THE RELIGIOUS AND MENTAL HEALTH DETERMINANTS OF THE COVID-19'S FEAR IN THE CEE COUNTRIES

Șerban Olah[1], Katarzyna Bałandynowicz-Panfil[2*], Janez Štebe[3], Mojca Šoštarič Zvonar[4], Ana Slavec[5], Adrienn Kaszás[6], Győző Pék[6], Małgorzata Łosiewicz[7] and Magdalena Iwanowska[7]

[1] University of Oradea, Faculty of Social Sciences, Strada Universității 3, Oradea, 410087, Romania
[2] University of Gdańsk, Faculty of Economics, Armii Krajowej 119/121, Sopot, 81-824, Poland
[3] University of Ljubljana, Faculty of Social Sciences, Kardeljeva ploščad 5, Ljubljana, SI-1000, Slovenia
[4] University Psychiatric Clinic Ljubljana, Chengdujska 45, Ljubljana, 1260, Slovenia
[5] University of Primorska, Faculty of Mathematics, Natural sciences and Information technologies, Glagoljaška 8, Koper, 6000, Slovenia
[6] University of Debrecen, Faculty of Humanities, Egyetem tér 1, Debrecen, H-4032, Hungary
[7] University of Gdańsk, Faculty of Social Sciences, Bażyńskiego 4, Gdańsk, 80-309, Poland

(Received 17 November 2023, revised 8 December 2023)

Abstract

The research analyses the relationship between fear and religiosity, particularly focusing on religious habits and intrinsic religiosity in the context of the covid-19 pandemic. A total number of 2212 questionnaires have been collected in Romania, Poland, Slovenia and Hungary in 2021 on the non-vaccinated population. The questionnaire covers topics such as vaccination, religiosity and socio-demographics, and includes the DASS 21 psychological scale, which measures depression, anxiety and stress symptoms. Furthermore, the questionnaire incorporated a specific question regarding the fear of SARS-CoV-2 virus. The findings show that the intrinsic religiosity, age, stress, anxiety and exposure to the news from the traditional media or to the information coming from professional sources seem to increase the degree of fear during the pandemic context. The study yields significant implications for understanding the complex interplay of factors shaping the vaccination attitudes of this group, as well as how they obtain information. This may contribute to developing more effective communication channels for people with passive strategies for coping with fear and anxiety. The need to seek information in times of uncertainty and attitudes that indicate a higher level of intimate religiosity can be leveraged to build more effective coping strategies for unexpected external events or situations that cause fear and anxiety. This is important in light of the ongoing development of Central and Eastern European countries and their specific social and economic background.

Keywords: religiosity, pandemic, DASS 21, socio-economic, conditions

[*]Corresponding author, e-mail: k.balandynowicz@ug.edu.pl, tel./fax: (+48) 585231231

1. Introduction

According to the World Health Organization psychological health means a physical, psychological and social state of wellbeing [World Health Organisation, 2022, http://who.org]. Health means not only the lack of the ill but also a complex state of wellbeing, a dynamism and a personal development. The psychological disorder means a series of changes at subjective, cognitive, psycho-physiological and behavioural level that could generate distress and disability [1].

One of the elements that disrupt wellbeing is fear. The fear is an emotion-shock provoked by the consciousness of a present and imperative danger that warns our conservation. The anguish is at the same time fear and desire. It could be caused by warnings, which are real even if they are not vague. The anguish could create disorientation and the lack of adaptation, a dangerous proliferation of the imaginary [2]. Bourne considers another negatively affecting mental health - anxiety, somehow different from fear [3].

The fear is usually directed towards an object or a possible situation. The event that made the object of fear is closed into the borders of the possible. But when somebody is anxious, they usually cannot explain the reasons for this feeling. The epicentre of the anxiety is rather inside than outside. It seems that is a reaction at a vague danger, distant or even unknown [3]. Fear and anxiety are therefore perceived as separate emotional states, which, however, have much in common. Therefore, the existence of a relationship and co-occurrence between them is assumed. Additionally, they aim to encourage the individual to adapt and anticipate events in the future [4]. In this article it is used the concept of fear in the sense of anguish or psychological anxiety.

The achievements of civilization are intended to lead humanity to a higher level of development in social and economic terms. It is about the natural need of people to improve their lives. It can only be ensured by a compilation of factors that influence well-being, both in the physical and mental dimensions. The modern level of development provides more space for dealing with well-being. According to data from [World Values Survey, 2023, http://world valuessurvey.or], most societies follow one direction of development: from societies for which survival is the most important priority to societies wishing to ‘express themselves’, achieve harmony in life and take care of their own comfort. However, this is not possible to achieve in all conditions, and recent events have made this clear once again.

The years of covid-19 pandemic were probably the period that scared humanity the most in the last few decades. Only in Romania, until the end of 2022, 67,374 people died and 3.31 million people have been infected by the SARS-CoV-2 virus. Similarly, in Poland in the same period there were 6.37 million cases of covid-19 infections (118,475 fatalities), in Slovenia 1.30 million (6,998), in Hungary 2.18 million (48,439). On world level, 6.68 million people died and 658 million have been infected.

The pandemic as this one caused by the virus has not only consequences such as deaths or persons that have been infected. The psychological consequences of a pandemic are very important as well. The theory is not new. In his famous book published in 1978 'La peur en Occident', the French historian Jean Delumeau wrote that in the Middle Ages time the fears were related to the sea's travels, the ghosts, the hell (the afterlife) or the plague episodes [2]. As one of the biblical horsemen of the Apocalypse, the plague has always aroused fear and uncertainty. It was a harbinger of the end of the world, and the panic that accompanied, especially the initial phase of the epidemic's development, significantly affected mental well-being [5].

As a source of fear and uncertainty, the pandemic has sparked a very intense movement to address the consequences of the difficult situation. Individuals, groups, governments, international organisations and entire communities are trying to reduce their levels of anxiety. This is done by providing current information, introducing preventive measures, and psychological support. These actions are intended to reduce the level of anxiety. Other ways are also denial or repression. In Psychology, there is a term 'resilience', the capacity of an individual to avoid anxiety, when faced with a critical situation. Resilience describes situations when people are trying to achieve homeostasis and live with fear or with anxiety as well as the consequences of the pandemic [6-8]. The described behaviours are consistent with theories about individuals' behaviour in the face of fear and anxiety. In both cases, the consequences of the occurrence of these emotional states are active and passive coping strategies.

