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The Effect of Corona-Virus Disease (COVID-19) Outbreak Quarantine on the Belief and Behavior of Children in Early Childhood with a Fuzzy Conjoint Method

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Abstract
The purpose of this paper is to measure the effect of Corona-virus quarantine on the belief and behavior of children in the early childhood period using the Fuzzy Set Theory. In this study, after the Coronavirus quarantine, the thoughts of the children and their parents' observations and thoughts about the belief and behavior of their children were questioned. This investigation was used to measure the change in children's beliefs and behavior during the Coronavirus quarantine, both in questions asked to children and in questions asked to parents. The fuzzy Conjoint Method was used to analyze the data obtained. The measurements of the effect of the Corona-virus quarantine have been recorded in the form of degrees of similarity and levels of agreement.

Keywords: *COVID-19; quarantine; fuzzy conjoint model; early childhood.*

AMS Subject Classification (2020): *Primary: 62P25 ; Secondary: 91B06; 62A01; 92D30.*

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1. Introduction

The world is faced with disasters caused by natural or human effects from time to time. Various political, economic, health, and social consequences of these disasters affect people. Sawada and Takasaki [1] state that the most important damage caused by the disasters is loss of life and inflicting severe blows on the states' economies. Regarding a similar situation today, Banerjee and Rai [2] stated that the Covid-19 virus has almost taken the world by storm. In this study, the effects of disasters on mental health are discussed. These disasters affect humans the

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most among the living groups. Among humans, children are most affected.

Countries or unions generally primarily try to calculate the economic effects of natural disasters. For example, the European Parliament (EP) published a briefing on the economic effects of the Covid-19 global pandemic in February 2020 [3]. However, people and countries can be affected by disasters in different ways. As an example, the Organization for Economic Cooperation and Development (OECD) findings regarding the effects of natural disasters can be given. According to these determinations, the effects are as follows [4]:

- Individual impact: Death, injury, and other harm
- Physical impact: Damages to buildings, infrastructure, agriculture, and vital systems
- Economic impact: Changes in financial and economic relations
- Sociological impact: deterioration of family integrity, deterioration in the education system, public health, and mental health problems

In some natural disasters and especially in cases of epidemics, measures such as quarantine are taken to protect people from the harmful effects of the situation. In this context, Cliff and Smallman-Raynor [5] stated that quarantine is used to indicate restrictions on the activities of people or animals exposed to infectious disease during the contagious period. The Corona-virus quarantine, which started on January 27, 2020, in Wuhan, China, has been shown as the most extensive quarantine in human history. Schools, workplaces, meetings, social events, entrances, and exits to the city have been stopped [6]. Similar situations in other cities and countries in the following days have caused this quarantine to be implemented in many parts of the world. Within the scope of the measures announced on March 12 in Turkey, it was decided that the people would voluntarily remain in quarantine at home, and the schools would be closed. While this process continues, curfews were imposed on citizens over the age of 65 and individuals under the age of 20. According to the research conducted by Bozdag [7] in Turkey, in this process, restrictions can cause many psychological effects on people, including depression. According to Houston, First, Houston et al [8], children are the most vulnerable and vulnerable group exposed to disasters and their psychological and behavioral effects. For this reason, it can be said that the negative consequences of quarantine primarily affect children.

Children's reactions to disasters can be examined in three categories: emotion, thought, and behavior. Pfefferbaum, Houston, North, and Regens [9] stated that the behavioral responses of children and adolescents to natural disasters differ from the disaster behaviors of adults; however, traces of adult disaster reactions can be seen in children's behaviors. Children aged 5-6, at the end of early childhood, which is the target group of this study, are gaining skills in expressing their emotions. While expressing these feelings and behaviors, they are influenced by their parents. In a recent study, it has been determined that parents' attitudes significantly structure the beliefs and behaviors of children. Hammer, Scheiter, and Sturmer [10] found that parents' beliefs affect children's self-efficacy. Dekovic and Janssens [11] state that parental behavior can change a child's social behavior positively and negatively. Danseco [12], on the other hand, states that parents' beliefs shape children's development, and this is a reflection of culture. Murphy [13] states that parents' relevant beliefs and perspectives influence the context of children's development. In addition, McGillicuddy-DeLisi [14] states that parents' beliefs affect the developmental processes of children, although at different rates. Therefore, it can be said that parents' beliefs and behaviors about quarantine and pandemic affect children's beliefs and behaviors.

