Ginevičius, R., Trišč, R., Remeikienė, R., Zielińska, A., & Strikaitė-Latušinskaja, G. (2022). Evaluation of the condition of social processes based on qualimetric methods: The COVID-19 case. *Journal of International Studies, 15*(1), 230-249. doi:10.14254/2071-8330.2022/15-1/15

Journal of International Studies

Scientific Papers

Evaluation of the condition of social processes based on qualimetric methods: The COVID-19 case

Romualdas Ginevičius
Law Faculty, Vilnius University,
Vilnius, Lithuania
romualdas.ginevicius@tf.vu.lt
ORCID 0000-0003-2061-4398

Roman Trišč
Ukrainian Engineering and Pedagogical Academy,
Ukraine
ORCID 0000-0002-9503-8428

Rita Remeikienė
Law Faculty, Vilnius University,
Vilnius, Lithuania
rita.remeikiene@tf.vu.lt
ORCID 0000-0002-3369-485X

Anetta Zielińska
Wroclaw University of Economics and Business
Wrocław, Poland
anetta.zielinska@ue.wroc.pl
ORCID 0000-0003-3416-5674

Goda Strikaitė-Latušinskaja
Law Faculty, Vilnius University,
Vilnius, Lithuania
goda.strikaite@tf.vu.lt
ORCID 0000-0003-1284-5783

Abstract. The Covid-19 pandemic mainly affected those target groups who, due to the nature of their duties, were unable to isolate themselves. The consequences of such work are psychological tension with various symptoms. In this situation, the formation of a system for localizing its consequences becomes a very important task. Three parts are distinguished: a quantitative assessment of the scale and nature of the pandemic, a quantitative assessment of the need to localize the consequences and the analysis of current system; third, the formation of a

Received:
February, 2021
1st Revision:
February, 2022
Accepted:
March, 2022

DOI:
10.14254/2071-8330.2022/15-1/15

monitoring system. The chosen system allows verbal assessments to be transformed into quantitative ones. Based on it, the aggregated values of seven essential signs of psychological stress in the target groups (medical and social workers, police, customs officers, educators, pharmacists, and entrepreneurs) were identified: anxiety (0.80), stress (0.78), aggression (0.63), insomnia (0.62), persistent fatigue (0.61), depression (0.56), sadness (0.49). The application of the methodology allows forming a monitoring system considering the scale of the pandemic impact and the psychological consequences. The mental distress caused by the COVID-19 pandemic has been shown to be characterized by such negative effects as anxiety, stress, insomnia, persistent fatigue, depression and persistent sadness. The study revealed that the major shortcomings in the system developed for localizing the negative effects are as follows: insufficient efforts of state institutions even in the case the negative effects are getting worse; inadequate provision of psychological assistance conditioned by unreasonably high prices and deficient legal framework.

Keywords: COVID-19, quantification of pandemic consequences, monitoring

JEL Classification: C40

1. INTRODUCTION

The Covid-19 pandemic and its consequence – quarantine – have changed not only people's normal lives, but also their working conditions. The new challenges have raised different requirements for performance of professional duties (increased flexibility, the need for specific knowledge, etc.) and at the same time led to mental stress. The new situation has primarily affected those who have to stay in their workplaces despite the risk of contracting the virus. This category of professionals includes hospital staff, pharmacists, social workers, police officers, customs officers and others, i.e. those who cannot avoid direct contacts with other people while performing their duties. Business employees and entrepreneurs can also be attributed to the above-mentioned category. The risk of contracting the virus along with difficult working conditions leads to mental distress, in some cases developing into depression.

Given the seriousness of the consequences of the COVID-19 pandemic, the detrimental effects have become a topical research issue. Literature analysis shows that researchers focus on particular aspects of the COVID-19 effects. Nevertheless, a systematic approach to the effects of the COVID-19 pandemic on people's lives, i.e. treatment of the effects as an aggregate, is still lacking. The research of this type would provide the potential and grounds to develop an effective system for monitoring the mental effects of the pandemic (Fig. 1).

Identification of mental effects of the pandemic through surveys is a necessary but insufficient condition for developing an effective monitoring system. This is because surveys provide qualitative information only. Based on this information alone, it is difficult to make an adequate generalised evaluation of the current situation, and without deep understanding of the situation, it is not possible to adopt the measures to combat the effects of the pandemic effectively. The effective measures can only be developed if the methods to turn qualitative information into quantitative data are available, i.e. if the current condition can be evaluated quantitatively. In connection with this, an important objective in both scientific and practical context is raised: based on verbal evaluations of the phenomenon under consideration, to move to its quantitative evaluation. This can be done by applying the theory of extreme statistics (Gnedenko, 1943).

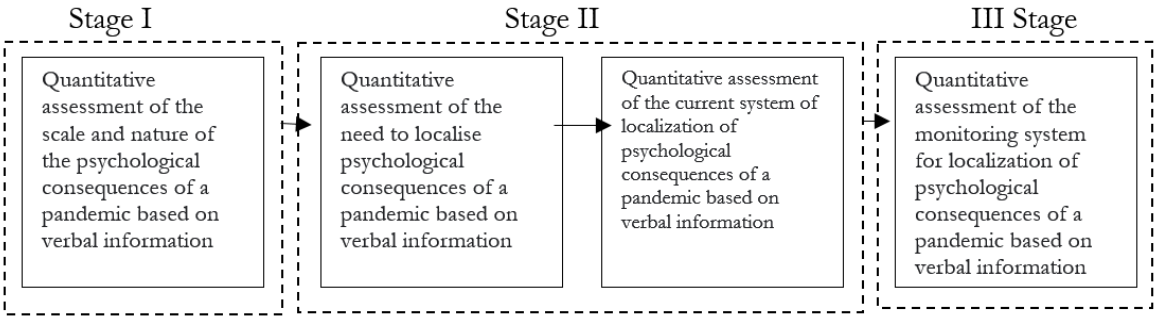

Figure 1. A system for monitoring mental effects of the pandemic

Source: compiled by the authors

The major purpose of this article is a systematic quantitative evaluation of mental effects of the COVID-19 pandemic based on the qualitative information obtained by surveying target population groups. To fulfil the defined purpose, the following objectives are raised: to identify the indicators that reflect the condition of the phenomenon under consideration; to select the scale to rank indicator values; to select the value normalization functions that would allow moving from qualitative to quantitative evaluations; to select the function that would allow aggregating the normalized indicator values into a single quantity and providing general evaluation.

