CULTURAL DIFFERENCES IN COPING WITH CHANGES IN THE EXTERNAL ENVIRONMENT: A CASE OF BEHAVIOURAL SEGMENTATION OF SENIOR CONSUMERS BASED ON THEIR REACTION TO THE COVID-19 PANDEMIC

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Abstract

A sudden change in the external environment, such as the COVID-19 pandemic meant for senior customers in CEE, required coping mechanisms to adapt and a significant change in behavioural patterns. The paper presents the social and customer behaviour changes among elderly citizens caused by the pandemic and aims to identify regional differences in adapting to these changes. Results from CATI interviews of 5875 participants from Germany, the Czech Republic and Slovakia, which were conducted as a part of the international SHARE project, bring a deeper understanding of regional differences. Behavioural segmentation made in each of the studied countries shows that the clusters created in each country are different and yet similar in certain aspects. Clusters of "adapters" – seniors with partial behavioural change – are found in all three countries, and even though they vary in some aspects of behaviour, they have significant commonalities as well. Clusters of the "vulnerable" – seniors who had undergone a complete change of behavioural patterns to protect themselves – and clusters of the "resistant" – seniors resisting the change – are found only in two of the studied countries. Differences in understanding the threat and feeling the need to react in certain ways are found not only between countries but also within cultures. By employing Hofstede's cultural dimensions score to explain detected differences, the article brings more understanding of how power distance, indulgence and individualism could form differences in the usage of coping mechanisms among the elderly. The results bring insight into important aspects of changes in behaviour, which should be understood and mirrored in the business strategies of companies whose actual or potential customers are represented by this population.

Implications for Central European audience: The research into behavioural changes among senior consumers due to the COVID-19 pandemic was done in three CEE countries: Slovakia, the Czech Republic and Germany and the implications are therefore well suitable for the CEE region, yet generalizations for other countries must be made carefully as the results show that behavioural segments identified in the studied countries indicate cultural differences.

Introduction

Changes in the external environment usually affect consumer behaviour. This was the case with the COVID-19 pandemic (Mehta et al., 2020). The sudden shift caused by the unexpectedly fast spread of an unknown virus started an unprecedented transformation of all aspects of life (Mehta et al., 2020; Tate, 2022). The extent of impacts triggered by any change usually depends on many different factors and their combinations. Of course, perception of the change itself and amplifying factors are very subjective. Each person can perceive the same change differently (Skinner et al., 2003), and yet, there are usually commonalities among groups of people in their subjective behavioural reactions that mirror the coping mechanism used (Proto & Zhang, 2021).

Several groups of factors determine how people will react and cope when a change in the environment threatens their health (Cole et al., 1993). The sources determining whether an individual will engage in health-protecting behaviour and what steps they will choose may arise from internal predispositions as well as from the external environment.

The internal factors are as follows: (i) understanding and knowledge – a person understands the risk and knows how to prevent it; (ii) personal ttitudes, beliefs and values; (iii) one's skills in social and real-life adaptation; (iv) personality features and psychological condition (e.g., according to Becker and Joseph (1988), a significantly depressed person has little interest in health practices and Stokols (1992) sees, e.g., a person's sense of coherence as a factor that enables them to resist the potentially negative health consequences of stressful life events); and (v) physical capability to engage in such behaviour.

Cole et al. (1993) named the following external sources to help an individual engage in health-protecting behaviours: (i) social support (how an individual is influenced by society to behave in a certain way); (ii) public opinion and mass-media communication (Bandura (1990) supposes that communication through media increases people's determination to alter behaviour influencing their health); (iii) sociocultural and economic political factors that create a climate in the society that can either support or prevent certain health-influencing behaviour; (iv) physical environment that creates opportunities to behave health-consciously or hinders correcting wrong patterns; (v) healthcare system, which can, for example, either support prevention and early-stage correction of health-harming habits or neglect and overlook them; (vi) regulations and laws, which are often used to reinforce the state's healthcare policy.

In Cole's understanding (Cole et al., 1993) of forces influencing the formation and change of behaviour, culture is not mentioned as either an external or an internal source. Yet, culture represented by its values is known for having a strong influence on an individual's behaviour, as various research studies have proven (Cleveland et al., 2016; Lee et al., 2022; Legoherel et al., 2009; Richard & Habibi, 2016; Schepers & van der Borgh, 2020; Wheeler et al., 2011). Culture, according to Taylor (1871 – one of the first and most influential modern definitions

of culture), is a complex which includes knowledge, beliefs, morals, customs, law and any other capabilities and habits acquired by man as a member of society. According to several authors (Mooij, 2019; Hofstede, 2016), culture reflects and at the same time is reflected in most of Cole's external sources (Cole et al., 1993) – for example, social support and its extent are culturally determined (Hofstede & McCrae, 2004); at the same time, regulations and laws and the extent of the need to have them is culturally determined (Hofstede, 2016; Hofstede, 2001). Culture is as well engraved into internal factors, such as attitudes, beliefs and values, because, according to Tinsley (1995), when living within a particular cultural system, the patterns of that system are internalized by any individual member. He argues that members' selves are products of the social system, shaped by the shared understanding; yet, individual members internalize these patterns to different degrees, making cultures heterogeneous (Tinsley, 1995).

Understanding the impact of culture on behaviour comes from observing the differences and describing possible causes (Mooij & Hofstede, 2011) and therefore, according to Mooij (2019), while culture and consumer behaviour are "*intimately knotted together*" and "*untying the rope*" is almost an impossible task, the only tool to gain an insight into them is the research of commonalities and differences between people coming from various cultures (Mooij, 2019; Sagiv & Schwartz, 2022).

Research done in the field of coping (Rokach, 1999; Rokach & Orzeck, 2002) indicates that culture determines the choice of coping strategies and that coping responses to stress are culturally determined (Ong & Moschis, 2009). Therefore, to describe the cultural differences in coping with changes, we choose to first examine the primary research data about the coping strategies mirrored in changes in daily life routines of elderly customers from three different cultures and then by segmenting each culture's individuals into groups, based on their coping strategy details, in order to compare and identify differences and similarities between cultures. The exploratory approach was chosen to discover whether there are any significant differences between behavioural changes (the result of the use of coping strategies) of elderly customers from three different cultures that appeared as a reaction to change in their environment (COVID-19 pandemic) and whether these differences can be linked to the aforesaid cultural specifics.