The Poles say "In times of trouble, turn to God (Jak trwoga to do Boga)". One of the factors considered in the literature that influences the level of fear and anxiety in a pandemic is religiosity [9, 10]. Religiosity helps in coping with problems and has consequences for physical health, mental well-being and health behaviours [11, 12]. For Weber, an action that is magically motivated or religiously motivated is oriented in its primitive constitution towards this world [13]. Magically motivated actions should be fulfilled with the purpose that things should go well for him or her and to live a lot on this Earth. The central element of the religion is represented by the specific beliefs about transcendence. A person is religious if believes in one or many transcendent entities with supernatural powers that could intervene in human lives [14]. Religion is a vague concept, or has many sides and it is contested, believe Basedau et al [M. Basedau, S. Gobien and S. Prediger, *The Ambivalent Role of Religion for Sustainable Development: A Review of the Empirical Evidence*, GIGA Working Papers, 297 (2017)].

The article analyses how Central and Eastern Europeans have been affected by the fear of the SARS-CoV-2 virus, anxiety, depression and stress during covid-19 pandemic. The article is about the psychological consequences of the pandemic but mostly about the relation between religiosity and psychological distress in these circumstances. The research question is: (RQ) Is religiosity a buffer during the SARS-CoV-2 pandemic?

2. Literature review on relation between religiosity and fear

The literature on the subject provides rich research material on the connections between religiosity and the level of fear and anxiety, which in turn have an assumed strong impact on well-being, especially in the dimension of mental comfort. They can be divided into three categories according to the research results: confirming a positive correlation between religiosity and well-being, indicating a negative relationship between these categories, as well as suggesting no connections between the level of religiosity and fear or anxiety.

Historically, religion and spirituality have been considered important determinants of health. As early 1897, the Durkheim's study found that religion can explain specific individual and community behaviours and the underlining differences in suicides rates between Protestants, Catholics and Jews in Europe. Galton [15], and James [W. James, *The reality of unseen*, 1902, Information and Education Services, www.thepdi.com] were early supporters of the salutary effect of religion on mental health. In his works, Freud emphasised that religion is utilitarian in nature in relation to man's need to feel in control and to be protected from unforeseen threats arising from Nature [S. Thornton, *Sigmund Freud: Religion*, in *The Internet Encyclopaedia of Philosophy*, http://iep.utm.edu].

The integration of religion, and its value system(s) into an individual's life, often brings a realisation and stability in one's daily sense of trust and thought organisation in relation to others and not only to themselves [C. Harmon, *Religiosity and Delinquency: A test of the Religion Ecology Hypothesis*, scholarsarchive.byu.edu, 2001]. For instance a Hungarian study showed that practising religion was largely associated with better mental health and more favourable physical health status [16]. The personal importance of religion showed a mixed pattern since it was positively associated not only with wellbeing but depression and anxiety as well. The relationship between religiosity and belief in god and lower perceived levels of stress has been proven in studies of Orthodox Jews in the United States [17], African-American Christians [18], Pakistani Muslims [19], or Catholics in Nigeria [12]. It can therefore be assumed that, despite the differences in research results, religiosity has a significant positive impact on the well-being of an individual.

There are also opposing opinions in the literature. Previously mentioned Freud portrayed the religious person as neurotic and delusional [S. Freud, *Fragment of an analysis of a case of hysteria*, 1905, pep-web.org]. He referred to religious rituals as obsessive-compulsive acts and criticised religion as a psychopathological phenomenon. This is an obvious manifestation of the opinion that religiosity has a negative impact on well-being. Several research studies from various countries have reported a negative association between religiosity and anxiety [20].

However, not all the scientific communities do share these associations between religion/spirituality and wellbeing. Some researchers claimed that religion and spirituality are invisible social determinants of health [21] and have no place in modern medicine [22].

Similar conclusions also come from research on the relationship between religiosity and anxiety during the covid-19 pandemic. And here too there are no clear opinions on this matter. This relationship is considered both significantly positive, significantly negative and insignificant. For instance, the cross-sectional quantitative online survey based study of Passos et al aimed to describe the role of spiritual-religious coping regarding fear and anxiety in relation to covid-19 in Healthcare Workers in Portugal [23]. Religiosity was neither a significant factor for coronavirus-related anxiety nor was it the fear of covid-19.

The covid-19 pandemic has significantly increased the sense of uncertainty and fear. Many people, in search of a panacea for the increase of anxiety, directed their actions towards faith and religion [24]. A factor analysis based study in Australian, Indian and Nepali university students revealed two item factors in the sample, fear of infection and existential threat. The convergent and discriminant validity of the full Contagion Fear and Threat Scale, fear of infection and existential threat scales are indicated via correlations with established measures of depression, anxiety, stress, subjective wellbeing and religiosity [25].

A Tunisian quantitative study aimed to assess psychological distress in the general population of Tunisia during the covid-19 pandemic and to examine the contribution of religious coping (RC). Multivariate analysis showed that negative RC significantly and positively contributed to depression and anxiety scores of the respondents indicating that greater use of negative RC, spiritual struggle, punishment, questioning the good god's will, and even his existence, was associated with higher levels of psychological distress [26].

On the other hand, a study in the USA and UK through online questionnaires examined the impact of the covid-19 crisis upon common people's religious beliefs. The study found that anxiety about covid-19 and prior religiosity showed an interaction upon change in religious beliefs. For strong believers higher anxiety about coronavirus was associated with increased strengthening of religious beliefs, while for non-believers higher anxiety about coronavirus was associated with increased scepticism towards religious beliefs [27].

At the same time, the conducted interreligious research also confirms the earlier observations. Both Christians and Muslims showed a higher level of fear of covid-19 compared to non-religious people in the UK [28]. A return to the church is indicated in many studies [24], but it is predicted that this effect will be of a short-term nature [29, http://news.gallup.com]. These arguments are about the causal order of anxiety and religion. It can be seen as a plausible alternative explanation to the current line of research.

Since the conclusions drawn from the literature on the subject are not clear, further research in this area may provide additional arguments regarding the connection between religiosity and fears related to the pandemic. One of the elements is expanding the research sample to new countries and proposing research of a more comprehensive international nature.