2. REVIEW OF THE LEGAL REGULATION

After the World Health Organization reported the first outbreaks of the new virus in early 2020 in Wuhan, China, and on 11 March 2020 officially announced the Covid-19 outbreak a pandemic (WHO, 2020), states around the world had to adapt quickly to protect their populations. The Covid-19 pandemic has had an unprecedented impact on the economies, labour markets and social relations. The adopted legislation was aimed at preventing the further spread of the virus: the regulations inter alia banned cultural activities and events, restricted the work of public catering and service provision companies, as well as movement within the country and abroad, and provision of education. Lithuania is no exception. On 14 March 2020, the Government of the Republic of Lithuania adopted a resolution on the announcement of quarantine in the territory of the Republic of Lithuania (Resolution No. 207 of the Government of the Republic of Lithuania on Declaration of Quarantine on the Territory of the Republic of Lithuania, Register of Legal Acts, 14-03-2020), which entered into force on 16 March 2020 and was extended until 16 June 2020. The resolution inter alia stipulates that "in state and municipal institutions, establishments, state and municipal enterprises, work shall be organized and clients shall be served remotely, except in cases when it is necessary to perform the relevant functions at the workplace. It is essential to ensure that the necessary emergency functions are performed. The private sector is recommended to work by following the same form of work organizing as the one applied in the public sector" (Article 3.2.1. of the Resolution). The Resolution also prohibited visits to cultural, leisure, entertainment and sports institutions, provision of physical service to visitors (Article 3.2.2.), all events and gatherings (Article 3.2.3.), the activities of healthcare centres, sanatoriums and recreation centres (Article 3.2.4.), the activities of public catering, restaurants, cafes, bars, nightclubs and other places of entertainment (Article 3.2.6.), the activities of shops, shopping and / or entertainment centres, markets (Article 3.2.7.), provision of beauty services (Article 3.2.8.), the activities of gambling houses (casinos) and slot machine parlours (Article 3.2.9.), and suspended the processes of education and childcare – the educational process was transferred to a distance mode (Article 3.3.).

Due to the specifics of the medical work functions, i.e. the need to perform the functions in the workplace, the activities of medical staff were regulated by imposing new special requirements. For instance, the following new requirements for providing inpatient healthcare were imposed: reorganization of activities to manage patient flows, infrastructure, material and human resources (Article 3.4.2.1.), postponement of scheduled surgeries (Article 3.4.2.2.), postponement of scheduled hospitalizations (Article 3.4.2.3.), ban on patient visits (Article 3.4.2.4.), restrictions on the provision of medical rehabilitation services (Article 3.4.2.4.). Accordingly, the following restrictions were imposed on the provision of outpatient personal healthcare services: postponement of scheduled consultations, diagnostic, preventive and curative services (Article 3.4.3.2.), restriction on the provision of home services (Article 3.4.3.3.), postponement of the provision of outpatient medical rehabilitation services (Article 3.4.3.4.), postponement of preventive examinations and prevention programs (Article 3.4.3.5.), reorganization of scheduled vaccinations (Article 3.4.3.6.), etc. The new restrictions on the provision of public healthcare services were also imposed.

The detailed peculiarities of the activities of medical staff are provided in the Description of the Procedure for Organizing the Provision of Personal Health Care Services under the Conditions of the State-Level Emergency Declared in the Territory of the Republic of Lithuania (Order No. V-1504 of the Minister of Health of the Republic of Lithuania on Description of the Procedure for Organizing Provision of Personal Health Care Services under the Conditions of the State-Level Emergency Declared in the Territory of the Republic of Lithuania, Register of Legal Acts, 17-06-2020), approved by the Order of the Minister of Health on 17 June 2020. The above-mentioned regulation implies that the medical staff have to deal with more challenges than simply transferring their work functions to the e-space. Due to the specifics of health care services as well as the enormous demand for these services during the pandemic, it is likely that the severe mental effects reported by the medical professionals may differ from the mental effects experienced by representatives of other professions.

Social workers are another group of professionals whose activities are regulated in detail considering the specific nature of their work functions. Among the other professionals, whose activities cannot be transferred to the e-space, police and customs officers, who have a special role of ensuring compliance with the new regulations, and pharmacists, whose activities are not subject to suspension due their extreme importance, should be mentioned.

Following deterioration of the epidemiological situation related to the spread of the COVID-19 disease (coronavirus infection) in the territory of the Republic of Lithuania, the quarantine was reannounced on 7 November 2020 by Resolution of the Government of the Republic of Lithuania (Resolution No. 1226 of the Government of the Republic of Lithuania on Declaration of Quarantine on the Territory of the Republic of Lithuania, Register of Legal Acts, 04-11-2020). The second quarantine regime came into force on the day the ruling was made and is still in effect at the time of writing this article (May 2021).

Among the other quarantine regime restrictions, the requirement for the private and public sectors to organize work remotely or partially remotely, except where the relevant functions need to be performed at the workplace, was re-established. In addition, the following requirements were imposed on the target groups of professionals: the requirement imposed on social service providers – to ensure the conditions for providing persons with the necessary public safety, hygiene and personal protective equipment established by the State-Level Emergency Operations Manager (Article 2.2.10.2.); the requirement imposed on health care institutions - to organize inpatient personal health care services for the exposed to COVID-19 on a cluster-territorial basis (Article 2.2.11.2.). To ensure the proper personal service provision in health care institutions under the conditions of the COVID-19 pandemic, the institute of an Activity Coordinator, a Coordination Group and the Rules of Procedure were established (Article 2.2.11.3.). The regulations also enshrine the right of specialists providing outpatient personal health care services to make a decision

regarding provision of certain services by contact after evaluating a patient's health condition (Articles 2.2.11.5.-2.2.11.5.6.), etc.

When assessing the above-discussed legal regulations, it can be concluded that the activities of some professionals, in particular, of those whose work functions are performed in the workplace, have been regulated more strictly than of others. Respectively, representatives of particular professions have to overcome more challenges to perform their work functions properly. The activities of medical staff fall under the strictest regulations that impose new requirements and new work organizing methods, and thus force representatives of this profession to adapt quickly to the new requirements.

3. LITERATURE REVIEW

The vast majority of literature sources focus on the aspects in which target population groups experience mental pressure related to the Covid-19 pandemic.

In this research, a target population group refers to a particular group of professionals providing various services that cannot be provided remotely and therefore cause many direct contacts between service providers and recipients. The target groups include medical staff, police staff, customs officers, educators, social workers, pharmacists and entrepreneurs.

Medical staff. This target group of professionals work with infected patients and are, therefore, most likely to contract Covid-19 or even die. This is evidenced by national statistics. As a result, these professionals work under constant mental stress. The fear of infection is also raised by the poor application of preventive measures, which manifests as insufficient provision of personal protective equipment, work equipment, deviations from standards, and so forth (Lai et al., 2020; Cawcutt, 2020). Many cases of infections and / or contacts with infected people often require medical staff to stay isolated. Self-isolation is associated with a lack of social contacts, increased anxiety, panic, depression, claustrophobia (Nyashanu et al., 2020). The situation is exacerbated by the fact that forced to stay in isolation, medical professionals are deprived from their families. Mental tension is also worsened by the behaviour of inadequate patients that manifests in the forms of verbal insults, unfounded accusations, and even physical violence (Tomlin et al., 2020). All this occurs working under the conditions of huge workloads, high concentration and enormous responsibility (Lu et al., 2020). Previous studies revealed the deteriorating effects of such mental disorders as insomnia, anxiety, depression, somatic, abscess-compulsive disorders, etc. (Cabarkapa, 2020; Vizheh et al., 2020; Zhang et al., 2020).