First, the paper presents the theoretical background of the coping mechanisms used to adapt to changes in the external environment and explains how cultural differences can be measured, describing specifically the most commonly used Hofstede's model of cultural dimensions and its application in the studied countries. Later, the section deals with the results of other research that found a correlation between cultural dimensions and COVID-related data of countries, showing that different nations (cultures) adapted to the COVID-19 pandemic differently, finding a correlation between behavioural patterns of people from the country and their culture dimension scores. The Methods section explains how the primary data that were used to answer the formulated research questions were gathered and analysed. The Results section presents research outcomes following the structure of the formulated research questions. First, it shows what behavioural differences were identified between consumers from the chosen countries, and then it presents behavioural segments in each culture, pointing to specifics of segments within the culture and describing similarities of coping in segments from different cultures. The last section, Conclusion and Discussion,

summarizes the results, their significance, possible implications and generalizations, as well as addressing research limitations and setting further research intentions.

1   Theoretical Background

1.1 Coping

Coping is defined as a reaction to perceived change that has a goal to "*prevent or diminish the threat, harm, or to reduce associated distress*" (Carver & Connor-Smith, 2010). To cope with a change that might be a source of negative consequences, individuals employ different coping mechanisms and strategies. These can be grouped according to their nature into either (i) problem-approaching or problem-avoiding (Skinner et al., 2003); (ii) problem-focused or emotion-focused (Lazarus, 2006); (iii) accommodative or meaning-focused (Carver & Connor-Smith, 2010); or an individual can choose (iv) proactive coping (Aspinwall & Taylor, 1997).

The aim of the approaching coping strategy is to deal with the issue causing stress and with the emotions caused by it. On the other hand, coping by avoiding means finding ways to escape the emotions, by either wishful thinking, denial or avoidance (Skinner et al., 2003; Wilson-Nash & Tinson, 2022).

Problem-focused coping deals with the cause of the problem itself, usually taking steps to minimize the impact of the issue on oneself (in the COVID-19 case, the person would have tried to use possible means to avoid getting infected), whereas the emotional coping mechanism involves minimizing distress by means such as self-soothing (relaxation) or expression of negative emotions or thoughts (Lazarus, 2006; Carver & Connor-Smith, 2010; Austenfeld & Stanton, 2004; Ong & Moschis, 2009).

Accommodative and meaning-focused coping are types of approaching strategies also called engagement coping (Carver & Connor-Smith, 2010). When using the accommodative approach, the individuals' goal is to be at inner peace with the situation that could cause distress. Usual reactions to negative change that could be a source of stress are acceptance, change of goals, cognitive restructuring or even self-distraction. Some of these reactions were considered in the past to be avoiding strategies, but recently authors have seen that if individuals intentionally engage themselves with positive activities, they do it to actively cope with the stressor and adapt to it (Skinner et al., 2003). Meaning-focused coping is when individuals try to find the "positive" in a negative change – they reorder their life priorities and remind themselves that all adversity can bring benefit and meaning when searched after (Folkman, 1997). This strategy is used mostly when circumstances are unchangeable or unavoidable (Folkman, 2008).

The aforesaid coping strategies arose as a response to existing stress or harm or negative change in the environment. Proactive coping, as Aspinwall and Taylor (1997) see it, involves the usage of the abovesaid coping strategies before the situation happens, intending to prevent harm from happening.

Usage of coping strategies usually induces measurable behavioural changes (Kim et al., 2022), and therefore to uncover how an individual copes with a situation, a behavioural change needs to be observed – researchers often use participants' self-reports or personal interviews to gather data regarding this topic (Wilson-Nash & Tinson, 2022).

1.2 Cultural differences

According to Baldwin et al. (2006), more than 300 definitions are currently widely used to define culture, and their focus is on one of the seven different aspects. Culture is perceived either as a function, structure, process, product, group, power or refinement (Faulkner et al., 2006). According to Condon and LaBrack (2015), culture is very difficult to define. When it comes to the most influential work in the field of studying culture in relation to international business, various authors (e.g., Bond, 2002; Malik, 2022; Hayton et al., 2002) agree that the most cited and the most significant work is the one of Geert Hofstede, especially his book "Culture's Consequences" printed in 1980. Well-known is also the definition of culture found in his later work (Hofstede and Hofstede, 2005) as "the collective programming of the mind distinguishing the members of one group or category of people from others".

Hofstede's concept of culture describes six dimensions in each culture, and the extent to which the dimensions are polarized within a certain culture makes cultures different from each other (Hofstede et al., 2010). The framework has the following dimensions: (i) power distance (PDI) – it represents the degree to which less powerful members of the society accept and expect the power to be distributed equally and how a society handles inequalities among people; (ii) individualism versus collectivism (IDV) – "me" versus "us" in the society, individualism as the mindset of the society where individuals are expected to take care only of themselves and their immediate families, or collectivism as a society's expectation that individuals take care of their relatives or members of a specific ingroup in exchange for unquestioning loyalty; (iii) masculinity versus femininity (MAS) – where masculinity represents a preference in society for achievement, heroism, assertiveness and material rewards for success, and the culture is competitive, while femininity means that the culture prefers cooperation, modesty, caring for the weak, and instead of thriving for success, the society seeks quality of life and is more compromise-oriented; (iv) uncertainty avoidance (UAI) is the degree to which members of a society feel uncomfortable with uncertainty; cultures with a high score in this dimension have strict codes of belief and behaviour, and tend to be intolerant to new ideas; (v) long-term versus short-term orientation (LTO) – represents how the culture perceives the links between past, present and future; low-scoring cultures prefer traditions and are seen as normative, whereas high-scoring countries encourage modern education and are seen as pragmatic; (vi) indulgence versus restraint (IVR) – indulgence stands for free gratification of natural human needs, enjoying life and having fun, while restraint means that society regulates gratification by strict social norms (Hofstede, 2001; Hofstede & McCrae, 2004; Hofstede et al., 2010; Hofstede, 2016).

The website Hofstede Insights (www.hofstede-insights.com), which works with Hofstede's latest research results (Hofstede et al., 2010; National Culture, 2019), compares cultures in a 6-dimension model. Based on the scores that countries have obtained (see Scheme 1), the characteristics of differences between Czech, German and Slovak cultures are described later in the text based on Hofstede's cultural model (Country Comparison, 2022).