The lack of unanimity in previous research is also related to the level of detail of the approach to religiosity. The second assumption of the present considerations must therefore introduce a distinction in the study of religiosity. Operationalization attempts of the concept of religion have many examples in the research literature. Basedau, Gobien and Prediger proposed four dimensions: religious ideas, religious practices, religious actors and organisations and a religious identity [*The Ambivalent Role of Religion for Sustainable Development: A Review of the Empirical Evidence*, GIGA Working Papers, 297 (2017)]. In the 60's. of the XX century Glock and Stark introduced typology of religiosity as: belief, experience, practice, theology and ethics. Their work was developed, i.e. to even ten dimensions, adding: identity, statuses, affiliation, community and the relation to the divine [30]. It lets many authors develop their indexes. For examples: the Centrality of Religiosity Scale [31] or Duke University Religion Index [32].

Regardless of the level of detail in research on religiosity and its influence on particular aspects of community life, they can be summarised by pointing to two dimensions: internal and external [33]. External aspects of religiosity mainly concern participation in religious life. Inner religiosity, also called hidden religiosity or intimate belief, refers to the sense of religious identity and the subjective sense of the influence of religion on one's life and decisions. The need to study them separately and analyse the relationships between these two categories is indicated in the literature on the subject [34, 35].

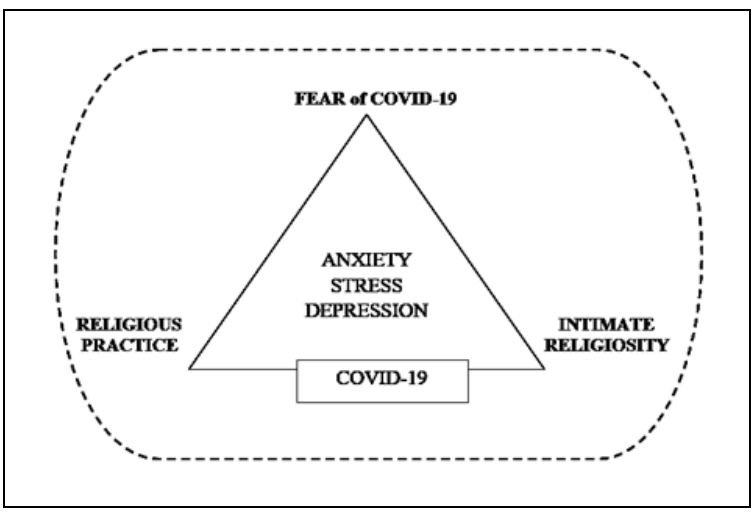

Figure 1. The subject of analysis

In this research to maintain a clear concept, operationalization of religiosity was adopted based on DUREL measurement, but used with the reference to two dimensions separately. These are 'the religious participation' and 'the intimate belief'. Even if the rule is that a person who participates religiously is also a person with intimate belief (religiosity) there could be exceptions when a person could participate at the religious services but could not have intimate religiosity or vice versa. This two-dimensional approach became the starting point for determining the problem scope of the study (Figure 1), described in this article.

3. Methodology of the research

3.1. Justification of the research area

Since there is a lot of discussion on the relationship between religiosity and fear in the covid-19 pandemic, leading to ambiguous conclusions, further research in this area is an important cognitive element of the subject. However, there are no studies that concern the countries of Central and Eastern Europe, especially from the international perspective. This article attempts to fill this gap.

Starting from these questions a group of academics from different universities in Central and Eastern Europe worked on a common project about the social and the psychological consequences of the pandemic. The research team is composed of sociologists, economists and psychologists from institutions in Slovenia, Poland, Hungary and Romania.

The results of the collaborative work is a joint questionnaire translated (verified with back-translations) into Romanian, Polish, Slovenian and Hungarian, an instrument which has been applied in April 2021 on quota samples in Romania, Poland, Slovenia. The same questionnaire has been applied in September 2021 in Hungary. There have been collected a total number of 2212 questionnaires (Table 1). The questionnaire has questions grouped in different topics such as vaccination, belief in conspiracy theories, religiosity, and socio-demographics and includes the DASS 21 psychological scale, which measures depression, anxiety and stress symptoms [36]. The questionnaire has also a separate question regarding specifically the fear of the covid-19 disease.

Table 1. The country's distribution in the sample.

Country	Number of applied questionnaires
Hungary	485
Poland	300
Romania	392
Slovenia	1035
Total	**2212**

The data have been collected using a quota sample which is representative of gender, age groups and type of settlement (rural/urban). To ensure comparability and to exclude additional variables, only people who were not vaccinated against SARS-CoV-2 at the time of the study were invited to the study. In Poland the data have been gathered by the Institute of Opinion Survey, in Slovenia by a market research panel, while in Romania and Hungary the data have been collected using snowball sampling and face-to-face interviews. The statistical data have been analysed using SPSS-20 and the STATA-13 statistical packages.

3.2. Objectives and hypotheses of the research

The study was based on an analysis of the literature on the relationship between uncertainty, fear and the level of religiosity in Central and Eastern European societies. There are two objectives in this article:

- The general objective of the research is to measure the influence of religiosity and the association of religiosity, anxiety and stress on the fear produced by the SARS-CoV-2 pandemic.
- The initial objective is to indicate the level of SARS-CoV-2 virus impact on fear, anxiety, depression and stress during SARS-CoV-2 pandemic.

The research hypotheses are as follows (Figure 2):

- H1: there is a significant association between the religious habits and the level of fear triggered by the SARS-CoV-2 virus,
- H2: there is a significant association between the intimate or intrinsic religiosity and the level of fear triggered by the SARS-CoV-2 virus,
- H3: there is a significant association between the DASS 21 score of anxiety and the level of fear triggered by the SARS-CoV-2 virus,
- H4: there is a significant association between the DASS 21 score of stress and the level of fear triggered by the SARS-CoV-2 virus,
- H5: there is a significant association between the DASS 21 score of depression and the level of fear triggered by the SARS-CoV-2 virus.

3.3. Main indexes used in the research

In the questionnaire applied to the Central and Eastern European sample there have been used two indexes for measuring religiosity and mental health. The choice of indexes was dictated by the convergence with the purpose of the study, as well as the universality and credibility of the available indexes.

For measuring religiosity it has been used the Duke University Religion Index (DUREL), which is a five item measure for use in epidemiological studies. The referenced set of items has been repeatedly used and described in the literature on the subject [8]. It is noted that there is a need to study the relationship between religiosity and health in the face of its threat in the epidemiological situation [32]. The DUREL scale has been used in numerous studies in pandemic [37, 38] as well as in vaccination dilemma [39-41].