Police staff, customs officers. This target group of professionals are responsible for enforcing and controlling the restrictions caused by the Covid-19 pandemic. Their duties also include informing the public about the sanctions for non-compliance with the order, including vehicle traffic restrictions. All this has significantly raised their workload. In addition, half of the officers surveyed report suffering from mental disorders, mainly caused by the fear of contracting the virus (Kokane et al., 2020). Police officers have been found to be almost 9 times more likely to become infected than the rest of the population. One third of the respondents emphasized the stress experienced during the service. Mental stress is also worsened by the fear of bringing the infection home (Stogner et al., 2020; Drew and Martin, 2020; Mehdizadeh and Kamkar, 2020), and the fear of being forced to stay self-isolated (Khadse et al., 2020). The tension is also increased by uncertainty of the situation, i.e. site calls involve additional risks. In addition, when performing their duties, officers often face human aggression (Shirzad et al., 2020; Mehdizadeh and Kamkar, 2020; Drew and Martin, 2020; Khadse et al., 2020). They often lack personal protective equipment, special equipment, and so forth (Mehdizadeh and Kamkar, 2020).

Educators. With the onset of the pandemic, the educational process was not stopped but transferred to an online mode. This is an essential feature of the new reality, in which educators faced and are still facing

the challenges of distance teaching. Since neither the staff nor the curriculum were prepared and adjusted properly, educators were forced to start using work methods and tools they were not familiar with (Aperribai et al., 2020). All of this has had a detrimental effect on educators' mental health, which was reported by almost a third of teachers surveyed in England (Carr, 2020). A similar study in Italy revealed the symptoms of anxiety, depression, and emotional exhaustion (Matiz et al., 2020). University lecturers had to deal with underdeveloped digital systems for evaluating study results (Sahu, 2020). Foreign students were found to be particularly disadvantaged being forced to study under the conditions of even greater uncertainty. Lecturers were characterized by the fear of increased workloads, social isolation, economic consequences of the pandemic (lower wages, potential job losses), restricted potential of scientific research, etc., while those who had direct contacts with students reported the fear of contracting the virus (Akour et al., 2020; Aperribai et al., 2020).

Social workers. Due to the specific nature of the work, related to human health crises, social work conditions are also considered difficult and risky. Nevertheless, little attention is paid to this group of professionals in previous scientific studies (Redondo-Sama et al., 2020). Meanwhile, social workers can feel mental stress caused by the restrictions to have contacts with patients they nurse (e.g. at home). On the other hand, the proper performance of their duties often requires having direct contacts with patients, which makes these professionals afraid of either infecting other people or getting infected themselves. Most of their patients are extremely vulnerable due to their age or chronic diseases (Swinford et al., 2020). The thoughts about the potential consequences of communication cause additional suffering (Redondo-Sama et al., 2020). The situation is also complicated by the fact that social workers may lack personal protection measures, especially in less developed countries (Thomas et al., 2020). The internal tensions are also heightened by the thought that those around may blame them for having direct contacts with the infected and thus spreading the disease, which may provoke the negative attitudes of acquaintances and community members (Solomon-Osborne, 2020). For the above reasons, social workers often report a disturbed work-life balance, and survey results indicate that they rate their current mental state worse than a year ago (Turner, 2020).

Pharmacists. The vast majority of the respondents, representing this target group, indicate that the pandemic caused by the Covid-19 virus has significantly or partially affected their mental state. The respondents even note that they are at risk of overstrain leading to thinking of changing the profession (RPS, 2020). Some of them report spiritual overstrain, followed by the symptoms of post-traumatic stress (Lange et al., 2020). The mental tension is caused by the increased demand for medications, staff shortages, long working hours, and a lack of free time (RPS, 2020). Another study found that pharmacists often lack personal protective equipment. A high risk of infection forces self-isolation, which, in its turn, poses the problems of social isolation and loneliness (Johnston et al., 2020). Daily stress is even worsened by intimidating media reports about the deteriorating situation, rapidly changing recommendations issued by health care institutions, a lack of necessary medicines, and so forth (Johnston et al., 2020).

Entrepreneurs. Nearly half of the respondents note that the pandemic has had a negative impact on their business (Jordan, 2020). The biggest challenge they are facing is the need to comply with the safe work requirements set by the authorities and at the same time manage a business (Australian Government, 2020; Newman, 2020). It has become much more difficult to adapt to unusually rapidly changing working conditions; it is also difficult to retain employees, and there is constant concern about receiving state support (Jordan, 2020), especially financial in order to mitigate the bankruptcy risks (Kudej et al., 2021). These findings are in line with results on employees retaining problems due to the business environment quality (Oliinyk et al., 2021) and expectations regarding well-being in working surrounding (Anita, 2021; Tvaronavičienė et al., 2021). Fears about the future are caused by slowing business growth and a declining number of orders (Newman, 2020). The survey revealed that two out of five entrepreneurs report the

symptoms of depression, two-thirds – fatigue and depleted energy (Business..., 2020). Some kinds of business, like SMEs activity, particularly, in tourism, are extremely sensitive to changes in entrepreneurial activity, caused by pandemic (Alexandra, Purnamaningsih & Choirisa, 2021; Cepel et al., 2020; Kostynets et al., 2020).

The Covid-19 literature revealed that all the target groups of professionals report similar mental problems, which, based on literature analysis, are summarised in Table 1.

Table 1

The COVID-19 pandemic-caused mental problems reported by the target groups of professionals

Target group	Major problems	Literature sources
Medical staff	Work stress, general and organizational stress, burnout, emotional disorders, sleep disorders, insomnia, frustration, anxiety, depression, somatization, panic, drug use, post-traumatic stress disorder	Du et al., 2020; Vizheh et al., 2020; Cabarkapa, 2020; Cawcutt, 2020; Nyashanu et al., 2020; Lai et al., 2020; Zhang et al., 2020; Tomlin et al., 2020
Police staff and customs officers	Work stress, general and organizational stress, law enforcement stress, burnout, overreaction, emotional disorders, sleep disorders, anxiety, depression, drug use, post-traumatic stress disorder	Khadse et al., 2020; Stogner et al., 2020; Kokane et al., 2020; Shirzad et al., 2020; Mehdizadeh and Kamkar, 2020; Drew and Martin, 2020
Educators	Feeling of uncertainty, stress, anxiety, depression, emotional exhaustion, decreased psychological well-being, fear (various levels)	Matiz et al., 2020; Aperribai et al., 2020; Akour et al., 2020; Sahu, 2020; Carr, 2020
Social workers	Work stress, general and organizational stress, burnout, emotional disorders, sleep disorders, anxiety, depression, post-traumatic stress disorder	Turner, 2020; Redondo-Sama et al., 2020; Swinford et al., 2020; Thomas et al., 2020; Solomon-Osborne, 2020
Pharmacists	Work stress, general and organizational stress, burnout, emotional disorders, depression, frustration, anxiety, anger	RPS, 2020; Elbeddini et al., 2020; Lange et al., 2020; Johnston et al., 2020
Entrepreneurs	Concern, stress, anxiety, feeling of uncertainty, depression, fatigue, low energy	Newman, 2020; Jordan, 2020; Australian..., 2020; Business..., 2020

Source: compiled by the author

Table 1 shows that previous studies focused on the effects of the COVID-19 pandemic mainly address a single side of the pandemic – the effects on human mental state. Nevertheless, this type of analysis does not yield any significant results in terms of the effect localisation. Thus, it is still relevant to evaluate the condition of the psychological assistance provision and the quality of work in the organizational system. This can only be done by quantitatively evaluating both the condition and the quality. The results of the evaluation can be used as a tool for managing the process.