Scheme 1 | Comparison of scores in Hofstede's cultural dimensions (SK, CZ, DE)
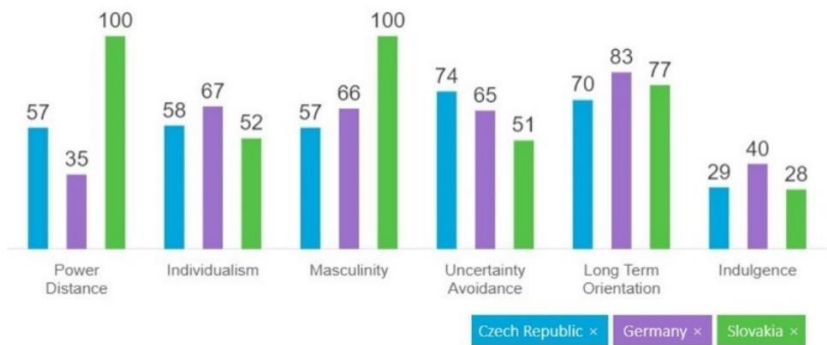
Source: Country Comparison (2022)

CZECH REPUBLIC

According to research results (Hofstede & Hofstede, 2005; Hofstede et al., 2010), the Czech Republic has an average high score in power distance (57). That means it is a rather hierarchical society, and people tend to accept a structure in which everybody has a place.

With a score of 58 in individualism, Czech culture is rather an individualist one, individuals are expected to take care of themselves and their immediate families only.

The Czech Republic scores 57 in the masculinity dimension and is thus a rather, but not strongly, masculine society. According to Hofstede's research (2010, 2016), competition and performance are important, and conflicts are resolved by fighting them out.

A score of 74 on the uncertainty avoidance dimension means that Czechs have a high preference for avoiding uncertainty. Countries like this maintain rigid codes of belief and behaviour (Hofstede & Hofstede, 2005), people have a need for rules, time is money, people have an inner urge to be busy and work hard, and precision and punctuality are the norms (Hofstede et al., 2010); innovation may be resisted, security is an important element in individual motivation (Country Comparison, 2022).

With a high score of 70 in long-term orientation, Czech culture is shown to be pragmatic. It shows an ability to adapt traditions easily to changing conditions (Country Comparison, 2022).

The low score of 29 in indulgence means that Czechs generally do not tend to enjoy life to the fullest. Societies with a low score in this dimension tend to be cynical and pessimistic, they perceive that indulging themselves is not right in some aspects (Hofstede et al., 2010).

GERMANY

Highly decentralized and supported by a strong middle class, Germany is unsurprisingly among the less power-distant countries (score 35) (Country Comparison, 2022).

According to research results (Hofstede et al., 2010; Country Comparison, 2022; del Junco & Brás-dos-Santos, 2009), German society is individualistic (67). Small families with a focus on the parent-children relationship rather than aunts and uncles are most common. There is a strong belief in the idea of self-actualization. Loyalty is based on personal preferences for people as well as a sense of duty and responsibility.

With a score of 66, German culture is considered a masculine society. Performance is highly valued and required early as the school system separates children into different types of schools at the age of ten.

Germany is among the uncertainty-avoiding countries (65), as the score shows a preference for uncertainty avoidance.

A high score of 83 in long-term orientation indicates that it is a pragmatic culture. In societies with a pragmatic orientation, people believe that truth depends very much on the situation, context and time.

The low score of 40 on the indulgence dimension indicates that German culture is rather restrained in nature, and it does not put much emphasis on leisure time. Cultures with this orientation have the perception that their actions are restrained by social norms and feel that having fun and enjoying life is not the correct approach to life (Country Comparison, 2022).

SLOVAKIA

The values for Slovakia have been estimated based on other research studies using the same research design (National Culture, 2019), as Slovakia was not a part of Hofstede's original research (Hofstede et al., 2010). Power distance has a score of 100 points in Slovakia, which is a very high score in this dimension compared to other countries. It means it is very well accepted that some people have more power than others and that these people also use their power to create clarity and structure.

The individualism score of 52 is in the middle of the scale; therefore, it points to no clear preference.

Slovakia is a strongly masculine society (100 points). According to the results, it is highly success-oriented. People use status symbols (products such as cars, houses, etc.) to show their importance (Country Comparison, 2022).

The dimension of uncertainty avoidance has a score of 51, which means that Slovakia shows no clear preference.

With a high score of 77 in long-term orientation, Slovakia has a pragmatic culture. In such cultures, truth depends very much on the situation, context and time. People easily adapt traditions to changing conditions (Hofstede et al., 2010).

A low score of indulgence (28) means that Slovakia has a culture of restraint and a tendency to cynicism and pessimism. Cultures with low scores do not put much emphasis on leisure time, and they control the gratification of their desires (Country Comparison, 2022).

Recent research challenges Hofstede's most cited and widely known model. A revision made by Minkov (2018) has a growing influence. His results of an analysis of data for 56 countries that replicated Hofstede's approach (Minkov, 2018) challenged the validity of the dimensions of masculinity – feminity (MAS) and uncertainty avoidance (UAI). He also proposed the

recreation of the model into a two-dimensional culture model with the dimensions of individualism-collectivism (IDV-COL) and Flexibility-Monumentalism (FLX-MON), where the first dimension comprises the power distance (PDI) and the second fits better according to the author than long-term and short-term orientation (LTO). Minkov later continued to test the original and the new two-dimensional model on various large sample data sets (Kaasa & Minkov, 2020; Minkov & Kaasa, 2021) even from the office environment in order to replicate Hofstede's original studies (Hofstede, 1980, Hofstede et al., 2010) as precisely as possible. Minkov & Kaasa (2021) used data from the nationally representative International Social Survey Program with over 50,000 respondents from 47 countries with the same results as before, concluding that the dimensions UAI and MAS-FEM are irreplicable outside of IBM and therefore not valid (Minkov, 2018; Minkov & Kaasa, 2021).

1.3 Influence of culture on health protection behaviour – case of COVID-19 pandemic

As the monitoring of the pandemic brought big sets of accessible data and as data from Hofstede's study about cultural dimensions are available for use, several researchers (e.g., Gokmen et al., 2021; Chen & Biswas, 2022; Duarte et al., 2022) decided to analyse whether there are correlations between different COVID-19 metrics in the country and its cultural dimensions score measured by Hofstede (Hofstede et al., 2010).

Duarte et al. (2022) studied data sets from 101 countries that were obtained in the time span of 12 months through the first, second and third waves of the COVID – 19 pandemic (March 2020 to March 2021) and their findings show that countries with high individualism scores had significantly higher hospitalization rates. A weaker correlation between individualism and a higher number of new cases and new deaths was also discovered. A correlation was found between power distance and a lower degree of pandemic severity as well.