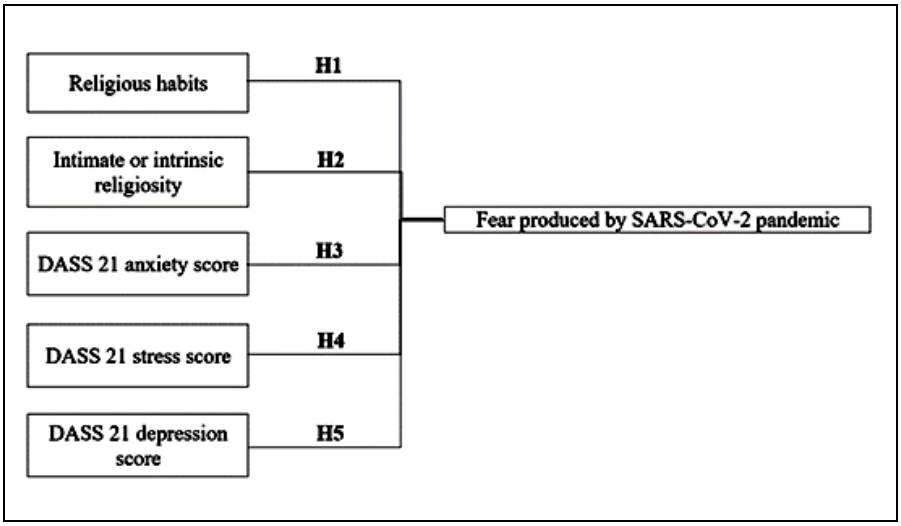

Figure 2. Research model.

This index has three dimensions:

- first dimension (organized religious activities or ORA): involves public religious activities such as attending religious services;
- second dimension (non-organized religious activities or NORA): consists of religious activities performed in private, such as prayer, Scripture study, watching religious TV, etc.,
- third dimension (Intrinsic Religiosity or IR): involves pursuing religion as an ultimate end in life.

In this research it have been created one new dimension which have been called 'religious habits' using ORA and NORA dimensions. The team worked also with the Intrinsic Religiosity items called 'Intimate Religiosity'.

The second, most significant index was aimed at examining the level of a set of negative mental phenomena. This was then juxtaposed with feelings during the covid-21 pandemic. For measuring the mental health of the Central and Eastern Europeans it has been used in the DASS 21 self-report questionnaire. It is a screening instrument, which could be used to detect those who are prone to depression, anxiety and stress disorders.

DASS 21 is one of the most popular tools for studying negative mental states today. Used in many studies in relation to the covid-19 pandemic [42-44], also in Poland [45], Romania [46, 47], Hungary [48, 49] and Slovenia [50]. However, it is usually limited to a small group of respondents (e.g. students, hospitalised students) or individual countries. DASS 21 assesses the emotional state from the last period of time and focuses on three dimensions: depression, anxiety and stress. The DASS 21 is validated on the Central and Eastern European countries populations and answers 7 questions regarding anxiety, 7 questions regarding depression and 7 questions regarding stress. Different scores have been calculated for levels of anxiety, depression and the stress symptoms of the Romanians, Hungarians, Polish and Slovenes (Table 2). DUREL index and

DASS 21 scale used in the study have been validated in all four countries where the study was conducted.

Table 2. DASS 21 scores interpretation for the CEE [36, p. 340].

DASS 21 level	Anxiety symptoms scores	Stress symptoms scores	Depression symptoms scores
normal	0-6	0-10	0-9
mild	7-9	11-18	10-12
moderate	10-14	19-26	13-20
severe	15-19	27-34	21-27
extremely severe	20-42	35-42	28-42

4. Results

4.1. Fear caused by COVID-19 virus, anxiety, stress and depression symptoms in the Central and Eastern Europe

The first step in analysing the relationship between the negative consequences of mental health and religiousness in the era of the covid-19 pandemic is to determine the level of subjective feelings of depression, anxiety, stress and fear. Using the index, levels were analysed based on the scales adopted in the original DASS 21 study, divided into five categories: normal, mild, moderate, severe, extremely severe.

Determining the level of depression, anxiety and fear symptoms provides a starting point, thanks to which it will also be possible to determine the differences between the surveyed countries. Therefore, the presented lists take into account both the overall results for the four countries of Central and Eastern Europe, as well as individual countries separately.

In Figure 3 it could be noticed that the percentages of individuals who are worried by the covid-19 virus is higher than those who don't in Slovenia and Poland, but it should be mentioned that in Slovenia the difference between those who worry and those who don't is small. In Romania the percentage of those who are not worried is slightly higher than those who don't. In Hungary there is a huge difference between those who are not worried in comparison with those who are worried.

Results shown on Figure 4 indicate that for the majority of the Central and Eastern Europeans the level of anxiety symptoms is normal, mild and moderate, but for a small percentage of the sample the level is severe and extremely severe. It could be noticed that persons with the severe and extremely severe scores could be found in Poland and Slovenia more than in Hungary and Romania.

For the majority of the Central and Eastern Europeans the level of the stress symptoms is between normal and moderate. The severe and extremely severe scores could be found more in Poland, Slovenia and Hungary than in Romania.

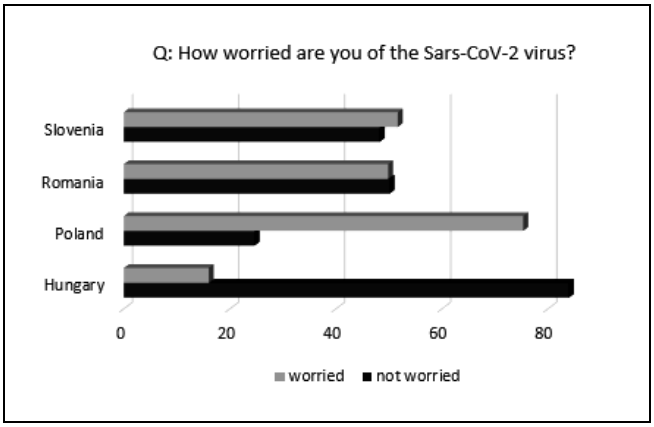

Figure 3. The level of fear caused by covid-19 virus in the CEE countries. Authors' calculation.

