Individual decisions during the coronavirus

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Abstract: *With the outbreak of the coronavirus, society is facing unprecedented challenges. As a result, significant economic, social and environmental changes are taking place, making it increasingly important to make the right decisions and assess the situation appropriately. Individual decisions, attitudes, fears and needs greatly influence societal willingness to take risks and determine the outcome of the virus, as its spread can only be reduced through social collaboration. The aim of this research is to assess the potentiality of certain social groups to make rational decisions and how they react to radical changes due to the coronavirus. The willingness to take risks is measured based on the DOSPERT scale and with the help of secondary and primary research methods. Based on the results of the research, conclusions can be drawn about how society can cooperate during a possible pandemic and how a possible future crisis situation influences decision-making and the willingness to take risks.*

Keywords: *individual decision making, risk taking, rationality, coronavirus*

1 Theoretical background

The coronavirus-induced COVID-19 (Coronavirus disease 2019) epidemic is the defining global health crisis of our time. The virus appeared in Asia in late 2019 and has since spread to all continents except Antarctica. The number of cases is growing rapidly around the world, and slowing it down is a global priority. By affecting almost every part of the world, it can cause not only a health crisis but also an economic, political, and social crisis [10]. In the current difficult situation, we sought to assess the decision-making of individuals through the eyes of researchers; their response to the coronavirus; their attitude to risk. We do all this by examining the willingness to take risks and the rationality of decisions.

1.1 Decision making

There are many approaches to “decision” in the literature. According to Kindler, “Decision is a purposeful human choice between action options in a given environment, where action options are explored as options for action in the pre-decision stage of the decision-making process.” [4].

People get into a decision-making situation by facing some problems that they need to solve. “However, the problem is most often not an objective phenomenon but a consequence of individual perception. Different people endow the same situation and circumstances with different meanings, and accordingly they may be satisfied or dissatisfied with the given position.” [3]

The decision is a very complex process that consists of three main phases:

1. Exploring a decision opportunity - we perceive that the target status is different from the current status.
2. Finding possible options for action
3. Choosing of action options [6, 7]

Currently, the emergency due to the coronavirus is the problem. An epidemic of this magnitude has been around the world for a very long time, so many countries are not prepared to take the right steps, most do not know exactly what the right/necessary procedure would be. Proper decision-making is important not only at the top management level of the country but also at the level of society and the individual. Both society's and individuals' responses and decision-making mechanisms need to adapt to the changed circumstances caused by the coronavirus, which affect the:

- Health status

External threats can not only affect physical health but also mental health. Closedness and access restrictions, limit access to the source of happiness caused by social relations. Isolation gives a feeling of losing the free will, which causes people anxiety, negative emotions. Some are better, others are less well tolerated in this situation.

- Financial status

Losing jobs or changing the way you work causes financially serious damage to people. Most are able to work from home, but investors, entrepreneurs, and many employees who are not in the healthcare or food industries have also found themselves in a difficult situation, with many becoming unemployed.

- Social status

The purpose of the access restriction is to limit human interaction with each other to slow the spread of the virus. Most do not even meet their family members or older relatives for their safety, which is extremely difficult. Online platforms help

people stay in touch, they try to make up for the recreational opportunities through video. The manner and regularity of routine shopping have also changed, so have shopping habits. Personal shopping is being replaced by ordering, and the turnover of online stores and home delivery of grocery stores has also increased.

Making the right decisions for individuals contributes greatly to society's progress in overcoming the coronavirus. However, this requires that everyone be able to assess the level of risk and be able to give up things, that are convenient but not absolutely necessary for the individual, in order to achieve a greater goal.

1.2 Risk and risk-taking

One of the basic preconditions for the existence of risk is uncertainty [9]. There is no absolute certainty that the existing set of information either does not contain everything or not all information is correct [1]. It is important to distinguish between the term risk and uncertainty. Knight stated that risk is the measurable, probable uncertainty, so one of the descriptive factors of risk is the probability of occurrence [5].