Gokmen et al. (2021) collected data from different online databases regarding COVID-19 statistics to calculate the increased rate of the total COVID-19 cases per million (IRTCCPM) for 31 European countries that originally had Hofstede's research (Hofstede et al., 2010) data available. They tested all the cultural dimensions together with the IRTCCPM data and found that power distance has a significant negative effect on the IRTCCPM, and individualism and indulgence have significant positive effects on IRTCCPM. That means COVID-19 was, according to their results, spreading more slowly in European countries with higher power distance scores and lower scores in individualism and indulgence. No effect was confirmed for the masculinity, uncertainty avoidance and long-term orientation dimensions on increasing or decreasing the IRTCCPM.

Another study, done by Chen and Biswas (2022), compared data about culture dimension scores from 92 countries that were part of Hofstede's original study (Hofstede et al., 2010) with data from the COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University collected until September 2021. The authors found that the growth rate of confirmed cases was significantly higher in nations with high scores in individualism (e.g., Belgium, Italy and the USA) and high uncertainty avoidance (e.g., Serbia, Peru and Jordan). Surprisingly, and in contrast with the research results of other authors (Duarte et al., 2022; Gokmen et al., 2021), they found that countries with high power distance scores (e.g., Peru, Jordan, India and Slovakia) had a higher reproduction number, which means that the spread of the COVID-19 virus was faster.

2 Methodology

Based on the approach of Mooij and Hofstede (2011) to understanding cultural differences, research was carried out to understand the cultural differences in behavioural changes caused by the pandemic in the consumer lives of elderly Europeans.

The article presents the results of researching the behaviour changes of elderly people during the first wave of the COVID-19 pandemic in Slovakia (SK), the Czech Republic (CZ) and Germany (DE). These three CEE countries were chosen based on the following criteria:

- the country had to be a part of CEE;

- the country had to have data from Hofstede's study available as well;

- two of the three countries had to be perceived as similar (approximate size, history, cultural background) – Slovakia and the Czech Republic were chosen due to their long-term common cultural heritage and history, both countries belong to the same language and ethnic group of Slavic nations;

- one of the three countries had to be perceived as significantly different from the other two (size, history, cultural background) – Germany was chosen, as it is significantly different in size, cultural heritage and belongs to a different ethnic and language group (Germanic).

The primary data came from SHARE (Survey of Health, Aging, and Retirement in Europe), specifically Wave 8 – COVID 19. SHARE is a European bi-annual, multinational (28 European countries and Israel) longitudinal survey collecting nationally representative data from individuals aged 50 years or older since 2004. This research project collects information regarding health, socioeconomic status and social and family networks. The outbreak of COVID-19 hit SHARE in the middle of its 8th wave of data collection and the fieldwork had to be suspended; therefore, the fieldwork switched from personal interviews to telephone-administered interviews (CATI). A specific questionnaire was developed covering the same topics as the regular SHARE questionnaire – but considerably shortened and targeted at the COVID-19 living situation of people who are 50 years and older (for details on the data, please refer to Börsch-Supan, 2021). Data were collected in each country using the CATI (computer-assisted telephone interviewing) method between June and August 2020 – after the first wave of the pandemic. Both authors of the article are participating researchers in the SHARE project and are therefore entitled to use and analyse the collected primary data.

The data analysed to answer the research questions of this article were based on a total of 5875 interviews with respondents from Slovakia (n=822), the Czech Republic (n=2372), and Germany (n=2681) aged 50 years and older. In Slovakia, the sample consisted of 44.6% males, in the Czech Republic, it was 38.1% males, and there were 45.5% males in the sample from Germany. The mean age was 65.6 years in Slovakia, 72.9 years in the Czech Republic, and 71.3 years in Germany.

SPSS was used to calculate descriptive statistics of the variables, chi-square analysis to investigate the relationship between variables, and k-means cluster analysis for the classification of respondents into clusters based on changes in their behaviour during the first

wave of the pandemic. As a non-hierarchical clustering method, k-means cluster analysis is a tool designed to assign cases to a fixed number of groups (clusters) whose characteristics are not yet known but are based on a set of specified variables. It is most useful when there is a need to classify a large number (thousands) of cases (IBM, 2022). K-means clustering was chosen because it is one of the most commonly used unsupervised learning algorithms. The main aim of k-means clustering is to partition *n* observations into *K* clusters. For the numerical dataset, the centre of each cluster is represented by the mean/centroid. In each cluster, every observation belongs to the nearest mean, serving as a prototype of the cluster (Ali & Sheng-Chang, 2020; Singh et al., 2020; Huseynov & Özdenizci Köse, 2022). The k-means algorithm is an iterative process that stops once the cluster means no longer change much in successive steps (Orakoglu & Ekinci, 2013). The analysis preceding these results had the maximum number of iterations set to 20. When creating the clusters, the clustering process stopped in the third iteration on data from Slovakia, in the fifth iteration on data from Germany and in the 15th iteration on data from the Czech Republic.

The cluster analysis input data were the answers to the questions from the interview mirroring behavioural changes:

> *"Since the outbreak of Corona, how often have you done the following activities, compared to before the outbreak?: Going shopping. Going out for a walk. Meeting with more than five people from outside the household. Visiting other family members."*

They also included answers to questions about new daily routines and habits, such as:

> *Washing hands, using special hand sanitisers or disinfection fluids, paying special attention to covering coughs and sneezes, and taking supplements or medicines as a prevention against the Corona virus.*

The paper aims to identify differences in employing coping strategies and adapting to changes among elderly people with an emphasis on cultural differences. In order to do so, the article chose to first examine the SHARE data from personal interviews (CATI) about behavioural changes induced by the first wave of the pandemic. As coping strategies are usually mirrored in changes of daily life routines, the analysis of interviews with elderly customers from three different cultures discovered the differences between cultures. Later, by segmenting people from each culture based on their coping strategy details, further differences and similarities between cultures could be discovered. As this approach had not been applied in this field before, an exploratory approach was chosen to discover whether there are significant differences between behavioural changes (the result of the use of coping strategies) of elderly customers from three different cultures that occurred as a reaction to change in their environment (the COVID-19 pandemic) and whether these differences can be linked to aforesaid cultural specifics of the countries.