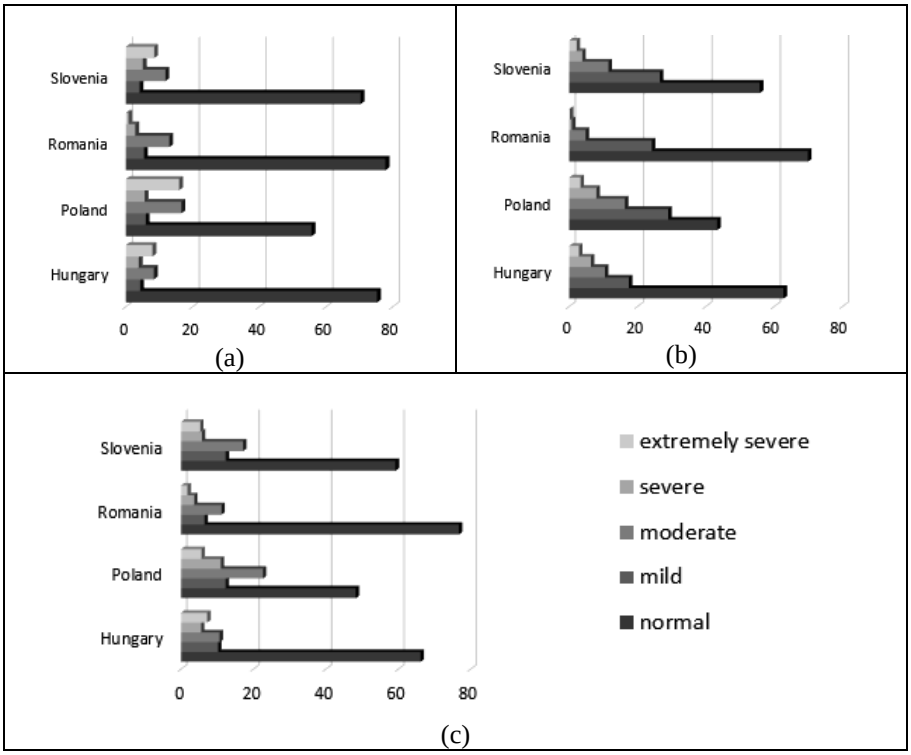

Figure 4. The level of: (a) anxiety, (b) stress and (c) depression symptoms in the CEE (percentages of the population with scores from 0 to 42). Authors' calculation.

As in the case of levels of anxiety and stress, the depression symptoms of the majority of the Central and Eastern Europeans seem to be normal, mild and moderate. For a small percentage the level of depression symptoms is severe. Severe and extremely severe scores are spread to a higher degree in Poland, Slovenia and Hungary than in Romania.

4.2. Level of religiosity in CEE countries

While in Slovenia (72.1%), Poland (85.9%) and Hungary (37.2%) the percentages of Roman Catholics is much higher than those from other religious denominations, the main religious group of Romania are the Greek Orthodox (81.04%). As could be noticed from the Figure 5 the population from the sample the research team has surveyed seem to be more intimate religious oriented than religious participative. While in Hungary and Slovenia those with lower levels of religious intimacy exceed those with higher levels of religious intimacy in Poland and Romania the situation seems to be different.

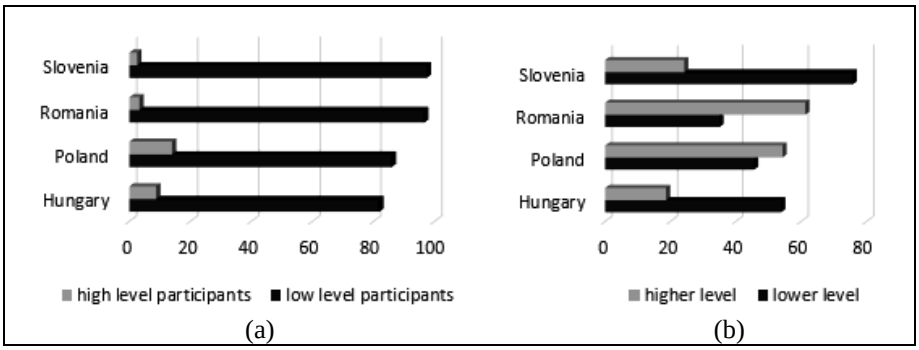

Figure 5. Religious participation (a) and (b) religious intimacy in the CEE countries during covid-19 crisis. Authors' calculation.

4.3. The logistic regression model

Next step in this research project is to find out which are the determinants of the SARS-CoV-2 virus 'fear'. Looking at the data from Table 3 there could be seen that the religious intimacy, the level of anxiety and stress symptoms, the age, the trust in the traditional media and the trust in the official sources are the significant predictors of SARS-CoV-2 virus 'fear'.

The logistic regression model is significant and the variance is around 0.12. It could be figured out that the fear (or worried because of SARS-CoV-2) is positively correlated with religious intimacy, the anxiety, the stress, the age and trust in the traditional media (radio, TV, newspapers) and with the trust in the official sources of information.

We could understand that participating in religious services and praying are not ways of diminishing the fear of the SARS-CoV-2 virus in the Central and Eastern European countries. The religious intimacy (or intrinsic religiosity), the age, the anxiety, the stress, the exposure to the news of the traditional media and to the information from the official sources may increase the fear regarding the virus. The most important determinants of the fear seem to be the exposure to the official sources, the exposure to the traditional media and the religious intimacy.

Table 3. The logistic regression model. Authors' calculation.

					Number of observations	= 1660
					LR chi2(13)	= 277.03
Log likelihood	= -1001.44				Prob > chi2	= 0
Dependent Variable					Pseudo R2	= 0.12
Worried because of the SARS-CoV-2						
Independent Variables	Coefficient	Standard Error	z	P > |z|	[95% Conf. Interval]	
Religion habit	-0.05	0.05	-0.88	0.37	-0.16	0.06
Religion intimacy	0.13	0.05	2.34	0.01	0.02	0.23
Depression	0	0.01	0.18	0.85	-0.21	0.02
Anxiety	0.02	0.01	1.93	0.05	0	0.05
Stress	0.03	0.01	2.57	0.01	0	0.05
Higher education	0	0.11	0	0.99	-0.21	0.21
Married	0.12	0.11	1.09	0.27	-0.1	0.36
Female	0.19	0.11	1.75	0.08	-0.23	0.41
Age	0.02	0	5.16	0	0.01	0.02
Trust in the traditional media	0.23	0.06	3.56	0	0.1	0.36
Trust in the digital media	0.03	0.06	0.54	0.59	-0.09	0.16
Trust in the official sources	0.48	0.06	7.34	0	0.35	0.61
Trust in the family information' sources	0.03	0.05	0.68	0.49	-0.06	0.13
Constant	-3.48	0.32	-10.66	0	-4.11	-2.84

5. Discussion

The level of anxiety, stress and depression in the Central and Eastern European countries in the second year of the covid-19 pandemic is much lower than the research team expected based on the literature. Several previous studies pointed to a relatively high persistent level of stress, including chronic stress, in the region in question [51, 52] compared to Western European and non-European countries [53, 54]. The sources of these differences are primarily attributed to different cultural backgrounds [55] as well as socio-economic differences. The threat of the pandemic was expected to additionally increase the level of fear and uncertainty experienced [56].

