- non-optimal distribution of medical facilities across the country, from the point of view of demographics and tasks,
- ineffective management of healthcare activities.

The conditions affecting the level of effectiveness of healthcare functioning include:

- internal organizational structures of medical facilities that are not always optimal from the point of view of outsourced tasks,
- failure to ensure sufficiently high task flexibility for the medical staff,
- staff specialisation structure inadequate to the needs,
- not always optimal organisation of work.

6. Post-Pandemic Cultural Changes vs. Economic and Social Development

The Covid-19 pandemic also had a significant impact on cultural changes, which occurred with different strength in different societies. They concerned both individuals and entire social groups and their background was mainly psychological or sociological. The most important of these changes seems to be the desire to limit direct contacts between people. During the pandemic, it was related to compliance with medical rules and was rather directive in its nature. When considering human characteristics such as caution or routine, it seems that the consequences of the phenomenon will occur in societies over a longer period of time.

Summing up, it should be emphasised that the described procedure was reflected in both private and professional contacts, thus disrupting previously functioning social communities.

When evaluating the social changes discussed earlier, it can be noticed that they are usually negative. In fact, in many cases it is much more difficult to solve or implement many tasks without direct human-to-human contact, because this contact often makes it easier to find a compromise solution. And compromise is the basis for resolving many life situations. Failure to find it very often makes it difficult to reach the right goal in the future, which is important from the point of view of achieving success in both private and professional life. Given its importance, the indicated problem requires further intensive observation and a proposal of ways to solve it by both psychologists (individual relationships) and sociologists (group relationships).

As a consequence of Covid-19, many technical solutions have also appeared that affect cultural changes. These were usually welcomed by individual social groups, e.g. because of time-saving possibilities or labour costs. These include primarily online work or learning. However, after a thorough analysis of these processes, the question arises: does the work or study performed in this form meet all the goals and tasks set before it? Sometimes it does, but most of the time it seems not to. And then a new dilemma arises: what to do next, how to solve the situation? Therefore, we must answer the question of whether we want to strive to restore the pre-covid situation and to what extent, or whether we will find some other, better solution for the existing situation.

Many such new post-Covid phenomena in the area of the culture of personal and group behaviour can be observed. For example, a change in the approach to personal and group hygiene, the emergence of new interpersonal relationships and behaviours, changes in family relationships, etc. It should be noted that each of the observed phenomena requires an in-depth analysis and evaluation, and then determining the most appropriate ways to solve it.

7. Post-Pandemic Technological Changes vs. Economic and Social Development

When observing the development of science and civilisation in the last twenty or thirty years, it can be seen how strong and rapid it is. Also, in most cases, it has a global dimension. This process is reflected in the implementation and dissemination of new technologies faster than ever before; particularly information technologies. When observing the reality, it can be noticed that there have been many cases where the Covid-19 pandemic has accelerated this phenomenon. However, it was noted earlier that this was particularly true for network IT solutions.

As a result of the development of science and technology, the latter is becoming increasingly personalised and private (Schwab, 2018, p. 156). This can be seen on

the example of smartphones, tablets and portable computers. The future is likely to bring technology and biology together. Man will be equipped with technological solutions that will be miniaturised inside the body. Today, people already carry inside them pacemakers, cochlear implants, etc.

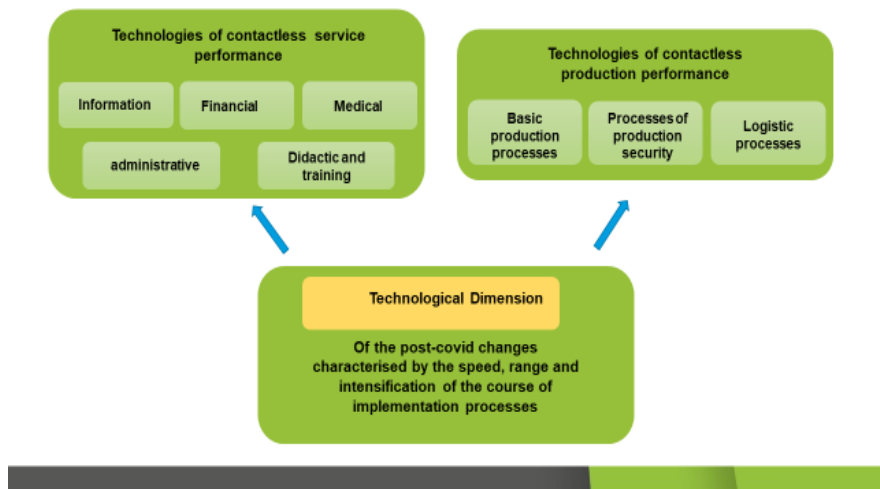
When examining the real processes and phenomena in the technological dimension, it is necessary to answer the question: what are the main reasons for their acceleration during the pandemic, both in terms of design and implementation?