As the study used an exploratory research design (Malhotra et al., 2017; Mooi & Sarstedt, 2011; Van de Vijver, 2015), research questions had to be formulated. The following research questions were answered by the analysis of primary data:

> Q1: *What were the significant behavioural changes induced by the COVID-19 pandemic among elderly customers, and what were the differences in coping mechanisms of the elderly from different countries?*

Q2: *Were there significant differences in forming and usage of different coping mechanisms (habits, rituals) between people of the same culture? If so, did the segments in the culture vary (in size or other aspects) between the chosen cultures?*

3 Results

3.1 Comparison of countries – change in behavioural patterns of elderly customers

In order to answer the first research question: *What were the significant behavioural changes induced by the COVID-19 pandemic, and what were the differences in coping mechanisms of the elderly from different countries?,* in-depth research into behavioural changes that were induced by the pandemic had to be carried out. The 8th wave of the SHARE research (Börsch-Supan, 2021) asked elderly customers about their lives and the changes that the COVID-19 pandemic meant. According to the results, the behaviour of elderly people during the pandemic changed in all three countries. Yet, the extent to which consumers changed their behaviour and implemented new habits, rituals or coping mechanisms was different. A comparison of behaviour before and after the outbreak of the pandemic is presented in Table 1. It is necessary to point out that the presented tables do not display the respondents who did not want or did not know how to answer; therefore, the sum of percentages in the tables is not 100.

The most significant differences between countries in the changes of behavioural patterns were found in the following everyday activities: change in frequency of shopping and outdoor activities as well as acquiring a different attitude to meetings with more than five people or visits (Table 1).

The frequency of shopping during the pandemic was reduced mainly by Czechs (58.1%) and Germans (54.3%). On the other hand, more than half of the interviewed seniors from Slovakia (52.5%) did not change their shopping habits. When it came to outdoor activities such as taking a walk, the Germans did not limit themselves (59.7%), interestingly, more than 14% of them started taking a walk outside more often. On the other hand, taking a walk was seen as a risky activity to be avoided by 39.7% of Slovaks and even more Czechs (47.5%), who walked only as much as or even less than before the pandemic.

The largest change in behaviour was observed in the area of social activities. Whether in willingness to attend a meeting with more than five people outside the household or visiting other family members, it is obvious that the Germans and Czechs limited themselves to a great extent. The Slovaks also reduced these activities, but significantly less so.

The change of the external environment that the pandemic meant for the elderly not only modified their daily routines but also brought new habits or intensified activities that had not been seen as so important before. Influence from health authorities, media, and even legal measures regarding health protection and infection prevention put into action new forms of behaviour, such as mandatory hand disinfection, wearing masks, covering coughs and sneezes, avoiding personal contact, as well as keeping personal distance in public spaces. All of these "new behavioural patterns", which were mandatory, were created by authorities, promoted via media, and requested to be performed in public. However, as compliance with these measures was not always checked, some people did not act accordingly.

In terms of these health protection measures, respondents from all three countries behaved responsibly, yet there were statistically significant differences between them. More than four-fifths of the respondents from each country washed their hands more often than usual, but those interviewed from the Czech Republic (81.1%) lagged behind those from Slovakia (86.8%) and Germany (85.1%). The change in usage of hand sanitisers and disinfection fluids was huge. Disinfectants were used more than before the pandemic by the majority of all respondents. In Germany (71.9%), it was slightly less compared to Slovakia (80.9%) and the Czech Republic (79.6%). Slovaks were the least responsible in terms of covering coughs and sneezes. Only about two-thirds (67.4%) did so, while it was 88% in Germany and 81.2% in the Czech Republic. On the other hand, more than one-fifth of Slovaks took more preventive medicine and vitamin supplements than usually to avoid COVID-19 (21.6%). This behaviour appeared only among 13% of Czechs. Germans overall did not change their approach to preventive medicine, only a very little proportion (2.3%) of those interviewed used preventive medicine more than before the COVID-19 outbreak.

Table 1 | Changes in behaviour since outbreak (%)

| | SK | | | CZ | | | DE | | |
How often…since the outbreak	Less*	Same	More	Less*	Same	More	Less*	Same	More
Went shopping	**44.1**	52.5	2.8	58.1	40.9	0.5	54.3	42.8	1.6
Went out for a walk	39.7	46.2	10.9	47.5	45.8	5.3	24.2	59.7	**14.1**
Met more than 5 people	67.5	**30.2**	1.1	83.9	13.6	0.5	**86.4**	9.7	0.3
Visited other family members	**66.8**	30.6	1.1	72.3	24.2	2.8	74.0	22.4	0.9

More than usual	SK	CZ	DE
Washed hands	86.8	81.1	85.1
Used disinfection fluids	80.9	79.6	71.9
Covered coughs & sneezes	**67.4**	81.2	88.0
Took medicaments as prevention	**21.6**	13.0	2.3

* Less = "Not anymore" + "Less often"
Note: All differences among countries are significant at the level p=0.00.
Source: Own calculations

As mentioned before, the pandemic also brought new behavioural patterns. People were obliged to wear face masks or respirators and keep their distance, especially indoors. The Czechs were the most responsible when wearing face masks (Table 2), because almost all of them always wore one (94.3%). Among German respondents, it was four-fifths (80.5%) and even fewer among Slovaks (76.3%). The fewest Slovaks (57.9), more Czechs (75.4%), and most Germans (80.4%) were always able to keep a social distance.

Table 2 | Behaviour during outbreak (%)

	SK			CZ		
How often	**Always**	**Often**	**Rarely***	**Always**	**Often**	**Rarely***
Wore a face mask	76.3	17.5	6.2	**94.3**	3.7	1.9
Kept distance	57.9	24.1	**18.0**	75.4	16.1	7.6

	DE		
	Always	**Often**	**Rarely***
Wore a face mask	80.5	13.3	6.1
Kept distance	**80.4**	15.9	3.4

* Rarely = "Sometimes" + "Never"
Note: All differences among countries are significant at the level p=0.00.
Source: Own calculations

The economic consequences of the pandemic for households of elderly people were noticeable in data from all three countries. First, some of them had lower incomes – due to cancelled part-time job opportunities, and others had increased spending due to higher prices or increased purchases of certain goods and services. The Germans had the least problems dealing with this, while the largest group of those having some difficulties was among the Slovaks (Table 3).

Table 3 | Household's ability to make ends meet since outbreak (%)

Ability	SK	CZ	DE
With great difficulty	**8.6**	1.2	2.3
With some difficulty	**44.5**	8.4	9.5
Fairly easily	38.6	**29.7**	**31.9**
Easily	8.2	**60.1**	**55.7**

Note: All differences among countries are significant at the level p=0.00.
Source: Own calculations

In all three countries, only a very small proportion of respondents received financial support (either institutional or personal) due to the outbreak or had to postpone regular bill payments after the outbreak (Table 4). However, due to changes in the economic situation of their households, older people had to start using their savings when the pandemic hit. The largest negative financial effect resulting in the usage of savings was seen among Czechs (44.1%). In Germany, it was the situation of more than a quarter of respondents (26%), and in Slovakia less than a fifth (19.3%).