One of the explanations of this fact is the time of the study. The investigation was designed to analyse subjective self-assessment of emotional states and religiosity and was done after more than a year after first covid-19 cases. This may affect the values achieved as a result. The level of anxiety, stress and the depression symptoms do not seem to be severe for the majority of the Central and Eastern Europeans. This is in contradiction with the expectations at the beginning of the current research project. It is possible that the anxiety, the stress and the depression symptoms decreased in one year of the pandemic. Probably the fear caused by the pandemic was highest in February and March 2020 when the event was new and the degree of incertitude was higher. But after one year or one year and a half (April 2021 or September 2021) when the vaccination campaign has just started, the level of the anxiety, of the stress and of the depression diminished. It can be related to coping strategies.

In the literature, we can find frequent confirmation of the phenomenon that people are getting used to uncertainty. The source of fear or anxiety is becoming increasingly better recognized by individuals, and as a result it is no longer an unclear threat. Individual and social methods are being developed to eliminate the threat or limit its impact on personal and socio-economic life. When we have no significant influence on the very source of fear and anxiety, we learn to introduce countermeasures at the individual and collective level. After all, even if the source of the threat cannot be eliminated or counteracted, the very act of being exposed to the threat, unless it is at an increasing or very high level, causes indifference in most people. To do this, they use active and passive adaptation paths. As proven in our study, unvaccinated people often choose a passive adaptive approach, which turns out to be not fully effective. There is also a spectrum of behaviour between cognitive rationality and the so-called non-rational strategies, i.e. hope, faith or avoidance (denial), which play an important role in managing uncertainty [57].

Another explanation of the relatively unexpected low level of fear is that we were not able to measure the indexes before covid-19 and do not know if there were any differences. It could be that in the CEE countries the general level of fear against the pandemic was quite low, or maybe people who haven't decided to vaccinate are rather less susceptible to emotions related to fear and uncertainty. However, most papers indicate opposite research conclusions.

Looking at all the data of this research, it could understand that three hypotheses: H2, H3, H4 and H5 are confirmed and the H1 is rejected. This may result from more internal stimuli, which include fear of SARS-Cov-2 and hidden religiosity. This is consistent with a passive response system. Going out and taking action does not fit into this pattern.

At the same time, the existence of a correlation between fear of the virus and negative mental health symptoms confirms the assumptions of the study. It indicates a high dependency on mental processes. Based on the evidence, people with higher levels of DASS are more susceptible to fear of covid-19. A part of the population, which is found to have severe and extremely severe levels of DASS symptoms is at heightened risk for developing depression, anxiety and

stress disorders and should have been appropriately screened out and given preventive support by primary healthcare providers, psychologists and psychiatrist, or even social mentoring actions, e.g. towards compassion [56]. Societies could have prevented the post-epidemic rise of mental disorders, but there wasn't any program back then.

Looking at the study's results from a broader perspective, the response to fear depends on internal and external conditions. The literature on the subject provides a clear picture of the relationship between anxiety and fear, which was also confirmed in this study. The respondents were people who were not vaccinated against the virus at the time of the study. This may suggest that this is the group of society that has adopted passive attitudes to deal with fear and anxiety in the face of covid-19. Therefore, we can see what other factors influence the consolidation of passive attitudes in the face of fear and uncertainty. Considering the age factor, which turns out to be significant in our model, it could be argued that older people who trust official sources of information and traditional media (often also dependent on official, governmental sources and authority), the more they put faith in passive behaviour, i.e. prayer, than in actively coping with problems. In turn, the strategy of coping with the discussed symptoms is important for maintaining or alleviating negative emotional states [58], which also translates into general health, the frequency of chronic diseases, and mortality rates [52]. In CEE countries, maladaptive strategies are also more common than in other European countries, i.e. strategies of catastrophizing, ruminating and blaming others, which results in lower competences in the field of emotion regulation processes and additionally deepens anxiety states [59]. This may have much further social and economic consequences, where the passive attitude of a significant part of societies in CEE countries should be anticipated in response to new phenomena of an uncertain or threatening nature, i.e. epidemics, armed conflicts, political perturbations.

The question at the beginning of the current study was 'Is religiosity a buffer against the SARS-CoV-2 virus 'fear in CEE countries?' The data from this current research seem to direct us to the answer 'no'. Participating at the religious services and praying do not seem to be efficient ways of diminishing the fear in Central and Eastern Europe. And that it is not about religious habits but more about the intimate or intrinsic religiosity, which correlates with level of fear. Again, it could be the consequence of passive coping strategies implemented by unvaccinated part of societies. However, it can also be related to general circumstances. The covid-19 pandemic brought many obstacles to go outside to meet other people and to attend social activities. Attendance in masses is one of the examples. Official restrictions and self-preventive behaviours result in avoiding situations experienced as apprehensive once. It can be a case for religious services more and somehow praying in a sense of outside activity, attending to praying houses, e.g. church.

The need to seek information in times of uncertainty and attitudes that indicate a higher level of intimate religiosity can be combined and used to build more effective strategies for coping with unexpected external events or situations that cause a sense of fear and anxiety. According to uncertainty reduction theory (URT), in order to reduce uncertainty resulting from, for example, interaction or the need for interpersonal interaction, obtaining information is an essential element [M.V. Redmond, *Uncertainty Reduction Theory*, English Technical Reports and White Papers, 3 (2015)]. Understanding the paths of obtaining information by groups more vulnerable to fear makes it possible to use it more effectively in the future. The second option may be to use, for example, the motivation to reduce uncertainty model (MRU) [60] to reduce the scale of uncertainty in society.