4. METHODOLOGY

The process of assessing socio-economic systems or social processes is complicated by the limited volume of heterogeneous and different-sized statistical information. In the theory of multicriteria assessment, there are various ways and methods of obtaining a quantitative generalized assessment in such conditions (Hwang, Yoon, 1981; Zavadskas, Turskis, 2011; Kraujalienė, 2019; Gedvilaitė, 2019; Epifanić et al., 2021).

The researched case in the article differs radically, since it is based on the initial verbal information. In this regard, it is advisable to approve functionally dependent statistics from the theory of extreme statistics. In the theory of extreme statistics, it was proved that the class of limit distributions for the largest sampling rate of random variables contains only three types of laws. The first type for the largest sample member x (n) has the form (Gnedenko, 1943):

$$F_1(x) = \exp[-\exp(-x)] \quad -\infty < x < \infty, \tag{1}$$

where x – numerical value of a variable; $F_1(x)$ – estimate of a variable on a dimensionless scale.

The distributions F_1 (x) (1) obey the exponential distribution law.

To obtain the asymptotic distribution of the smallest value, it is sufficient to use the symmetry principle and the asymptotic distribution of the largest values (1). Therefore, the asymptotic distribution of the smallest value of the first type has the form (Trishch and Slityuk, 2006):

$$F_2(x) = 1 - \exp(-\exp(-x)), \tag{2}$$

where $F_2(x)$– an estimate of a variable on a dimensionless scale based on the distribution of the smallest values in the sample.

That fact is important for us, that the first limit distribution of extreme values can be linearly converted to an expression that does not contain any parameters. Taking into account that the assessment of any indicator of the system or process is subject to such a law that has the asymptotic distribution of the largest and smallest value of the first type, we will get both overestimated and understated estimate value, i.e. the interval of the system indicators (SI). To obtain a point estimate, it is proposed to use the average distribution.

Thus, the lower and upper interval estimation of SI is calculated according to the formulas (1) and (2), and the point estimate of SI – F(x) has the form (Trisch et al. 2016):

$$F_3(x) = \frac{\exp\{-\exp(-x)\} + \{1 - \exp(-\exp(-x))\}}{2}, \tag{3}$$

Where $F_3(x)$– average variable values on a dimensionless scale.

Functions F_1 (x) F_2 (x) and F_3 (x) in graphic form are presented in Figure 2.

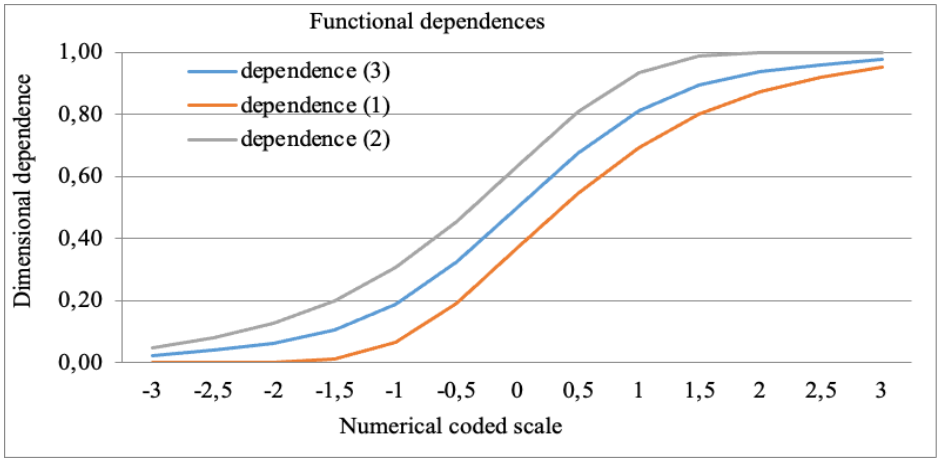

Figure 2. Dependences (1); (2); and (3) SI and their estimates on a dimensionless scale

Source: compiled by the author on the ground Trisch et al., 2016)

It is proposed to apply one of the limiting distributions of extreme statistics to assess the psychological consequences of a pandemic. To select a scale and measurement limits, we will use a quantitative-verbal matrix, which will allow us to transfer various versions of verbal assessments into a coded scale. The matrix provides for the use of verbal scales with the number of assessment options (from 2 to 7). The coded scale varies from − 3 to 3 with a step of 0.5 and is functionally dependent with an estimate of the SI on a dimensionless scale through (3) function (Table 2).

Table 2

Quantitative-verbal matrix

	Number of evaluation options					
Coded scale	**2**	**3**	**4**	**5**	**6**	**7**
−3	+	+	+	+	+	+
−2,5						
−2				+	+	+
−1,5			+			
−1		+			+	+
−0,5				+		
0						+
0,5	+		+		+	+
1				+		
1,5		+			+	+
2			+			
2,5				+	+	+
3						

Source: composed by the authors

The choice of the number of options for assessing SI is determined by the expert method. As a function of combining the normalized SI into a single generalized assessment of the state of the phenomenon under study at a given moment in time, it is proposed to use various options for averaging the values. If the SIs are equivalent, then we apply one of the formulas for the average values.

The point generalized estimate of SI can be found by the formula (Tarka and Olszewska, 2018):

– of geometric mean F_1:

$$F_1 = \sqrt[n]{\Pi_{i=1}^{n} F_i}, \quad (4)$$

where Fi – quality value of the i-th indicator; n – number of SIs.

– of mean harmonic F_2:

$$\frac{1}{F_2} = \frac{1}{n} \sum_{i=1}^{n} \frac{1}{F_i}, \quad (5)$$

of arithmetic mean F_3:

$$F_3 = \frac{1}{n} \sum_{i=1}^{n} \frac{1}{F_i}, \quad (6)$$

It is known that the arithmetic mean is larger than the geometric mean and the harmonic mean. Taking into account this fact, you can apply the decision to implement different formulas to obtain a generalized SI.

If SIs are unequal, then we apply one of the formulas for the weighted average values (Table 3).

Table 3

Types of weighted averages and their basic properties

№	Weighed average	Formula	Continuity	Monotoneness	Symmetry	Associativity	Reversibility	Uniformity
1	Arithmetic	$F_3 = \sum_{i=1}^{n} \gamma_i F_i$, where γ_i – weight coefficients; F_i – single SI; n – number of SIs	+	+		+		+
2	Geometric	$F_1 = \prod_{i=1} F_i^{\gamma i}$	+	+		+	+	+
3	Harmonic	$F_2 = \frac{1}{\sum_{i=1}^{n} \gamma \frac{1}{F_i}}$	+	+		+		+
4	Power	$F_4 = \left[\sum_{i=1}^{n} \gamma_i (F_i)^k\right]^{\overline{k}}$, where k – parameter	+	+		+		+
5	Exponential	$F_5 = \sum_{i=1} \gamma_i e^{F_i}$	+	+	+	+		

Source: Tarka and Olszewska, 2018)

The presented methodology for assessing the researched social phenomenon consists of the following stages:

1. Formation of a set of SIs by interviewing target groups of people. This is a complex expert work that requires a large number of experts with significant experience.

2. The choice of scales and limits of measurement, using a quantitative-verbal matrix (Table 2). This matrix is not the only possible option, but it is quite comprehensive and practical. It is necessary to select the number of variants of SI estimates and determine the numerical values that correspond to them on the coded scale.