1.2.1 DOSPERT scale

Examining the decision-making mechanism and the background of risky behavior is not easy, as it is difficult to substantiate and examine each factor with numerical data. The DOSPERT scale (Domain-Specific Risk-Taking Scale) is a solution for this. The scale was described by Weber, Blais, and Blatz, with the goal of distinguishing between risk-taking, its perception, and its expected utility. The Hungarian translation of the scale was done by István Radnóti, his work helps to implement the scale for our research [2]. The questionnaire scales risk appetite through questions that affect different areas of life [8].

First, each area had 8-8 (5 * 8) statements, which had to be assessed by the respondents with three subscales, later these 40 items were modified to 30. They also changed the scale points, initially having to rate on a 5-point scale, however, this was later changed to a 7-point differential scale for better evaluability. One of the subscales examines the probability that the respondent will be involved in that activity. The second subscale measures the riskiness of each item based on the opinion of the respondent. The third examines how much benefit a person sees in the event of a situation. Based on these, the questionnaire can be used to find out what an individual's or group's risk-taking intent in a given area can be traced back to: „ a positive attitude towards a given risk, a perceived low risk, or a high return that rewards the risk [8]."

In our perspective, one of the major disadvantages of the questionnaire is that even despite the reduction, 30 statements have to be evaluated 3 times by the respondents, ie a total of 90 statements, which makes data collection more difficult. Based on these, in the case of our own quantitative survey, we tried to

transform the composition and quantity accordingly. The conversion is shown in the *table* below.

Original	Changed
Ethics (E)	Ethics (E)
Financial (F)	Financial (F)
Health / Safety (H/S)	Health / Safety (H/S)
Entertainment (En)	Entertainment (En)
Social (S)	Informatics (IT)

Table 1
DOSPERT scale adaptation [own edit]

The statements belonging to the general social field were replaced by IT-social statements. We believed that the current society is increasingly using the opportunities provided by information technology, which are already embedded in everyday life. Due to the circumstances caused by the coronavirus, the use of IT tools continued to increase so we considered it important to assess our willingness to take risks in this area. In addition, for each group, instead of the basic 6 statements, we defined 3 statements, so the respondents had to evaluate 15 statements from the three aspects mentioned above.

2 Methodology

As a quantitative part of our research, we compiled an online questionnaire. For the questionnaire used in the data collection, we used Google Forms. Both open-ended and closed-ended questions were used in compiling the questionnaire. However, we have sought to minimize open-ended questions, as they also make evaluation difficult. For closed-ended questions, the majority of respondents must answer selective and scalable questions.

One of the chapters contains the DOSPERT scale, which has been modified according to our own research. The questionnaire used for the survey can be divided into the following sections:

- Brief description of the research;
- Questions related to the general coronavirus situation;
- Risk appetite profiling based on the DOSPERT scale;
- Demographics.

The questionnaire was tested before the final version was shared. Following the correction, we shared it on the Internet, including Facebook, to reach a faster and larger audience. Completion was done anonymously and on a voluntary basis.

2.1 Sample

At the time of closing the questionnaire, we had 261 responses. Prior to data evaluation, data cleansing was performed, where those were screened out who only half-completed the questionnaire; gave unrealistic answers; answered too

unanimously; are not relevant to the survey. By the end of the data cleansing, the data of 204 people remained for evaluation. According to the relation to the population (discrete population), by which we mean those living in Hungary, our sample cannot be considered representative.

It was completed by 83 (41%) women and 121 (59%) men, so it can be said that the proportions were relatively balanced. Observing the places of residence, 98% of the Hungarian respondents live in Hungary, most of the respondents (59%) live in the capital, Budapest, and 39% in the countryside.

For the age groups, it can be seen that most of the fillings came from the 21-25 age group (31.9%). The age of the respondents ranged quite widely, with the youngest respondent was 20 years old, the oldest respondent was 61 years old, and the average age was ~ 33 years. The distribution by age group is shown in the *table* below.