One of the stimuli around children is the media. The role of the media in influencing children's beliefs and behaviors is quite significant. It can be said that the primary tool for obtaining information and news about the pandemic during the quarantine period is television. Van den Bulck, Custers, and Nelissen [15] state that the media affects the development of children. Guru, Nabi, and Raslana [16] state that the content broadcast on television significantly affects the behavior and development of children. Huston and Wright [17] state that television is more effective in children's development than other media organs. Kozma [18] states that books, television, computers, and multimedia environments are important factors affecting their children's learning. For these reasons, it is thought that the media shape the beliefs and behaviors of children during the quarantine process.

Karabulut and Bekler [19] stated that most of the studies on the effects of natural disasters on adolescents and children in the world and Turkey focus on the symptoms of Post Traumatic Stress Disorder (PTSD), which is one of the psychological effects of disasters. However, studies examining the psychological effects of the quarantine process applied during natural disasters are limited. Three weeks were expected for a study on the effect of the quarantine process implemented in Turkey on children's beliefs and behaviors. At the same time, it assumed that children's awareness and sensitivity to the situation were formed during this period. In this process, it is thought that the information acquired by the children's parents, other individuals around them, and media tools affects and changes their beliefs, so behavioral changes occur in children. This research was carried out to determine how children's beliefs and behaviors, who received information about the pandemic directly from their parents, develop regarding quarantine.

1.1 Fuzzy Environment

Since 1965, the fuzzy theory as a new theory introduced by Zadeh in his celebrated paper [20], has generated a growing interest both in the theoretical mathematical framework as well as in its practical applications. Thanks to the fuzzy sets(FSs), imprecision, new mathematical construction has been obtained related to inexactness, ambiguity, and uncertainty. The applications of fuzziness are uncountable and varied. A vast literature has been created since 1965. The FS has led to major technological advances since its origin.

Since its inception in 1965, the theory of fuzzy sets has advanced in a variety of ways and many disciplines. Applications of this theory can be found, for example, in artificial intelligence, computer science, medicine, control engineering, decision theory, expert systems, logic, management science, operations research, pattern recognition, and robotics. Mathematical developments have advanced to a very high standard and are still forthcoming today.

The notion of a fuzzy set provides a convenient point of departure for the construction of a conceptual framework that parallels in many respects the framework used in the case of ordinary sets but is more general than the latter and, potentially, may prove to have a much wider scope of applicability, particularly in the fields of pattern classification and information processing. Essentially, such a framework provides a natural way of dealing with problems in which the source of imprecision is the absence of sharply defined criteria of class membership rather than the presence of random variables. Imprecision here is meant in the sense of vagueness rather than the lack of knowledge about the value of a parameter. The fuzzy set theory provides a strict mathematical framework in which vague conceptual phenomena can be precisely and rigorously studied. It can also be considered as a modeling language, well suited for situations in which fuzzy relations, criteria, and phenomena exist.

Since its inception in 1965 as a generalization of dual logic and/or classical set theory, fuzzy set theory has been advanced to a powerful mathematical theory. In more than several publications, it has been applied to many mathematical areas, such as algebra, analysis, clustering, control theory, graph theory, measure theory, optimization, operations research, topology, and so on. In addition, alone or in combination with classical approaches it has been applied in practice in various disciplines, such as control, data processing, decision support, engineering, management, logistics, medicine, and others. It is particularly well suited as a 'bridge' between natural language and formal models and for the modeling of non-stochastic uncertainties [21–24].