6. Conclusions and limitations

It could be noticed that the intrinsic religiosity, age, stress, anxiety and exposure to the news from the traditional media or to the information coming from professional sources seem to increase the degree of worries of SARS-Cov-2 during the pandemic context. Those findings give a background to start a discussion about other more effective coping strategies. Instead of dissociating, distraction and problem distancing, the societies and officials could focus on other strategies, for example active collaboration with community (e.g. cooperating, volunteering, etc.).

The research project has few limitations. First is the number of participants that answer the questions from the questionnaire, which was relatively lower in Poland, Romania and Hungary than in Slovenia. The sample is not probabilistic and data in Hungary was collected a few months later than in the rest of the countries, which can have an impact on interpretation of results. A larger and probabilistic sample or the qualitative study based on focus group interviews or individual interviews with specialists from the health field could be helpful for a better image of the pandemic context.

Another limitation results from the assumptions used in the research. The analysis was performed only on people who were not vaccinated against SARS-CoV-2. This limits the possibility of comparing the research sample with a control group of people who underwent injection. Results in this area could expand the possibility of conclusions. Researching more countries in the Central and Eastern European region could have a similar effect.

Non-vaccinated parts of societies should be studied carefully. The social and economic consequences caused by the recent pandemic on a global scale and in relation to individual countries make it possible to make estimates related to the material and human losses incurred. Thanks to the defensive actions taken, i.e. social isolation and active popularisation of vaccinations, the SARS-CoV-2 virus was no longer recognized as a pandemic after just over three years. One of the largest epidemics in the history of the world was extinguished thanks to the extremely rapid discovery and use of vaccines in history. However, there

remains a significant group of people who have adopted passive attitudes towards injections. Their lack of support for vaccinations triggered an intense anti-vaccination movement, on the one hand increasing social anxiety, anxiety and fear, and on the other hand, destabilising the path to combat the pandemic. Understanding the factors co-occurring in shaping the attitudes of this group and the paths they obtain information may contribute to the development of more effective communication channels for people with passive strategies for coping with fear and anxiety (uncertainty).

Acknowledgement

The current project has not benefited of any financial fund.
All the authors read and approved the final version of the manuscript.

References

[1] R. Teodorescu, C. Dumitrescu, D. David, I. Scorus, E. Hriscu and V. Stroescu, *Suntem sănătoși la minte? Despre sănătatea psihică în România,* Humanitas, Bucharest, 2022, 56.
[2] J. Delumeau, *Frica în Occident. Secolele XIV-XVIII.O cetate asediată*, Meridiane, Bucharest, 2020, 39.
[3] E. Bourne, *Anxietatea și fobia. Ghid practic pentru gestionarea anxietății și fobiilor,* All, Bucharest, 2019, 20.
[4] T. Steimer, Dialogues in clinical neuroscience, **4(3)** (2022) 231-249.
[5] M. Szubert, Kultura współczesna, **2(109)** (2020) 188-203.
[6] C.H. Vinkers, T. van Amelsvoort, J.I. Bisson, I. Branchi, J.F. Cryan, K. Domschke, O.D. Howes, M. Manchia, L. Pinto, D. de Quervain, M.V. Schmidt and N.J.A. van der Wee, Eur. Neuropsychopharm., **35(June)** (2020) 12-16.
[7] C. Valiente, C. Vázquez, A. Contreras, V. Peinado and A. Trucharte, European Journal of Psychotraumatology, **12(1)** (2021) 1871555.
[8] S.B. Skalski, K. Konaszewski, A. Büssing and J. Surzykiewicz, Frontiers in Psychiatry, **12** (2022) 810274.
[9] D. Meza, International Journal of Latin American Religions, **4** (2020) 218-234.
[10] T. DeRossett, D.J. LaVoie and D. Brooks, J. Relig. Health, **60(5)** (2021) 3161-3176.
[11] M.O. Harrison, H.G. Koenig, J.C. Hays, A.G. Eme-Akwari and K.I. Pargarment, Int. Rev. Psychiatr., **13(2)** (2001) 86-93.
[12] H. Fatima, T. Oyetunji, S. Mishra, K. Sinha, O. Olorunsogbon, O.S. Akande, Srinivasan and S.K. Kar, Int. J. Soc. Psychiatr., **68(2)** (2022) 309-315.
[13] M. Weber, *Economy and Society*, University of California Press, Berkeley, 1978, 399-402.
[14] R. McCleary and R. Barro, *Avuția religiilor. Economia politică a credinței și apartenenței religioase*, Humanitas, Bucharest, 2022, 38.
[15] F. Galton, Fortnightly review, **12(68)** (1872) 125-135.
[16] B.K. Thege, J. Pilling, A. Szekelyi and M.S. Kopp, Int. J. Behav. Med., **20(4)** (2013) 477-486.
[17] S. Pirutinsky, A.D. Cherniak and D.H. Rosmarin, J. Relig. Health, **59(5)** (2020) 2288-2301.