Age groups (N=204)		
16-20	3	1.5%
21-25	65	31.9%
26-30	50	24.5%
31-35	16	7.8%
36-40	20	9.8%
41-45	15	7.4%
46-50	18	8.8%
51-55	11	5.4%
56-65	6	3%

Table 2
Age distribution [own edit]

3 Results

After closing the questionnaire, the exported data were cleaned, and then the analyzes were performed using Excel and SPSS programs. In this chapter, we present the results of our quantitative questionnaire research. In the first part, we review general questions, examining how respondents behave in an emergency.

3.1 General questions

In Hungary, as in many other countries, there is a curfew, which means that you can only leave your place of residence in very justified cases. We asked our respondents how many times they have left their place of residence since the restrictions have been in place. Looking at the 204 respondents, most move out only 1/2/3 times (56%), however, it can be seen that 12% leave their place of residence more than seven times on average in a week.

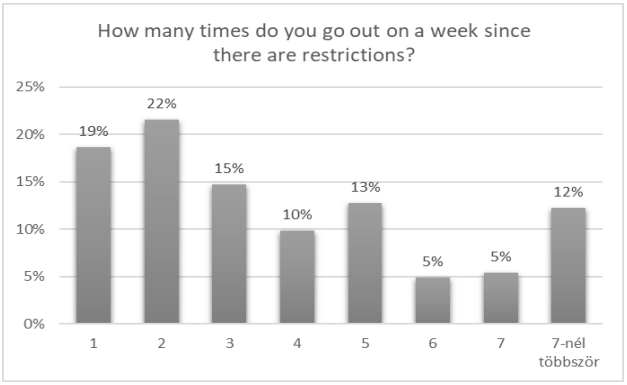

Figure 1
Leaving the place of residence [own edit]

This may be because they are doing a job, such as being a health care worker. So we asked them what they do in most cases when they leave their place of residence. Most people always / almost always go out to buy food, do sports and work. Very few people go to the pharmacy and meet others, but 5% almost always / always do so only to meet others. From this, we can conclude that the needs of the individual are considered more important to that person than to his or her own health and the interests of society.

If an individual decides to go into a community it is important to take the necessary precautions. We believe that the mask is one of the most basic aids as it prevents an infected individual from passing it on to others. We asked the respondents whether or not to wear a mask when they leave the house. The responses are summarized in the *table* below.

Do you always wear a mask when you leave the house?		
	Frequency	**%**
Never	61	29.9
Rarely	31	15.2
Almost always	55	27.0
Always	57	27.9
Total	204	100.0

Table 3
Mask wearing habits [own edit]

~ 55% of respondents always / almost always wear a mask when leaving the house, while the remaining 45% rarely or never wear it. There may be several reasons behind these decisions, but we will examine only the risk appetite inherent in these decisions in the next section.

3.2 Examination of risk appetite

The profiling of risk appetite was based on the modification of the DOSPERT scale mentioned above. We examined the rationality of decisions made in each area. The variable obtained by the difference between the benefits and risks inherent in the situations as compared to the decision of the individuals. We considered it irrational if, in terms of the risk-benefit ratio, a person should not do something, but still does. We considered it risk-averse if the benefit of a given situation is greater than its risk, but the person does not do it. And it is considered rational / risk-neutral if one does or does not do something in proportion to the benefit-risk ratio.