1.2 Fuzzy Conjoint Model

Conjoint analysis is a research method that helps investigate how people make complex decisions. It is also called trade-off analysis to this scrutinize. The basic principle of this method is that difficult and complex decision-making processes such as purchasing and determining a diagnosis can be made with more than one criterion, regardless of a single criterion. Smith [25] has defined conjoint analysis as a methodology for the computation of psychological decisions, such as consumer choices. The conjoint analysis arose out of the mathematical psychology study of conjoint computation. Green and Wind [26] have emphasized that conjoint measurement is about measuring the joint impact of two or more independent variables on the ordering of a dependent variable. The conjoint analysis ventures to jointly recognize the combination model for decision options and at the same time forecast the benefit value of the attributes that are important in the option decision.

The FS conjoint model is solely based on the FSs decision model. The estimation of each attribute was performed in the condition of the degree of membership which is assumed to be able to indicate the degree of perceptions. The FS conjoint model can be modified into the metrics to ease the users' ability to estimate the usability by using

natural language, which is full of vague and subjective expressions.

The fuzzy conjoint analysis has been utilized in many works that include the use of a Likert scale to symbolize linguistic terms. It is considered that the fuzzification of this Likert-scale is more demonstrates the vagueness theme of human subjectivity in giving decisions. For assessing job satisfaction among academic staff in a higher education institution implemented the fuzzy analysis by Rasmani and Shahari [27]. The study of Rasmani and Shahari has confirmed that the analysis using the fuzzy approach gave very good results and ensures more information than the statistical analysis based on percentage. Fuzzy conjoint analysis has also been used in research in the education area [28, 29].

Similarity means that the concept is defined as a generalization of the concepts of equivalence[20]. Although the idea of similarity is a basic notion in human belief, there does not exist an available, general-purpose definition of similarity. There do exist many special-purpose definitions that have been used with achievement in diagnostics, recognition, classification, search, and cluster analysis. Several Similarity Measures are proposed and used for varied purposes. The similarity is a fundamental factor in obtaining an understanding of variables that motivate behavior and intervene with the effect. Thus, the concept of similarity is of fundamental importance in applied areas. Since the notion of similarity has an extensive range of applications, there are several approaches in literature as axioms for the degree or compute of similarity. These axioms have distinctions and similarities depending upon the contexts in which they are established. Therefore, the concept of similarity measure is used in a diversity of scientific areas such as market prediction, machine learning, pattern recognition, and decision making. FS theory has improved its own computes of similarity, which applications in various scientific fields.

1.3 The problem and purpose of the study

The target audience of this study is children aged 5-6 at the end of early childhood. Children of this age group are in the process of gaining skills in expressing their feelings during this period. In addition, the emotional responses of these children can be noticed by a careful observer or even an expert. In addition to those mentioned in the literature, most of the studies related to the effects on the adolescents and children of natural disasters in the World and Turkey focused on the symptoms of "Post Traumatic Stress Disorder" which is one of the psychological effects of disasters [19]. This study aims to investigate the effects of quarantine status due to the COVID-19 pandemic on the beliefs and behaviors of children who stay at home. The precise results of the current situation can only be determined by analyzing the data to be made and collected at the end of the process.

2. Preliminaries

Definition 2.1. Consider the G as an initial universe. A FS on G is a set defined by a function $m_S : G \to [0,1]$. m_S is called the membership function of S, and the value $m_S(x)$ is called the grade of membership of $a \in G$. The value represents the degree of a belonging to the FS S. Thus, an FS S on G can be represented as follows:

$$S = \{(m_S(a)/a) : m_S(a) \in [0,1], \forall a \in G\}.$$

In this Definition, the membership function of the fuzzy set is a crisp(real-valued) function. Zadeh also defined fuzzy sets in which the membership functions themselves are fuzzy sets:

Definition 2.2. A type m fuzzy set is a fuzzy set whose membership values are type $m-1$, $m > 1$, fuzzy sets on $[0,1]$.

Example 2.1. Let $D = \{d_1, d_2, d_3\}$ represent the set of linguistic values such as "yes", "maybe", "no". Then,

$$d_1 = \left\{\frac{1}{1}, \frac{0.2}{2}, \frac{0.5}{3}\right\}, \quad d_2 = \left\{\frac{0.7}{1}, \frac{1}{2}, \frac{0.3}{3}\right\}, \quad d_3 = \left\{\frac{0.6}{1}, \frac{0,5}{2}, \frac{1}{3}\right\}.$$

These values can be shown in Table 1. The first element of d_1 is $\frac{1}{1}$, 1 is the value of the function at first option. The second element is $\frac{0.2}{2}$, which indicates the function value is 0.2 at the second option and so on.