These prerequisites seem to include:

- willingness to quickly automate and robotise various technical processes, including production, service, administrative, etc.
- quantitative and qualitative development of information networks through improvement of devices, enriching their software and increasing their ease of use
- broadly understood willingness to use smart solutions and devices in various areas of usage.

These are not the only reasons, but they appear to be the leading ones. Considering significant functional and economic effects in the design and implementation of new technological solutions. And this could be a positive consequence of the Covid-19 pandemic. When examining the trends of technological changes, it should be noted that they can also lead to a negative phenomenon, which may be the dehumanisation of social and personal relationships. Selected trends of various types of technological changes that occurred as a result of the Covid-19 pandemic are presented in Figure 3.

Figure 3. Technological change trends caused by Covid-19.



Source: Author's own study.

The state plays a key role in supporting technology in the economy. It supports the entrepreneurship of citizens and business organisations. An example could be innovative companies (Trott, 2017, p. 52). During the pandemic, the role of the state seems indisputable. Therefore, a thesis can be put forward that any pandemic can be combated with the help of the state and innovation.

The coronavirus pandemic has become a catalyst for the development and implementation of digital technology. Remote management started to gain importance. The manager was able to delegate tasks to his employees from home via digital technology. This has also led to entirely remote work.

The pandemic has finally given rise to the information society. This term used to function in the literature in the past, but it corresponded more to theory than to practice.

Coming out of the crisis must be based on total resilience. Economic resilience is enabled by new fiscal systems and a debt service framework. Social resilience is associated with widespread social protection systems, and climate resilience – with greater investment in the green economy (World Economic, 2021, p. 7).

Undoubtedly, there is no sustainability without resilience, and there is no resilience without sustainability (World Economics, 2021, p.7). Building resilience is a key aspect of managing a company. Philip Kotler and John A. Caslione believe that it is necessary to build development scenarios. However, they indicate that the condition for ensuring the completeness of the those scenarios is the need for the company's management to focus on the situation in their own sector and permanent monitoring of trends in the environment (Kotler and Caslione, 2009, p. 87).

8. Summary

When summarising the discussed issues, it is advisable to specify conclusions of both general and methodological nature, which result from the method of researching the topic taken up.

The general conclusions include:

- the need to adopt a holistic approach (in a specific case, it is the adoption of the principle of multidimensional analyses in research),
- adopting the principle that research should be conducted in accordance with a systemic and process approach,
- research results should be presented in quantitative form, using statistics and others quantitative methods,
- qualitative research should complement quantitative research,
- when conducting dependency analyses, cause-and-effect analyses should be used in the first place,

Methodological conclusions include:

- adequate information security (quantitative and qualitative),
- introducing a correct hierarchy of individual dimensions and phenomena and processes related to them,
- research should make frequent use of the *ex ante* principle, which is related to the use of forecasting that enables the proper conduct of optimal preventive activities,
- due to the subject of research, skilful use of psychological and sociological research; may turn out to be very useful for post-pandemic analyses.

Fulfillment of the above-mentioned conclusions should help to achieve:

- objectivity and thoroughness of the conducted research,
- credibility and effectiveness of the conducted research,
- correct formulation of theses and research hypotheses adequate to the current situation,
- identifying the correct directions for future research.

And this was one of the main goals of the presented paper. To sum up, it should be noted that the multidimensional model of crisis analysis can be very useful and helpful in solving very different crisis situations that are increasingly occurring in the economy and society.

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