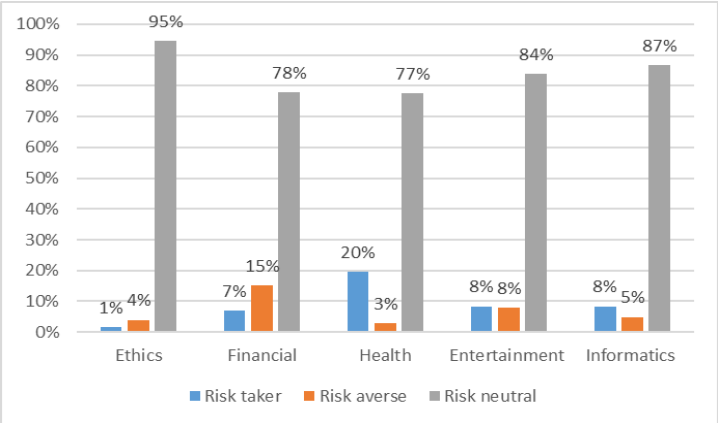

Figure 2

Examination of risk-taking rationality [own edit]

On ethical issues, 95% of the respondents proved to be rational decision-makers, they are risk-neutral. Risk aversion in the financial field was the highest at 15%, from which we can conclude that even if the return on risk is higher, it is not sure that the person will make a financial decision. The field of health was the most prominent in terms of irrationality, 20% of the respondents were more risk-takers in the questions asked.

Each area was compared on the basis of the averages obtained according to benefit, risk and probability. The table shows that the probability of financial and health/safety issues occurring is the most common, ethically negligible. For financial questions, 3 was the most common answer. From this, we can conclude that financial risks and health/safety risks are better tolerated.

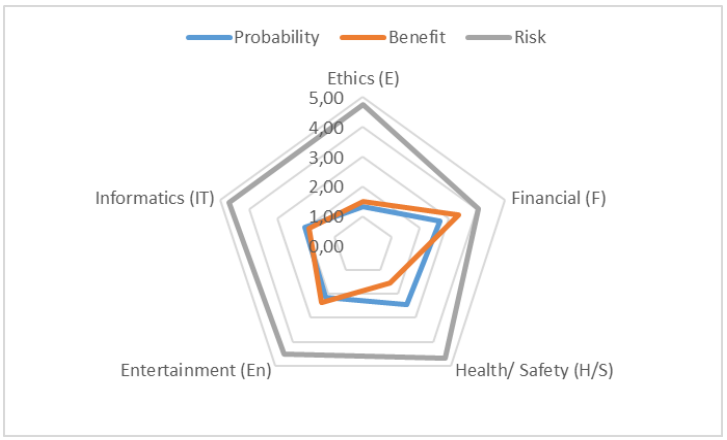

Figure 3
Risk map [own edit]

The risk of each life situation is highly valued by individuals, this individual perception stems from the risk-averse attitude. Behavior can be predicted as a function of benefit. The risk map above shows the aggregated results.

Conclusions

The state of emergency caused by the coronavirus situation also affects societal decisions and attitudes toward risk. The aim of our research was to examine these changed decisions and compare them with the results of previous analyzes. We tried to implement these with the help of a questionnaire.

In the first half of the questionnaire, we received answers to general questions. We have seen that in most cases, people meet the current restrictions, however, there are prominent cases where some people put their individual needs first and violate this restriction by not just leaving their place of residence when necessary. We also addressed the issue of wearing a mask and it turned out that most people wear a mask. However, the ~ 30% who do not wear a mask, pose a significant risk to other people.

During the questionnaire, we used the modification of the DOSPERT scale to examine the risk appetite. With the changes, we tried to achieve a user-friendly, shorter rating scale. The study found - based on our unrepresentative sample - that people are more risk-averse. On ethical issues, most people proved to be rational decision-makers. Risk aversion in the financial field was the highest. The field of health was the most prominent in terms of irrationality.

From general risk aversion, it can be concluded that appropriate regulations can achieve a faster runoff of the virus, as people prefer to follow the rules to reduce the risk. In addition, based on the results of the adaptation of the DOSPERT scale,

it can be concluded that the risk of individual life situations is highly valued by individuals. This is presumably also due to the risk-averse attitude.

Overall, it can be said that people have a risk-averse attitude during the coronavirus, but in many cases, they put their own needs before social needs.

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