Definition 2.3. A linguistic variable is characterized by a quintuple $(x, T(x), U, G, \widehat{M})$ in which x is the name of the variable, $T(x)$ denotes the term set of x, that is, the set of names of linguistic values of x. Each of these values is

Table 1. The fuzzy set D

	1	2	3
d_1	1	0.2	0.5
d_2	0.7	1	0.3
d_3	0.6	0.5	1

a fuzzy variable, denoted generically by X and ranging over a universe of discourse U, which is associated with the base variable u; G is a syntactic rule (which usually has the form of a grammar) for generating the name, X, of values of x. M is a semantic rule for associating with each X its meaning. $\widehat{M}(X)$ is a fuzzy subset of U. A particular X, that is, a name generated by G, is called a term.

Example 2.2. Let $E = \{e_1, e_2, e_3, e_4, e_5\}$ represent the set of linguistic values such as "too much", "much", "some", "too little" and "none" 2. Then,

$$e_1 = \left\{\frac{1}{1}, \frac{0.7}{2}, \frac{0.4}{3}, \frac{0.2}{4}, \frac{0.6}{5}\right\}, \quad e_2 = \left\{\frac{0.3}{1}, \frac{1}{2}, \frac{0.8}{3}, \frac{0.6}{4}, \frac{0.5}{5}\right\}, \quad e_3 = \left\{\frac{0.5}{1}, \frac{0,2}{2}, \frac{1}{3}, \frac{0.9}{4}, \frac{0.1}{5}\right\}$$
$$e_4 = \left\{\frac{0.2}{1}, \frac{0,6}{2}, \frac{0.5}{3}, \frac{1}{4}, \frac{0.3}{5}\right\}, \quad e_5 = \left\{\frac{0.7}{1}, \frac{0,8}{2}, \frac{0.4}{3}, \frac{0.5}{4}, \frac{1}{5}\right\}.$$

Table 2. The fuzzy set E

	1	2	3	4	5
e_1	1	0.7	0.4	0.2	0.6
e_2	0.3	1	0.8	0.6	0.5
e_3	0.5	0.2	1	0.9	0.1
e_4	0.2	0.6	0.5	1	0.3
e_5	0.7	0.8	0.4	0.5	1

3. Methods

In this study, the survey model was used. The survey was prepared in the Likert type and the opinions of the participants were determined. Many scientific researchers use a wide variety of psychometric measurement tools. The most commonly used measurement tool is the Likert scale. An attitude or opinion determined in the problem of the study is called the Likert-type question, the choices that show the participant's optional level of participation. In Likert-type questions, more than one option is presented for the level of participation in the study. The options to be given for the questions are ranked from best to worst or from largest to smallest. In this study, there are two different participant groups and two different Likert questionnaires were prepared to be suitable for their development levels. In this research, the Likert scale is used with 3 linguistic terms. The linguistic terms and their numeric labels are:

For Questions to be asked to the child: Yes(1), maybe/some (2), no(3). For Questions to be asked to parents: too much(1), much (2), some (3), too little(4), none (5).

The survey was prepared to be answered on the internet. Survey questions were asked to children aged 5-6 and their families. The survey included the following questions:

Questions to be asked to the child:

- Do you know Corona-virus?
- Are you afraid of the Corona virus?
- Does Corona-virus harm people?

- Does Corona-virus harm animals?
- Can Corona-virus be prevented?
- Do you think it's nice not to go to school?
- Are you upset that you can't go to school?
- Is the obligation to stay home boring?
- Can we be protected from Corona virus by staying at home?
- Do you think you can go to school from now on?