[18] L.N. June and S.A. June, Journal of Pastoral Care & Counseling, **75(3)** June (2021) 179-187.
[19] Q.K. Mahmood, S.R. Jafree, M.M. Sohail and M.B. Akram, J. Relig. Health, **60(3)** (2021) 1462-1474.
[20] A.K. Shreve-Neiger and B.A. Edelstein, Clin. Psychol. Rev., **24(4)** (2004) 379-397.
[21] E. Idler, *Religion as a social determinant of public health*, Oxford University Press, Oxford, 2014, 10-24.
[22] C. Puchalski, Asian Journal of Cancer Prevention, **11(MECC Supplement)** (2010) 45-49.
[23] L. Passos, F. Prazeres, A. Teixeira and C. Martins, Int. J. Environ. Res. PU, **17(18)** (2020) 6794.
[24] F. Molteni, R. Ladini, F. Biolcati, A.M. Chiesi, G.D. Sani, S. Guglielmi, M. Maraffi, A. Pedrazzani, P. Segatti and C. Vezzoni, European Societies, **23(suppl. 1)** (2020) 704-720.
[25] F.E. Collins, Pers. Indiv. Differ., **175(June)** (2021) 110693.
[26] F. Fekih-Romdhane and M. Cheour, J. Relig. Health, **60(3)** (2021) 1446-1461.
[27] F. Rigoli, J. Relig. Health, **60(4)** (2021) 2196-2208.
[28] R. Jaspal, B. Lopes and P. Lopes, Mental Health, Religion & Culture, **23(5)** (2020) 427-442.
[29] J.E. Uecker, Sociol. Spectrum, **28(5)** (2008) 477-509.
[30] J. Vaillancourt, Australian Religion Studies Review, **21(1)** (2008) 58-69.
[31] S. Huber and O.W. Huber, Religions, **3(3)** (2012) 710-724.
[32] H.G. Koenig and A. Bussing, Religions, **1(1)** (2010) 78-85.
[33] L.J. Francis, Mental Health, Religion & Culture, **16(9)** (2013) 909-921.
[34] R.F. Davis III and L. Kiang, J. Youth Adolescence**, 45(3)** (2016) 532-546.
[35] S. Mantri, Y.H. Song, J.M. Lawson, E.J. Berger and H.G. Koening, J. Nerv. Ment. Dis., **209(10)** (2021) 720-726.
[36] S.H. Lovibond and P.F. Lovibond, *Manual for the Depression Anxiety Stress Scales*, Psychology Foundation Lovibond, Sydney, 1995, 335-343.
[37] K.A. Ghoncheh, C.H. Liu, C.Y. Lin, M. Saffari, M.D. Griffiths and A.H. Pakpour, Health Promotion Perspectives, **11(3)** (2021) 316-322.
[38] Y.K. Song, S. Mantri, J.M. Lawson, E.J. Berger and H.G. Koening, JAMA Network Open, **4(11)** (2021) e2136150.
[39] A.A. Olagoke, B. Floyd, R. Caskey, J. Hebert-Beirne, A.D. Boyd and Y. Molina, J. Relig. Health**, 61(2)** (2022) 1734-1749.
[40] M. Capasso, D. Caso and M. Conner, Soc. Sci. Med., **289** (2021) 114416.
[41] G. Andrade, Human Vaccines & Immunotherapeutics, **17(12)** (2021) 5162-5167.
[42] A. Thiyagarajan, T.G. James and R.R. Marzo, Humanities and Social Sciences Communications, **9(1)** (2022) 220.
[43] R. Shahid, Journal of Medical Case Reports and Reviews, **3(06)** (2020) 678-682.
[44] R.Y. Elbay, A. Kurtulmuş, S. Arpacıoğlu and E. Karadere, Psychiat. Res., **290(August)** (2020) 113130.
[45] D. Juchnowicz, J. Baj, A. Forma, K. Karakuła, R. Sitarz, J. Bogucki and H. Karakuła-Juchnowicz, Journal of Clinical Medicine, **10(5)** (2021) 944.
[46] I. Secosan, D. Virga, Z.P. Crainiceanu, L.M. Bratu and T. Bratu, Medicina, **56(12)** (2020) 679.
[47] L. Dumitrache, E. Stănculescu, M. Nae, D. Dumbraveanu, G. Simion, A.M. Talos and A. Mareci, Int. J. Env. Res. Pub. He., **18(16)** (2021) 8599.
[48] F. Dezso, B. Birkás, G. Vizin, G. Vizin, S. Vancsa, H. Szocs, A. Eross, D. Lex, N. Gede, Z. Molnar, P. Hegyi and A. Csatho, BMJ Open, **12(8)** (2022) e059493.

[49] M. Petrescu, A. Mitrea, C. Tudor and D. Vasile, Eur. Psychiat., **64(S1)** (2021) 271-272.
[50] P.R. Prelog, T. Matić, P. Pregelj and A. Sadikov, Frontiers in Psychiatry, **12** (2022) 788898.
[51] C. Wang, A. Chudzicka-Czupała, M.L. Tee, M.I. López Núñez, C. Tripp, M.A. Fardin, H.A. Habib, B.X. Tran, K. Adamus, J. Anlacan, M.E. Aparicio García, D. Grabowski, S. Hussain, M.T. Hoang, M. Hetnał, X.T. Le, W. Ma, H.Q. Pham, P.W.C. Reyes, M. Shirazi, Y. Tan, C.A. Tee, L. Xu, Z. Xu, G.T. Vu, D. Zhou, N.A. Chan, V. Kuruchittham, R.S. McIntyre, C.S.H. Ho, R. Ho and S.F. Sears, Sci. Rep.-UK, **11(1)** (2021) 6481.
[52] M.S. Kopp and J. Réthelyi, Brain Res. Bull., **62(5)** (2004) 351-367.
[53] S. Scholten, J. Velten, A. Bieda, X.C. Zhang and J. Margraf, Psychol. Assessment, **29(11**) (2017) 1376-1390.
[54] R.T. Mikolajczyk, A.E. Maxwell, V. Naydenova, S. Meier and W. El Ansari Clinical Practice Epidemiology in Mental Health, **4(19)** (2008) 1-9.
[55] U. Halbreich, R.D. Alarcon, H. Calil, S. Douki, P. Gaszner, E. Jadresic, M. Jasovic-Gasic, N. Kadri, F. Kerr-Correa, V. Patel, X. Sarache and J.K. Trivedi, J. Affect. Disorders, **102(1-3)** (2007) 159-176.
[56] M. Matos, K. McEwan, M. Kanovský, J. Halamová, S.R. Steindl, N. Ferreira, M. Linharelhos, D. Rijo, K. Asano, M.G. Márquez, S. Gregório, S.P. Vilas, G. Brito-Pons, P. Lucena-Santos, M. da Silva Oliveira, E.L. de Souza, L. Llobenes, N. Gumiy, M.I. Costa, N. Habib, R. Hakem, H. Khrad, A. Alzahrani, S. Cheli, N. Petrocchi, E. Tholouli, P. Issari, G. Simos, V. Lunding-Gregersen, A. Elklit, R. Kolts, A.C. Kelly, C. Bortolon, P. Delamillieure, M. Paucsik, J.E. Wahl, M. Zieba, M. Zatorski T. Komendziński, S. Zhang, J. Basran, A. Kagialis, and P. Gilbert, Mindfulness**, 13(4)** (2022) 863-880.
[57] J.O. Zinn, Health, Risk & Society, **10(5)** (2008) 439-450.
[58] E.N. Bordea, M. Manea and A. Pellegrini, Czech Journal of Social Sciences Business and Economics, **6(2)** (2017) 6-14.
[59] R. Palomera, S. González-Yubero, J. Mojsa-Kaja and K. Szklarczyk-Smolana, Anales de Psicología/Annals of Psychology, **38(2)** (2022) 210-208.
[60] M.W. Kramer, Manage. Commun. Q., **13(2)** (1999) 305-316.