Table 4 | Economic consequences of outbreak (%)

Consequence	SK	CZ	DE
Received financial support due to outbreak	4.6	4.8	3.1
Postponed regular bills since outbreak	4.5	4.3	5.8
Dipped into savings since outbreak*	19.3	**44.1**	26.0

Note: Differences among countries are significant at the level p=0.00.
Source: Own calculations

3.2 Segments in different cultures

The second research question was aimed at finding an answer to the following: *Were there differences in forming and usage of different coping mechanisms/habits/rituals between people of the same culture? If so, did the segments in the culture vary (in size or other aspects) between the chosen cultures?* To better understand the different approaches to coping with the external change of the environment in different cultures, cluster analysis was used to form groups of interviewed elderly customers. The changes in behaviour related to shopping, outdoor activities, social behaviour and new "pandemic-specific" habits were chosen as the segmentation criteria. The resulting number of clusters was 3 in each country. It is necessary to point out that not all the interviewees ended up in clusters: those that showed very unique behavioural changes remained "unclustered".

SPECIFICS OF SEGMENTS IN SLOVAKIA

In Slovakia, segments were created containing people who partially changed their behaviour: "the adapters", who changed everything in their behaviour, "the vulnerable", and those who did not change anything – "the resistant" (Figure 1).

The largest segment, the *"adapters"* (51.2%), was made up of 43.7% of men. This segment consists of older people who have adapted by making some changes in their behaviour during the pandemic. They perceived COVID-19 as a threat, and they acted accordingly. They reduced social contacts and increased health protection in the form of more intense handwashing, usage of disinfectants, covering up coughs, wearing a face mask honestly, and keeping a distance. What they did not change was their shopping and walking habits, and no one in this segment started taking COVID-19 prevention products. On the financial side, a part of the segment had some difficulties (45.4%) in making ends meet, and a part made it through fairly easily (38.7%). Only less than a fifth (17.9%) of this segment had to use their savings to cover changed living expenses during the pandemic.

When analysing behavioural changes among the "*adapters*", it is obvious that they chose to use the approaching coping strategy, specifically, problem-focused coping (made some changes that were necessary and required) as well as emotional coping (kept doing things that could endanger them but make them happy).

The second segment, the *"resistant"* (28.6%), has 49.4% men and is characterized by the fact that the pandemic had only a minimal effect on their choices and did not change their behaviour. This group did not perceive the whole situation as threatening enough to modify their daily habits. Some of them got along with finances easily (41.4%), and others with some

difficulties (36.8%). More than a fifth (22.4%) of the resistant used their savings, which is a little above the average among Slovaks.

Among this group, the avoiding coping strategy is the most visible one. Despite the situation, they decided not to see the situation as a danger (denial) and resisted change.

The smallest segment, the *"vulnerable"* (20.2%), with 41.6% of men (the group with most women), were people who changed everything in their behaviour. This means that they modified all of their activities according to the recommendations of the authorities, reduced the risky ones, and intensified those that led to protection of the health of others and themselves. This group perceived the pandemic as a life-changing period. The vulnerable can be considered vulnerable in all aspects – not only were they cautious about the need to protect their health, but they were also the financially weakest segment. They had some difficulties with financial recovery (56.2%), and due to it, more than a quarter (27.3%) of them had to use their savings to be able to stay afloat. This was a much higher percentage than Slovakia's average.

The "*vulnerable*" perceived the change in the external environment as a threat and chose to cope using more coping strategies. The ones that were most obvious were approaching coping, mainly problem-focused coping and proactive coping. This group not only tried to behave responsibly but even took preventive medicines and vitamin supplements in order to reduce the probability of health complications.

Figure 1 | Segments, Slovakia

Source: Own calculations

SPECIFICS OF SEGMENTS IN THE CZECH REPUBLIC

In the Czech Republic, the largest segment emerged from those that changed their behaviour in all aspects, the "*vulnerable*", and two approximately identical segments in which their behaviour changed only partially, the "*social adapters*" and the "*hygiene adapters*" (Figure 2).

Figure 2 | Segments, Czech Republic

Source: Own calculations

Almost half (46.1%) of older people in the Czech Republic changed their behaviour in all aspects. This segment, the *"vulnerable,"* had characteristics very close to the *"vulnerable"* in Slovakia. Most of the segment were women (only 33.4% men). The Czech vulnerable perceived COVID-19 as a life changer. Their habits and everyday routines had to change to protect themselves and others. In terms of finance, more than half (57.9%) said it was easy to make ends meet, but more than half (56.3%) had to use their savings, and this was a much higher proportion than the average in the Czech Republic.

The Czech *"vulnerable"* were twice the size of the Slovak *"vulnerable".* They used the same approach to coping, mainly problem-focused coping – only they did not provably use proactive coping.

The other two segments were about the same size. Both groups modified their behaviour but only in certain aspects.

One segment (27.7%), the *"social adapters,"* with 45.1% of men, decided to limit their social contacts and they therefore reduced their activities outside the household, limiting visits, meeting people, shopping and walking. They wore face masks responsibly, but they did not respect social distance. The social adapters took COVID-19 seriously, and their coping mechanism was to avoid possible infection. Although they stated that they managed to get along with finances easily (66.1%), 42% of people in this segment took out some savings, which represents a ratio slightly lower than average in the Czech Republic.

The third segment, the *"hygiene adapters"* (26.1%), with 43% of men, is characterized by a change in their hygiene behaviour. They wore face masks, kept their social distance, and all of them washed hands and used disinfectants to a greater extent. However, they did not change their social contact habits. The hygiene adapters found their coping mechanisms in the usage of products rather than in avoiding the potential infection through social contact. They did not sacrifice their social life represented by meeting other people, visiting others or shopping. They managed to make ends meet easily (62.3%), and only 30% of them used their savings, which is much less than the Czech average, yet almost twice as much as the adapters in Slovakia.

Both of the "*adapters"* utilized coping similar to the adaptors in Slovakia. They addressed the problem by changing some aspects of their behaviour (approaching coping, problem-focused) but they still kept some activities that were not safe the way they wanted them and the way they felt is right (emotional coping).