Questions to be asked to parents:

- Does your child behave anxiously after the Corona virus?
- Is your child afraid when a conversation about the Corona virus has passed?
- Does your child ask about the Corona virus?
- Does your child pay more attention to cleaning after Coronavirus?
- Has your child's sleep pattern been impaired after the Corona virus?
- Have there been changes in your child's nutritional habits after Coronavirus?
- Did your child develop undesirable behaviour after Coronavirus?
- Is your child happy because she/he can't go to school?
- Has the time your child spent on the Internet after Coronavirus increased?
- Has the time your child spent in front of the TV increased after Corona-virus?

The belief and behavioural distributions of questions are as follows:

For children's belief;
Do children know about the current situation? (4 questions)
Does the current situation affect children's emotions? (4 questions)
Does the current situation affect children's thoughts? (2 questions)

For children's behavioural;
Has Corona-virus changed the basic habits of children? (3 questions)
Did behaviour change occur in children after quarantine? (5 questions)
Did children's behaviour regarding information technologies increase after quarantine? (2 questions)

In this study, from Turkey, 201 children ages $5-6$ units and 201 parents were the participants. Opinions of each child and each parent about the questions asked were got. The effect of quarantine on their belief in line with the answers given by the children and the effect of the behaviour of their children in line with the observations of the parents have been revealed.

3.1 Algorithm

Let us consider the set D containing linguistic values (from Example 2.1). The FS represented for each linguistic value $d_n, (n = 1, 2, 3)$ were defined the Table 1. Let F be a FS, D be a factor attributes. For ith respondent $(i = 1, 2, \cdots, 201)$ against attribute D,

$$F_i \in \{d_1, d_2, d_3\}.$$

The degree of membership of domain element a_k in the subject's linguistic rating F of the ith attribute of D for each element in FS F_i is denoted by $m_{F_i}(a_j, D) = \Lambda$ where $a_k = 1, 2, \cdots, r$. r is a linguistic values used.

Let's n show the number of participants. If v_i is taken as the score of the linguistic values in the ith,respondent, the weight for ith respondent $\omega_i = \frac{v_i}{\sum_{t=1}^{n} v_t}$. The approximate degree of membership for each element, $b_k, (k = 1, 2, \cdots, 201)$ in FS F is defined as

$$\Omega = \sum_{i=1}^{n} \omega_i \Lambda, \tag{3.1}$$

where $\Omega = m_F(b_j, D)$. Let $m_{d_n}(j)$ shows the FS defined for linguistic rating. Consider $m_F(j, F)$ is the calculated set for product m from (3.1). The formula for the similarity of two sets is

$$B(F, d_n) = \frac{1}{1 + \sqrt{\sum_{k=1}^{3} \left[m_F(j, F) - m_{d_n}(j)\right]^2}} \tag{3.2}$$

The above information and formulas also apply to the E set in Example 2.2. In this case, the FS represented for each linguistic value $e_n, (n = 1, 2, 3, 4, 5)$ were defined the Table 2.

Calculations for the measurement procedure will be carried out with the following algorithm.

Algorithm:
Step 1: Record children's answers.
Step 2: Record parent's answers.
Step 3: Define linguistic variables according to the answers in Step 1.
Step 4: Define linguistic variables according to the answers in step 2.
Step 5: Data handling: According to the answers of children and parents.
Step 6: Calculate Fuzzy weight vectors by children's response.
Step 7: Calculate Fuzzy weight vectors by parent's response.
Step 8: Compute of similarity degree values between respondents and experts.
Step 9: Select the maximum value of the degree of similarity.

4. Results

According to the results given in Table 3, the following evaluations can be made:

It was observed that the vast majority of children knew about the Corona-virus, while a small number of them did not know about the virus. Although the proportion of children who are afraid and not afraid of Corona-virus among the children participating study is close to each other, it has been observed is a considerable "maybe/some" answer. Almost all the children think that Corona-virus is harming people. The proportion of children who think that Corona-virus does not harm animals is relatively high compared to those who think it will harm, but the two values are close. In addition, the ratio of those who answered "maybe/some" is close to half of those who answered "yes". The proportion of children who think Corona-virus can be prevented is considerably higher than children who think it cannot be prevented or partially prevented. The rate of children who think it is not pleasant to be unable to go to school due to quarantine is higher than those who think otherwise. For the question "Are you upset that you cannot go to school" most children answered that they are sad or a little sad. The number of children who express that they are not upset is few. The majority of the participating children stated that the obligation to stay at home was tedious. However, a considerable part of the children stated that they were not dull or a little boring. It is seen that almost all of the children have the idea that they can be protected or partially protected by staying at

home from Corona-virus. While most of the children answer yes to the question "Do you think you can go to school from now on", the proportion of those who state that they cannot go or maybe go is close to each other.