3. Determination of the SI estimate on a dimensionless scale. It is necessary to substitute the coded value x in the formula (3).

4. Determination of the generalized SI, using one of the formulas of averages (4-6) or weighted averages (Table 3).

Survey participants: the survey involved the professionals dealing with emergency situations. The respondents represented the following occupations: teachers, education support specialists, health care

workers, social workers, psychologists, state or municipality servants, customs officers, pharmacists and businesspeople.

Survey sample: a total of 1,139 respondents.

Research method: to achieve the intended objectives, a quantitative online survey was conducted. Representatives of various professions who are closely facing the challenges of the COVID-19 pandemic were delivered emails inviting them to participate in the survey and express their opinions. The respondents' contacts were extracted from the publicly available websites of the relevant public and private institutions and companies. Emails inviting to participate in the survey were delivered at all relevant publically available contacts. The professionals were asked the questions about their experiences concerning the consequences of the pandemic, changes in their psychological well-being, opinions about the effects of the pandemic on the general public, mental condition of Lithuanian people during the pandemic and the need for psychological services in society. In addition, some sociodemographic questions were asked to understand the differences or similarities between different population groups depending on their demographic characteristics.

Survey period: October 30 – November 20, 2020.

5. RESULTS AND DISCUSSION

First of all, the respondents – representatives of the target groups – were selected. To ensure the adequacy of the test results, the required sample was estimated:

$$n = \frac{z^2 pq}{\Delta^2}, \quad (7)$$

here: n – sample size; z – Student's coefficient (its value often depends on the selected level of confidence; in social sciences, it commonly amounts to 0.95); p – proportion of the respondents representing the relevant characteristics of the phenomenon under consideration; q = 1 – p; 1 – the sample's margin of error.

Given the confidence value of 0.95, Student's coefficient z is equal to 1.96. Since the value of quantity p is unknown, it can be accepted to be equal to 0.5. Since the object of the research is a social phenomenon, we will accept Δ = 7 %. In this case, n = 195.

As provided in the Fig. 1, the research was conducted in three stages which complement each other, thus making an aggregate. The first question was intended at finding out whether the pandemic affected the respondents' mental health. The summarised answers are provided in Table 4.

Table 4

Survey-based matrix representing the effects of the pandemic on the respondents' mental health

Symptoms of mental tension	**Number of answers**					
	completely yes	**yes**	**more yes than no**	**more no than yes**	**no**	**completely no**
Stress	76	57	38	11	10	3
Anxiety	76	65	37	9	5	3
Depression	18	41	60	33	26	13
Insomnia	28	57	54	26	14	14
Fatigue	31	41	61	31	20	10
Frustration	16	32	45	43	39	16
Aggression	31	53	54	31	12	12

Source: compiled by the authors

The second question was intended at determining the need for psychological assistance. The results of the survey are provided in Table 5.

Table 5

The results of the survey regarding the need for psychological assistance

Evaluation of the situation	**Has not changed**	**Slightly increased**	**Increased**	**Significantly increased**
Number of answers	8	61	82	34

Source: compiled by the authors

The third question was intended at evaluating the accessibility of psychological assistance. The results are provided in Table 6.

Table 6

The results of the survey regarding accessibility of psychological assistance

Indications of the situation	**Number of answers**
It is not accessible or hardly accessible	57
Weak state support for psychological assistance	80
It is occasional	0
It is low quality	11
It is sufficient	51
It is fully sufficient	130

Source: compiled by the authors

The respondents were asked two more questions: 1. Is there a need for a law regulating psychological activities? 2. Are the prices of psychological assistance provided by the public sector adequate in comparison with the prices charged for other types of services? The results are depicted in Table 7.

Table 7

The results of the survey regarding the need for a law regulating psychological activities and the prices charged for psychological assistance

Question	**Evaluations and number of answers**					
	definitely yes	**yes**	**more yes than no**	**more no than yes**	**no**	**definitely no**
A law is not necessary	53	47	50	19	10	16
Are the prices charged for psychological assistance adequate?	2	4	10	22	42	115

Source: compiled by the authors

Table 4–7 shows that the situation evaluation scales differ in the number of the response options. Quantitative values of the verbal evaluation indicators (features) can be estimated based on the quantitative-verbal matrix (Table 2). The results of the estimations are provided in Table 8.

Table 8

Quantitative-verbal evaluation of the survey-based verbal estimates

Tests		1.1–1.7	2–3.1		3.2–3.3
Evaluation scales	–3	Completely no		It is not accessible or hardly accessible	Definitely yes
	–2.5		Has not changed		
	–2	No		Weak state support for psychological assistance	No
	–1.5				
	–1.0	More no than yes	Slightly increased	It is occasional, poorly organised	More no than yes
	–0.5				
	0				
	0.5				
	1.0	More yes than no	Increased	It is low quality	More yes than no
	1.5				
	2.0	Yes		It is sufficient	Yes
	2.5		Significantly increased		
	3.0	Definitely yes		It is fully sufficient	Definitely yes

Source: compiled by the authors

By comparing the qualitative values obtained during the survey with the scale of the normalized quantitative values (ranging from –3 to 3 at step 0.5 (see Table 7)), the qualitative test result values are converted to the quantitative ones. By applying formula (3), evaluations on a dimensional scale are found. In general, multicriteria evaluation is based on formula (6). The results are represented by the diagrams (Fig. 3–7).

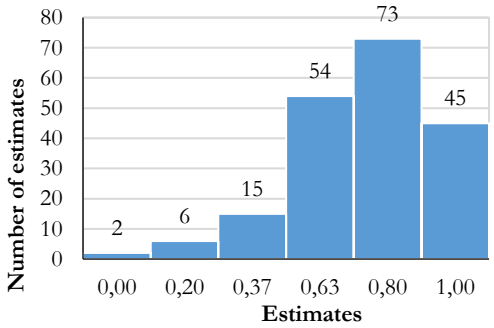

Figure 3. Generalised evaluations of the respondents' answers to the first survey question

Source: compiled by the authors

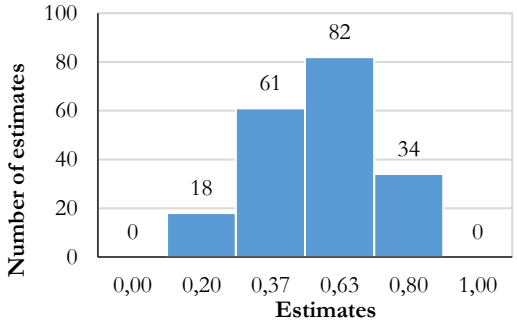

Figure 4. Generalised evaluations of the respondents' answers to the second survey question

Source: compiled by the authors

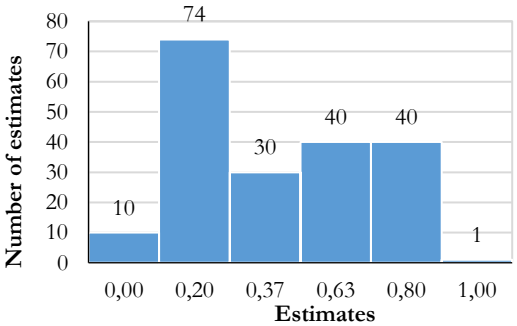

Figure 5. Generalised evaluations of the respondents' answers to the third survey question