SPECIFICS OF SEGMENTS IN GERMANY

In Germany, one large segment emerged, whose members changed their behaviour in all aspects, the *"responsible"* (66.4%), and two smaller ones, in one of which there were changes in behaviour, the *"adapters"* (19.6%), and in the other one the members did not change anything significant, the *"resistant"* (14.0%) (Figure 3).

Figure 3 | Segments, Germany
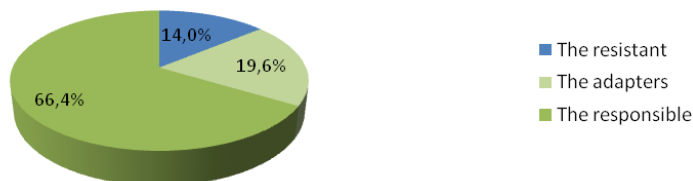
Source: Own calculations

The first segment consisted of 45.7% of men, and its members completely changed their behaviour in favour of health protection and reduction of social contacts. The *"responsible"* stand for 66.4% of all German respondents, and behaved like the vulnerable in Slovakia and the Czech Republic, but unlike them, they were a financially relatively stable group. They had no problem with finances, but 27% of them had to use their savings to make it through, which was only one per cent above Germany's average.

The "*responsible*" are a very interesting segment. They employed problem-focused coping to the fullest and they are three times the size of the comparable segment among the elderly in Slovakia and 20% more than in the Czech Republic. They seem to have tried to stay compliant with all state regulations, and yet they were financially stable (unlike the compliant segments in Slovakia and the Czech Republic).

The second segment, the *"adapters"* (42.5% men), changed their behaviour, except that they limited their shopping to a lesser extent and did not change the use of disinfectants at all. Members of this segment had no problems with finances, but this group had the highest proportion (30.8%) of those that had to use their savings during the pandemic. German adapters chose what to modify and are considered the financially most vulnerable segment.

The German "adapters" are very much like adapters in Slovakia or the Czech Republic. They changed some of their behaviour, employing approaching coping, specifically problem-focused – they adhered to most of the official recommendations of authorities yet still had their own "things" they did their own way.

The smallest segment, the *"resistant"* (14.0%), with 50.8% of men, made almost no change in their behaviour. Yet, compared to the "resistant" in Slovakia, they were able to admit that COVID-19 is a problem because they changed their approach a little in these three activities: they covered their coughs and sneezes more often than they used to before the outbreak, and some of them started to use disinfectants to a greater extent and some reduced personal encounters with friends and family, yet did all of it to a lesser extent than the members of other segments. They had no problem with finances, and 26.7% (which is approximately the German average) had to use some of their savings.

Analysing the data about the German "resistant" segment, they seem to have tended to use the accommodative coping strategy rather than the avoiding one that the "resistant" in Slovakia employed. The German "resistant" segment did not decide to deny the change that could be threatening, but acknowledging the pandemic, they decided to change only the very urgent matters and be compliant only in necessities while a cognitive restructuring of danger most likely took place.

4 Conclusions and Discussion

4.1 Conclusions about behavioural changes that happened as a result of employing different coping strategies

Based on the results, we can conclude that the elderly from each of the surveyed countries reacted differently to the situation during the pandemic. What they all have in common is that they added new habits and rituals to their daily routines (problem-focused coping). Most of the elderly in each country started to wash their hands more intensively, use disinfectants, cover their coughs, wear a face mask and keep a certain social distance. The observed differences are mostly in the perception of the importance of these habits and rituals for one's health. The countries differed in the perceived importance of these measures. This is significantly reflected in the observed behavioural changes that were different. Slovaks wore face masks, covered their coughs or kept their social distance significantly less than the other cultures. Only Slovakia, the culture with the highest masculinity and power distance score, had an identified segment that did not perceive COVID-19 as a threat serious enough to adopt behavioural modifications (the "resistant" – employing the coping-by-avoiding strategy). On the other hand, a significant number of Slovaks had a unique coping approach (proactive coping) – starting to take medicaments in an attempt to prevent the sickness and, compared to Germany, the size of this group was nine times larger.

In all the countries, most respondents limited their social contact with people outside their households (problem-focused coping), but Slovaks did so the least, because they tried to keep their social contacts as much as possible (emotional coping). Slovakia had the lowest score in the individualism dimension and is considered in the middle of the individualism versus collectivism scale. Germany and the Czech Republic have higher scores and are considered more individualistic. It is possible that this dimension had an influence on the choice of how people would react, but this needs to be studied further using various cultures with significantly larger differences in this dimension.

More than half of Czechs and Germans reduced the frequency of purchases, but only less than half of Slovaks did. Again, shopping even just for daily groceries is considered a social activity, especially among seniors (Bezirgani & Lachapelle, 2021; Dholakia, 1999), and out of the studied cultures, Slovakia had the lowest score in individualism, which means that they like to care for others more than the other studied cultures.

In terms of finances, only very few older people from all three countries received financial support because of the pandemic or had to postpone payments of their financial commitments. However, they differed significantly in their necessity to start spending their savings. More than half of Slovaks (53.1%) declared they had financial difficulties, while with Czechs and Germans it was only around 10% that perceived this problem. On the other hand, the Czechs in particular (44.1%) started to spend their savings during the pandemic, while only approximately one-quarter of Germans (26%) had this problem, and the Slovaks faced it even less (19.3%). This shows a culturally different perception of financial well-being that relates to indulgence. This dimension is the strongest (yet still weak with a score of 40) among Germans and the weakest among Slovaks (28). Slovaks and Czechs (29) have, according to their scores, rather pessimistic views on life and a culture of restraint. Understanding this cultural difference and tendency to restrain, one sees why although more than half of Slovaks

perceived financial difficulties during the COVID-19 pandemic – which is the largest group of seniors out of the studied countries, they were the last ones to dip into their savings. From these results, it is obvious that coping mechanisms used in the financial management of the elderly in times of crises varied. While Germans and Czechs used more engagement coping (not seeing the use of reserves as a problem – they restructured their perception), Slovaks rather chose to keep their reserves and spend them as the last possible choice.

4.2 Conclusions about cultural differences and their impact on differences in coping with change

The major cultural difference between the studied countries according to Hofstede's study (Cultural Comparison, 2022; Hofstede et al., 2010) is in the dimension of power distance (PDI), where Slovakia scores the highest (100) as a culture that accepts and requires some people to have more power than others, the Czech Republic has the middle score (57), and Germany scores the lowest (35) as a culture where power is preferred to be distributed equally.