Table 3. Questions to be asked to the child

	d_1	d_2	d_3	maximum value
Do you know Corona-virus?	0.80132	0.21451	0.00138	yes
Are you afraid of Corona-virus?	0.58517	0.25741	0.50638	yes
Does Corona-virus harm people?	0.97336	0.00491	0.12541	yes
Does Corona-virus harm animals?	0.52037	0.24663	0.59904	no
Can Corona-virus be prevented?	0.72167	0.24471	0.49055	yes
Do you think it's nice not to go to school?	0.51007	0.18211	0.76814	no
Are you upset that you can't go to school?	0.78564	0.12847	0.27346	yes
Is the obligation to stay home boring?	0.79881	0.22089	0.19918	yes
Can we be protected from Corona-virus by staying at home?	0.95647	0.00973	0.15042	yes
Do you think you can go to school from now on?	0.63429	0.24977	0.31076	yes

According to the results given in Table 4, the following evaluations can be made:

According to parental observation, while more than half of the children showed a little anxious behavior, it was seen that a significant part of them did not have any anxiety. This result is the same as the observation about the child's fear. A large part of the parents stated that their children were a little afraid. Many parents stated that their children behave in a questioning manner regarding quarantine and Coronavirus. It has been stated that most children pay more attention to the cleaning after the Coronavirus appears. It is mentioned that very few of them did not change their cleaning behavior. Parents have declared that the sleep pattern of children, in general, has not changed. However, in part, it is present in children whose sleep patterns have changed. While it was stated that there was no change in the nutrition of the children of the participating parents, very few of them had a change in nutrition. The question about "whether unwanted behavior develops in their children during the Corona-virus quarantine period or not has given" a reply that a significant part of the parents did not develop. Parents generally answered "not happy" to the question, "Is your child happy because she/he can't go to school". The answer "some" was given to the question, "Has the time your child spent on the Internet after Coronavirus increased". Similar findings were obtained for the level of watching TV. However, the increase in the rate of watching TV is higher than on the Internet.

5. Discussion and Conclusion

As in all continents and countries of the world, natural disasters, especially different epidemics, are among the situations encountered in Anatolian lands and Turkish history. For example, in the study of cholera epidemics in the Ottoman Empire at some times, Yucel [30] emphasized that the people's unconscious behaviors caused the epidemic to be effective for a long time despite all the state's efforts. Regardless of physical or mental health, awareness and belief about disaster and emergency planning should be developed at all parts and levels of the health system [31]. As can be understood from here, both adults and children can exhibit wrong behaviors by having wrong beliefs during epidemic times. Even in quarantine, people can develop false beliefs and act accordingly.

Quarantine, one of the most important ways to prevent epidemics, requires conscious participation. However, it is also important to direct the belief and behavior of more vulnerable and disadvantaged groups such as children correctly in this process. Although the World Health Organization (WHO) states that quarantine increases people's capacity to control the spread of infectious diseases [32], this may have negative repercussions on people. In addition to the restrictions experienced during the quarantine process, such as basic needs and habits, fear and anxiety may threaten the individual's mental well-being.