Source: compiled by the authors

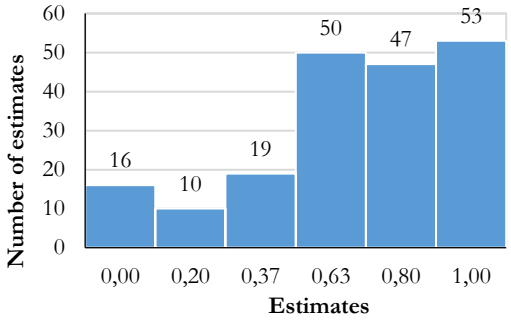

Figure 6. Generalised evaluations of the respondents' answers to the first question in test four

Source: compiled by the authors

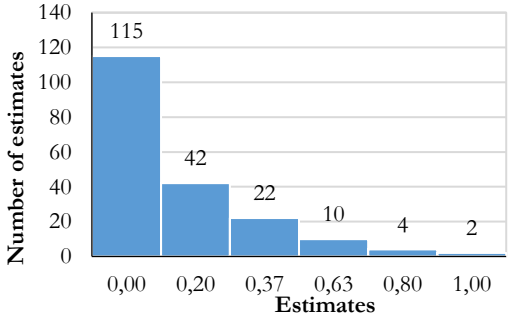

Figure 7. Generalised evaluations of the respondents' answers to the second question in test four

Source: compiled by the authors

Fig. 3 indicates that the answer "yes" is provided the highest ranking. This corresponds to the largest number of the respondents and means that most professionals affected by the pandemic report mental problems.

The diagram in Fig. 4 confirms that those undergoing mental problems need qualified psychological assistance.

The diagram in Fig. 5 shows that psychological assistance is hardly accessible. The problem of weak state support must also be noted (0.2).

The diagram in Fig. 6 indicates that a law regulating psychological activities is necessary (with prevailing estimates of 0.63–1.0).

The quantitative evaluation of the survey results also revealed that the current prices charged for psychological assistance are inadequate, i.e. unreasonably high (Fig. 7).

When developing an effective pandemic monitoring system, it is important not only to assess the effects of the pandemic on population's mental health, but also to determine the sequence of its features. This can be done based on the above-presented methodology and results of the same survey. The only difference is that in the latter case, the generalized value representing the significance of a feature is estimated by summing the transformed (dimensionless) values, i.e. by summing the rows instead of the columns in the matrix (Table 4). The results of the estimations are provided in Table 9.

Table 9

Ranks of the significance of particular mental tension symptoms

Mental tension symptoms	**Stress**	**Anxiety**	**Depression**	**Insomnia**	**Fatigue**	**Frustration**	**Aggression**
The value of multicriteria evaluation	0.78	0.80	0.56	0.62	0.61	0.49	0.63
The rank of a particular mental tension symptom	2	1	6	4	5	7	3

Source: compiled by the authors

Table 9 shows that two major symptoms of the professionals' mental health disorder are anxiety and stress. Thus, psychological assistance needs to be focused primarily on this aspect to localize the mental effects of the pandemic.

Transformation of the verbal evaluations reflecting the condition of a particular socio-economic process into the quantitative estimates opens up a great potential for further research to employ not only qualitative, but also quantitative evaluation for solving various problems of managing either social processes or socio-economic systems. These problems include the ones that require the knowledge of the probabilistic laws in terms of indicator value distribution, identification of the unwanted situations and risks in the process of socio-economic development, determination of the regularities in the dynamic system development, justification of a socio-economic system management decisions, etc.

6. CONCLUSION

1. The effects of the COVID-19 pandemic primarily manifest as mental health disorders reported by most vulnerable people. The most common mental health disorder symptoms are stress, anxiety, depression, insomnia, fatigue, aggression, etc. Today, most studies are limited within identification of the symptoms of mental health disorder, although the effects of the pandemic can only be managed effectively by developing a relevant monitoring system. This system should be based not only on identifying the nature of the effects of the pandemic, but also on identifying the need to localize mental effects and evaluating the effectiveness of the current system.

2. To develop an adequate system for monitoring mental effects of the pandemic, the verbal information obtained through a survey needs to be converted into the quantitative one. This can be done by employing the statistics of functional dependence from the theory of extreme evaluations.

3. The methodology, proposed in this article, is universal not only in the context of the COVID-19 pandemic. Different types of population surveys are carried out on a regular basis. In all these cases, it is important to get not only a qualitative, but also a quantitative picture of a situation because only comprehensive evaluation allows developing target measures for an effective process management.

4. Transformation of the verbal evaluations reflecting the condition of a particular process into the quantitative estimates opens up a great potential for further research. Solutions to the problems observed in various social and socio-economic processes can be based on both quantitative and qualitative evaluations.

Scientific novelty of the article lies in the original methodology developed for transforming verbal evaluations into quantitative ones; the methodology is based on the functional dependencies of extreme statistics. Practical significance of the research results lies in identification of the specific symptoms of human mental distress caused by the COVID-19 pandemic. Quantitative assessment of the current situation allows for the development of an effective monitoring system, which is extremely relevant for the institutions responsible for localizing the consequences of the pandemic - health care, social welfare, administrative management bodies/institutions, psychological assistance providers, etc.

SUPPORTING INFORMATION

S1 Fig. A system for monitoring the mental effects of the pandemic (source: compiled by the authors)

S2 Fig.. Dependences (1); (2); and (3) SI and their estimates on a dimensionless scale (source: compiled by the author on the ground Trisch et al., 2016)

S3 Fig. Generalised evaluations of the respondents' answers to the first survey question (source: compiled by the authors)

S4 Fig. Generalised evaluations of the respondents' answers to the second survey question (source: compiled by the authors)

S5 Fig. Generalised evaluations of the respondents' answers to the third survey question (source: compiled by the authors)

S6 Fig. Generalised evaluations of the respondents' answers to the first question in test four (source: compiled by the authors)

S7 Fig. Generalised evaluations of the respondents' answers to the second question in test four (source: compiled by the authors)

REFERENCES

ABC. (2020). Retrieved from ABC News: https://abc7ny.com/nypd-coronavirus-deaths-nyc-news/6065991/

Akour, A., Al-Tammemi, A. B., Barakat, M., Kanj, R., Fakhouri, H. N., Malkawi, A., Musleh, G. (2020). The impact of the COVID-19 pandemic and emergency distance teaching on the psychological status of university teachers: a cross-sectional study in Jordan. *The American Journal of Tropical Medicine and Hygiene, 103*(6), 2391-2399. https://doi.org/10.4269/ajtmh.20-0877

Alexandra, Y., Purnamaningsih, P., & Choirisa, S. (2021). Comparative study: International chain and local chain hotel COVID-19 readiness strategies in Indonesia. *Economics, Management and Sustainability, 6*(2), 119-131. https://doi.org/10.14254/jems.2021.6-2.9

Androniceanu, A. (2020). Major structural changes in the EU policies due to the problems and risks caused by COVID-19. *Administratie si Management Public; Bucharest Iss. , 34*, 137-149. https://doi.org/10.24818/amp/2020.34-08