According to the study by Chen and Biswas (2022), countries with higher PDI had higher reproduction numbers of COVID-19 than countries with lower PDI. Their results indicate that individuals from countries with higher PDI rely on the system to protect them rather than on doing what is right according to their individual sense.

Results from comparing the reactions of the elderly to change in the environment – the onset of the COVID-19 pandemic – among respondents from Slovakia, the Czech Republic and Germany show that the Germans were the most "responsible", employing problem-focused coping and adhering to all health and safety recommendations, the Czechs slightly less so, and the Slovaks were the least compliant in their behaviour. Even segmenting nations into groups showed that Germany – the country with the lowest PDI (35) – had the largest segment (*responsible* – 66.4%) who behaved in full accordance with all health and safety recommendations. In the Czech Republic, where the PDI is higher (57), the fully compliant group (*vulnerable* – 46.1%) was smaller than in Germany but still very close to half of the whole sample, while among Slovaks (PDI=100), the segment (*vulnerable* – 20.2%) was less than one-quarter of the sample. Moreover, Slovakia, as the only one of the three, had a segment (*resistant* – 28.6%) that made minimal to no change in their behaviour – employing the avoiding coping strategy. Both the *responsible* and the *vulnerable* used most significantly the approaching coping strategy, and specifically problem-focused coping. The vulnerable in Slovakia apparently also used proactive coping.

Based on the above, it is expectable that the dimension of power distance is negatively related to both behavioural changes that happen as a result of the change in the external environment and the choice to employ problem-focused coping.

The second dimension that is very different in the studied countries is masculinity (MAS), where again Slovakia scores very high (100) as a strongly success-oriented culture, Germany with 66 is still a very masculine society where performance is required and valued, and the Czech Republic scores 57, which is still a rather masculine society, expecting outcomes instead of concentrating on quality of life.

Previously cited research on cultural dimensions and their impact on differences in COVID-19 pandemic indicators (Chen and Biswas, 2022; Duarte et al., 2022; Gokmen et al., 2021) did not find any correlation between the MAS index and the COVID-19 pandemic indicators.

When comparing the results of the SHARE research from chosen countries and the MAS index, no significant and obvious relation was detected. Moreover, the MAS dimension is, according to Minkov (2018), overrated in its importance and should no longer be used to describe differences between countries. Therefore, it can be assumed that searching for relations between the MAS index and the use of coping strategies in the case of a change in the external environment is unnecessary.

Scores in the other four dimensions (individualism, uncertainty avoidance, long-term orientation and indulgence) are very similar for Germany, the Czech Republic and Slovakia. There is no significant difference between the chosen countries in these indices; therefore, to postulate whether there is any relation between these dimensions and the choice of coping strategy is not possible based on the obtained data.

4.3 Implications, limitations and future research

From the cluster analysis that resulted in behavioural segmentation, it is apparent that in the chosen countries, the segments were very much alike (the *vulnerable,* the *adaptors,* the *resistant*). The thing that made countries different in the overall results was the size of these segments. This means that each culture consists of individuals who have certain features, behaviours and values that not necessarily all members of the culture share, yet the overall number of individual features, behaviours and values across each nation creates a measurable cultural impact. Culture is not homogeneous and Beugelsdijk et al. (2014) therefore warn to not put too much emphasis on cultural differences. Based on this, instead of only emphasizing the differences, the article also tried to find links between cultural dimensions and behavioural changes.

As the exploratory research design was used, the results obtained are either descriptive facts or assumptions about relations based on data that need further verification. Several implications and future research intentions are mentioned in section 4.2. The most important are as follows:

- Culture has an impact on how people react when the external environment changes. Several significant differences were identified between the chosen cultures in how the elderly behaved (coped).

- There is a cultural difference in how people perceive and manage their finances when a threatening change in the external environment occurs. It seems that the choice of coping mechanisms in this area is related to the cultural dimension of indulgence and its score.

- The power distance dimension (PDI) seems to have a relation with the choice and intensity of application of a coping strategy (specifically problem-focused coping).

The conclusions of the research that could be of interest to businesses and companies targeting these consumer segments are as follows:

- Consumption was one of the "tools" used in different coping techniques – for example, more intense consumption of medicine or avoiding visits and social contact rather than giving up shopping (both among Slovaks). If a company finds a way for their product to become a part of coping with the new situation, it will create a great competitive advantage. The importance then is to clearly communicate the link between the changing situation and the use of the product as a part of the coping.

- Notable is also the fact that perception of the financial impact differed. One culture (Slovaks) perceived financial pressure but did not spend their savings to the extent of other cultures (Czechs and Germans), which declared a much lower level of financial pressure. This would indicate a very different sensitivity to financial well-being between cultures as well as a different approach to the use of savings. This perception seems to have a relation to the cultural dimension of indulgence – the higher the score, the more the elderly were keen on spending their savings with fewer "regrets".

- The final conclusion that could be of use for companies targeting this segment is the result of cluster analysis that created segments in all three cultures that were alike. Interestingly, countries had significant differences in the results monitoring behavioural changes, but the segments that were identified in one country had very many similarities with segments from other countries (not only with cultures that were on purpose chosen to be alike but also with the culture that was chosen to be different from the other two). The major difference that caused the significant differences between countries was the size of the segments. This means that if a company serves a segment of seniors in one country, it is very possible that a segment of very similar characteristics will be present on the other CEE markets but will most probably differ in size.

As for the limitations on the applicability of the results and further research, it is necessary to point out that behavioural change is a result of the synergic effect of more factors than just culture. Non-cultural factors such as institutional support, clear communication of the need to adhere to the COVID-19 measures, health infrastructure and other factors played and will play an important role in the ability to cope with negative changes and willingness to adopt needed behavioural change. Therefore, future research should monitor differences in these external factors not related to culture as well.

The limit of the exploratory research design that was used is that it does not produce generalizable results but rather forms hypotheses that need to be further tested by either descriptive or causal research. This is the case of the presented research results.

For future research intentions, there is a need to recommend that in order to further study the impact of cultural dimensions on behavioural changes and coping, it would be beneficial to include more diverse countries and use standardized questionnaires about coping that would be quantifiable. In future, study of cultural differences could monitor more deeply the use of other coping mechanisms, such as emotion-focused coping, especially positive accommodative and meaning-focused or even negative emotional coping, which is often visible in spreading hoaxes, rumours, online hating or boycotting governmental measures

and which was visibly present during the pandemic to a different level in all the studied countries.

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