In times of disaster, different tools have been developed to protect the mental health of various strata of the population. Public child and family disaster communication has been defined as a public health tool that can be used to cope with the post-disaster situation/promote resilience and improve maladaptive child responses. It has

Table 4. Questions to be asked to parents

	e_1	e_2	e_3	e_4	e_5	maximum value
Does your child behave anxiously after Corona-virus?	0.00182	0.00215	0.30128	0.39407	0.51833	none
Is your child afraid when a conversation about Corona-virus has passed?	0.0	0.00899	0.39004	0.36725	0.48913	none
Does your child ask about Corona-virus?	0.00209	0.02487	0.51004	0.31417	0.002138	some
Does your child pay more attention to cleaning after Corona-virus?	0.28433	0.40314	0.41126	0.10465	0.00679	some
Has your child's sleep pattern been impaired after Corona-virus?	0.12743	0.00977	0.36148	0.18751	0.64039	none
Have there been changes in your child's eating habits after Corona-virus?	0.00179	0.00813	0.27638	0.02097	0.71465	none
Did your child develop undesirable behaviour after Corona-virus?	0.00164	0.00197	0.2009	0.02103	0.81027	none
Is your child happy because she/he can't go to school?	0.00001	0.00193	0.22067	0.269813	0.72505	none
Has the time your child spent on the Internet after Corona-virus increased?	0.12069	0.25144	0.49217	0.30024	0.27244	some
Has the time your child spent in front of the TV increased after Corona-virus?	0.14727	0.25162	0.52403	0.29904	0.24138	some

been stated that schools are an important (promising) system for child and family disaster communication [8]. Epidemics may occur after some disasters, and epidemics may arise as a natural or artificial disaster. For example, Pascapurnama et al [33], in their study investigating the outbreaks after eight major natural disasters, stated that infectious diseases are preventable, and for this, knowledge and awareness about health risks stated should be be be continuously supported with pre-disaster and post-disaster training opportunities.

Every new experience means new knowledge, and it is a situation that needs to be learned. Significantly children should acquire information with quality experiences in natural disasters such as epidemics. Information needs to be encoded correctly and translated into behavior. For this reason, the administrators need to inform the public with the correct information and consider their psychology. As Gostin [34] stated, the principles, technical standards, and recommendations published by international organizations such as WHO to guide member countries should also be considered. It is essential to take precautions and inform the public on time so that they do not panic. People

might cause the spread of the disease with panic and false information, and they may engage in behaviors that may harm themselves and the society they live. In this context, it should be kept in mind that children's beliefs and behaviors may also be affected by the negative aspects of the situation.

This study focuses on the fact that children aged 5-6, who are the target group, have been living under voluntary quarantine due to the global epidemic of corona virus, the effect of which has been felt around the world since December 2019. During quarantine's first 14 days, preliminary effects of the situation on belief and behavior of children were revealed. While striking findings were obtained in some parts of the study, some findings were not following the researchers' expectations. This situation can be shown by the short-term nature of the quarantine process.

Children have a great deal of knowledge about corona-virus shows that the stimuli in the environment are concentrated in the direction of the virus. However, considering the answers given to the other questions and the observations of the parents, it is not possible to make a definite determination about the level and accuracy of their knowledge. It can be said that the reason for this is that the data collection process is carried out on the 14th day of the corona-virus quarantine in Turkey. This result is informative about the early effects of the corona-virus quarantine. Fears are one of the emotions that direct the cognitive elements of the individual. Looking at the answers about whether children are afraid of the corona virus, it can be said that there is a situation in which their knowledge is not yet explicit. It may be related to the fact that the rate of children who are afraid and those not afraid are close to each other, and the rate of children who are not sure is not very low. However, the corona virus's strong tendency to harm humans and the opposite answers about the harm to animals reinforces the suspicion that children do not have enough knowledge on the subject. Beliefs that they harm people direct their other beliefs and behaviors in this regard.

Children's thoughts that the corona virus can be prevented and parental observations about cleanliness parallel each other. It was concluded that their belief turned into behavior as a precaution in this direction. In addition to the child's fear, the thought that the virus can be prevented by cleaning can be explained because belief affects behavior in this direction. However, one of the situations that should not be forgotten here is the possibility of one or more family members exhibiting an adverse profile. According to the National Academies of Sciences, Engineering, and Medicine (2019), having a parent with an untreated mental illness or addiction who does not seek counseling can lead to genetic risks, epigenetic changes, negative behavioral patterns, and negative social learning. It can lead to a problematic negative childhood experience that includes many mechanisms that can also cause relational skills. Therefore, the underlying cause of, some of these beliefs of children may be fed from different sources, but the effect of the current period as a trigger should also be taken into account.