Anita, R. Fedor (2021). Job satisfaction in Hungary – comparative study. *Economics and Sociology, 14*(2), 331-349. https://10.14254/2071-789X.2021/14-2/18

Aperribai, L., Cortabarria, L., Aguirre, T., Verche, E., Borges, A. (2020). Teacher's physical activity and mental health during lockdown due to the COVID-2019 pandemic. *Frontiers in Psychology, 11*, 577886. https://doi.org/10.3389/fpsyg.2020.577886

Australian Government. (2020). Retrieved from Mental health and wellbeing support for business: https://business.gov.au/risk-management/mental-health/mental-health-and-wellbeing-support-for-business

Business Development Bank of Canada. (2020). Retrieved from New BDC survey finds COVID-19 is impacting entrepreneurs' mental health - alongside their businesses: https://www.newswire.ca/news-releases/new-bdc-survey-finds-covid-19-is-impacting-entrepreneurs-mental-health-alongside-their-businesses-849756295.html

Cabarkapa, S. N. (2020). The psychological impact of COVID-19 and other viral epidemics on frontline healthcare workers and ways to address it: a rapid systematic review. *Brain, Behavior and Immunity – Health, 8*, 100144. https://doi.org/10.1016/j.bbih.2020.100144

Carr, J. (2020). *Coronavirus: Majority of teachers' mental health declines.* Retrieved from https://schoolsweek.co.uk/coronavirus-majority-of-teachers-mental-health-declines/

Cawcutt, K. A. (2020). Fighting fear in healthcare workers during the COVID-19 pandemic. *Infection Control & Hospital Epidemiology, 25*, 1–2. https://doi.org/10.1017/ice.2020.315

Cepel, M., Gavurova, B., Dvorsky, J., & Belas, J. (2020).The impact of the COVID-19 crisis on the perception of business risk in the SME segment. *Journal of International Studies, 13*(3), 248-263. https://doi.org/10.14254/2071-8330.2020/13-3/16

Chan, A. O. M., Huak, C. Y. (2004). Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. *Occupational Medicine, 54*(3), 190–196. https://doi.org/10.1093/occmed/kqh027

Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L., Sheng, C., Cai, Y., Li, X., Wang, J., Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatry, 7*(4), e15–e16. https://doi.org/10.1016/S2215-0366(20)30078-X

Cherniak, O., Trishch, R., Kim, N., Ratajczak, S. (2020). Quantitative assessment of working conditions in the workplace. *Engineering Management in Production and Services, 12*(2), 99-106. https://doi.org/10.2478/emj-2020-0014

Cinelli, M.; Coles, S. R.; Kirwan, K. (2014). Analysis of the potentials of multi criteria decision analysis methods to conduct sustainability assessment. *Ecological Indicators, 46*, 138–148. Retrieved from https://doi.org/10.1016/j.ecolind.2014.06.011

Drew, J. M., Martin, S. (2020). Mental health and well-being of police in a health pandemic: critical issues for police leaders in a post-COVID-19 environment. *Journal of Community Safety & Well-being, 5*(2), 31-36. https://doi.org/10.35502/jcswb.133

Du, J., Dong, L., Wang, T., Yuan, C., Fu, R., Zhang, L., Liu, B., Zhang, M., Yin, Y., Qin, J., Bouey, J., Zhao, M., Li, X. (2020). Psychological symptoms among frontline healthcare workers during COVID-19 outbreak in Wuhan. *General Hospital Psychiatry, S0163–8343*(20), 30045-1. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7194721/pdf/main.pdf

Elbeddini, A., Wen, C. X., Tayefehchamani, Y., To, A. (2020). Mental health issues impacting pharmacists during COVID-19. *Journal of Pharmaceutical Policy and Practice, 13*(1), 1-6. https://doi.org/10.1186/s40545-020-00252-0

Epifanić, V., Urošević, S., Dobrosavljević, A., Kokeza, G., Radivojević, N. (2021). Multi-criteria ranking of organizational factors affecting the learning quality outcomes in elementary education in Serbia. *Journal of Business Economics and Management, 22*(1), 1-20. https://doi.org/10.3846/jbem.2020.13675

Gedvilaitė, D. (2019). *The assessment of sustainable development of a country's regions. Doctoral dissertation.* Vilnius: Technika. Retrieved from http://dspace.vgtu.lt/bitstream/1/3797/1/Gedvilaite%20disertacija%2005%2016nn.pdf

Gnedenko, B. (1943). Sur La Distribution Limite Du Terme Maximum D'Une Serie Aleatoire. *Annals of Mathematics Second Series, 44*(3), 423-453. https://doi.org/doi.org/10.2307/1968974

Gupta, S., Sahoo, S. (2020). Pandemic and mental health of the front-line healthcare workers: a review and implications in the Indian context amidst COVID-19. *General Psychiatry, 33*(5), e100284. https://doi.org/10.1136/gpsych-2020-100284

Hwang, C.-L., Yoon, K. (1981). *Multiple attribute decision making: methods and applications: a state-of-the-art survey.* New-York: Springer-Verlag.

Javadi, S. M. H., Arian, M., Qorbani-Vanajemi, M. (2020). The need for psychosocial interventions to manage the coronavirus crisis. *Iranian Journal of Psychiatry and Behavioral Sciences, 14*(1), e102546. https://doi.org/10.5812/ijpbs.102546

Johnston, K., O'Reilly, C. L., Cooper, G., Mitchell, I. (2020). The burden of Covid-19 on pharmacists. *Journal of the American Pharmacists Association, S1544-3191*(20), 30528-8. https://doi.org/10.1016/j.japh.2020.10.013

Jordan, A. (2020). *Small business owners reveal how they've handled mental health and COVID-19*. Retrieved from https://smallbusiness.co.uk/small-business-owners-reveal-how-theyve-handled-mental-health-and-covid-19-2549883/

Khadse, P. A., Gowda, G. S., Ganjekar, S., Desai, G., Murthy, P. (2020). Mental health impact of COVID-19 on police personnel in India. *Indian Journal of Psychological Medicine, 42*(6), 580–582. https://doi.org/10.1177/0253717620963345

Kokane, P. P., Maurya, P., Muhammad, M. (2020). Understanding the incidence of COVID-19 among the police force in Maharashtra through a mixed approach. *medRxiv. The preprint server for health sciences*. https://doi.org/10.1101/2020.06.11.20125104

Kostynets, I., Kostynets, V., & Baranov V. (2020). Pent-up demand effect at the tourist market. *Economics and Sociology, 13*(2), 279-288. https://doi.org/10.14254/2071-789X.2020/13-2/18

Kraujalienė, L. (2019). Comparative analysis of multicriteria Decision-making methods evaluating the efficiency of technology transfer. *Business Management and Education, 17*, 72–93. https://doi.org/10.3846/bme.2019.1101

Kudej, M., Gavurova, B., & Rowland, Z. (2021). Evaluation of the selected economic parameters of Czech companies and their potential for overcoming global crises during the Covid-19 pandemic. *Journal of International Studies, 14*(1), 258-275. https://doi.org/10.14254/2071-8330.2021/14-1/18