The new environment formed during quarantine times, when environmental effects are reduced to a narrower framework, can leave deep traces on the child's development, mainly if it affects the child for an extended period. In this narrow framework, social, economic, cultural, and environmental factors significantly affect the child's health ecosystem and capacity to prepare for adulthood[35]. The fact that they cannot stay at home and go to school due to quarantine is expressed as an unpleasant situation by most children. It can be said that the fact that the children answered the question asked to reveal whether they were upset about this situation as a supporter at the same rate as the quarantine question shows consistency. The fact that most children expressed in this direction are in parallel with the answers given by the parents. Those who stated that staying at home was boring and that it was sad not to go to school were close to each other support the conclusion that children's beliefs on this issue are consistent. However, most children believe that they can protect themselves from the virus by staying at home, significantly higher than the rate of those who say that staying at home is boring. The belief that one can be protected by staying at home is belief, and the boredom of staying at home is an expression of emotion. From this, it can be concluded that children's belief takes precedence over their emotions. The fact that a substantial part of the children gave a negative answer to whether they can go to school, which aims to reveal their expectations from the future, can be associated with their fears and anxieties. At this point, as experts [36] stated, it is necessary to recommend that adults try to establish a balance between having sufficient knowledge about the new corona virus and answering their children's questions well enough without increasing the severity of anxiety. It is understood from the answers given by the parents regarding the observations that more than half of the children exhibit slightly anxious behaviors. In addition, as a result, that supports this situation, it can be shown that the ratio of those who answered "I am afraid" to the question of "are you afraid of corona virus" and those who exhibited anxious behavior were very close to each other. From this point of view, it can be concluded that more than half of the children have beliefs related to fear, and

this is observed as anxious behaviors, while a significant part of them develop a belief that they cannot go to school. It should be kept in mind that the coronavirus pandemic may aggravate existing mental health problems or cause new cases in children who are thought to have a more significant impact than parents to citegolb. The same situation is observed for the fear situation specifically related to corona-virus within the scope of environmental effects.

The rate of children who say they know the coronavirus and the rate of children who ask their parents a few questions about this issue are very close. This situation also has consistency in itself. When the findings obtained from the behavior of paying attention to cleanliness are combined with other findings, it is seen that results that support each other emerge. More clearly, the answers are given to questions about topics such as fear, anxiety, protection, and the thought that it will harm, and the rate of increase in cleaning behavior overlap with each other. In this context, the data on depression, anxiety, and behavioral disorders in statistics about children made by the Centers for Disease Control and Prevention (2020) support this situation.

A short period of 14 days is not sufficient to describe the changes in sleep behavior, which is one of the fundamental habits, as low or to express the extent of the change. This observation of the parents, who stated that the child's sleep pattern has changed, can be explained by reasons such as not being able to go out, not having to wake up early, and therefore going to bed late. Considering these situations, the change in sleep and nutrition, which are fundamental habits, strongly relate to parental attitudes in the home environment. However, it is seen that the change in sleep pattern is slightly more than the change in the diet. It can be said that the reason for this situation is the family members being together all day long and the close attention of the children at meals. At the end of the second week of the quarantine period, the fact that radical behavioral changes, especially undesirable behaviors, are not seen intensely can be explained by the shortness of the process. However, these pre-effects may lead to more incredible behavioral changes with the boredom in the child if the quarantine period is prolonged. However, it was also observed that a small part of the families stated a severe behavioral change in the child. The fact that some have stated partial changes suggests that these effects may increase in the future, as in the snowball effect. The reason can be shown as the individual differences between children and the level of interaction within the family. There is a proportional similarity between the children's answers and the parents' observations about not being able to go to school. The lack of a significant change in the time children spend on both the Internet and TV can be explained by the possibility of the parent making extra efforts to spend quality time with the child. In addition, it can be said that there are attempts to keep children away from the internet and TV as much as possible in order not to increase their anxiety and fear.

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