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., et al. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open, 3*, e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Lange, M., Joo, S., Couette, P.-A., de Jaegher, S., Joly, F., Humbert, X. (2020). Impact on mental health of the COVID-19 outbreak among community pharmacists during the sanitary lockdown period. *Annales Pharmaceutiques Francaises, 78*(6), 459-463. https://doi.org/10.1016/j.pharma.2020.09.002

Lisiński, M., Augustinaitis, A., Nazarko, L., Ratajczak, S. (2020). Evaluation of dynamics of economic development in Polish and Lithuanian regions. *Journal of Business Economics and Management, 21*(4), 1093-1110. https://doi.org/10.3846/jbem.2020.12671

Lu, W., Wang, H., Lin, Y., Li, L. (2020). Psychological status of medical workforce during the COVID-19 pandemic: a cross-sectional study. *Psychiatry Research, 288*, 112936. https://doi.org/10.1016/j.psychres.2020.112936

Matiz, A., Fabbro, F., Paschetto, A., Cantone, D., Paolone, A. R., Crescentini, C. (2020). Positive impact of mindfulness meditation on mental health of female teachers during the COVID-19 outbreak in Italy. *International Journal of Environmental Research and Public Health, 17*(18), 6450. https://doi.org/10.3390/ijerph17186450

Mehdizadeh, S., Kamkar, K. (2020). COVID-19 and the impact on police services. Retrieved from https://journalcswb.ca/index.php/cswb/article/view/139/272

Newman, K. (2020). COVID-19 and its impact on small businesses. Retrieved from https://www.mhaessexmorris.org/covid-19andsmallbusiness/

Nyashanu, M., Pfende, F., Ekpenyong, M. (2020). Exploring the challenges faced by frontline workers in health and social care amid the COVID-19 pandemic: experiences of frontline workers in the English Midlands region, UK. *Journal of Interprofessional Care, 34*(5), 655-661. https://doi.org/10.1080/13561820.2020.1792425

Oliinyk, O., Bilan, Y., Mishchuk, H., Akimov, O. & Vasa, L. (2021). The impact of migration of highly skilled workers on the country's competitiveness and economic growth. *Montenegrin Journal of Economics, 17*(3), 7-19. https://doi.org/10.14254/1800-5845/2021.17-3.1

Order No. V-1504 of the Minister of Health of the Republic of Lithuania on Description of the Procedure for Organizing Provision of Personal Health Care Services under the Conditions of the State-Level Emergency Declared in the Territory of the Republic o. (2020, 06 17).

Redondo-Sama, G., Matulic, V., Munte-Pascual, A., de Vicente, I. (2020). Social work during the COVID-19 crisis: responding to urgent social needs. *Sustainability, 12*(20), 8595. https://doi.org/10.3390/su12208595

Resolution No. 1226 of the Government of the Republic of Lithuania on Declaration of Quarantine on the Territory of the Republic of Lithuania, Register of Legal Acts. (2020, 11 04).

Resolution No. 207 of the Government of the Republic of Lithuania on Declaration of Quarantine on the Territory of the Republic of Lithuania, Register of Legal Acts. (2020, 03 14).

Royal Pharmaceutical Society of Great Britain (RPS). Impact of COVID-19 on pharmacists' mental health and wellbeing. (2020). Retrieved from https://www.rpharms.com/about-us/news/details/Impact-of-COVID-19-on-pharmacists-mental-health-and-wellbeing

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus, 12*(4), e7541. https://doi.org/10.7759/cureus.7541

Shirzad, H., Farajzadeh, M. A., Hosseini Zijoud, S. R., Farnoosh, G. (2020). The role of military and police forces in crisis management due to the COVID-19 outbreak in Iran and the world. *Journal of Police Medicine, 9*(2), 63–70.

Solomon-Osborne, A. (2020). Opinion: psychological first aid for front-line workers in quarantine. Retrieved from https://www.devex.com/news/opinion-psychological-first-aid-for-front-line-workers-in-quarantine-98239

Stogner, J., Miller, B. L., McLean, K. (2020). Police stress, mental health, and resiliency during the COVID-19 pandemic. *American Journal of Criminal Justice, 26*, 1–13. https://doi.org/10.1007/s12103-020-09548-y

Swinford, E., Galucia, N., Morrow-Howell, N. (2020). Applying gerontological social work perspectives to the coronavirus pandemic. *Journal of Gerontological Social Work, 63*(6-7), 513-523. https://doi.org/10.1080/01634372.2020.1766628

Tarka, D., Olszewska, A.M. (2018). *Elementy statystyki. Opis statystyczny*. Białystok: Bialystok University of Technology (PB).

Thomas, J. P., Srinivasan, A., Wickramarachchi, C. S., Dhesi, P. K., Hung, Y. M. A., Kamath, A. V. (2020). Evaluating the national PPE guidance for NHS healthcare workers during the COVID-19 pandemic. *Journal of Clinical Medicine, 20*(3), 242–247. https://doi.org/10.7861/clinmed.2020-0143

Tomlin, J., Dalgleish-Warbuton, B., Lamph, G. (2020). Psychosocial Support for Healthcare Workers during the COVID-19 Pandemic. Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01960/full

Trisch, R., Gorbenko, E., Dotsenko, N., Kim, N., Kiporenko, A. (2016). Development of qualimetric approaches to the processes of quality management system at enterprises ac-cording to international standards of the ISO 9000 series. *Eastern-European Journal of Enterprise Technologies, 82*(4/3), 18–24. https://doi.org/10.15587/1729-4061.2016.75503

Trishch, R. M., Slityuk, E. A. (2006). Spot and interval evaluation of product quality [Tochechnaja i interval'naja ocenki kachestva izdelij], Collection of scientific works. *Bulletin of the NTU "KhPI", 27*, 96–102.

Turner, A. (2020). Coronavirus: 75% of social workers feeling more negative about their work-life than last year, survey finds. Retrieved from https://www.communitycare.co.uk/2020/12/11/coronavirus-75-social-workers-feeling-negative-work-life-last-year-survey-finds/

Tvaronavičienė, M., Mazur, N., Mishchuk, H., & Bilan, Y. (2021). Quality of life of the youth: assessment methodology development and empirical study in human capital management. *Economic Research-Ekonomska Istraživanja*, 1-18. https://doi.org/10.1080/1331677X.2021.1956361

Vizheh, M., Qorbani, M., Arzaghi, S. M., Muhidin, S., Javanmard, Z., Esmaeili, M. (2020). The mental health of healthcare workers in the COVID-19 pandemic: a systematic review. *Journal of Diabetes and Metabolic Disorders, 26*, 1-12. https://doi.org/10.1007/s40200-020-00643-9.

WHO Timeline: WHO's COVID-19 response [online]. (2021, 05 07). Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline#event-12

Zavadskas, E.K., Turskis, Z. (2011). Multiple criteria decision making (MCDM) methods in economics: an overview. *Technological and Economic Development of Economy, 17*(2), 397-427. https://doi.org/10.3846/20294913.2011.593291

Zhang, W., Wang, K., Yin, L., Zhao, W., Xue, Q., Peng, M., Min, B., Tian, Q., Leng, H., Du, J., Chang, H., Yang, Y., et al. (2020). Mental Health and Psychosocial Problems of Medical Health Workers during the COVID-19 Epidemic in China. Psychotherapy and. *Psychotherapy and Psychosomatics, 9*, 1–9. https://doi.org/10.1159/000507639