

# Reflection of Covid-19 pandemic on the drawings of pre-school children: A phenomenological study

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## ABSTRACT

The aim of this study is to investigate how pre-school children perceive the covid-19 pandemic through their drawings. Therefore, 58 children from the age groups 3, 4 and 5 were asked to draw a corona virus-themed picture and then individual interviews which were recorded were conducted with 30 children including 10 from each age group. In the study, while the content analysis was used for the analysis of the data from the pictures, descriptive analysis was used for the interviews. According to the results of the study, there is consistency between the drawings and interviews of the children. As the children in the age group 3 depicted the virüs including fear elements, the ones in the age group 4 and 5 drew corona virus in various categories. The results of the interviews suggest that the children are nervous and worried about the virus and they are afraid of it. They know what the corona virüs is, how it infects the people and how they could protect themselves from the virus. For the children, the methods of protection from the virus are wearing masks, a healthy diet, washing hands, staying at home and keeping social distance. In addition, though their homes are the safest places, they have missed their school, friends and playing in the parks.

**Keywords:** Covid-19, early childhood, children pictures, preschool period.

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## INTRODUCTION

Covid-19 pandemic affecting the whole world has been an important problem for the whole humanity. New type coronavirus (COVID-19) is a virus diagnosed first on January 13, 2020 as a result of the researches on a group of patients developing respiratory tract symptoms (fever, cough and shortness of breath) in Wuhan province in China in late December (The Ministry of Health Official Website, 2020). The pandemic makes its impacts felt more day by day and increasing case numbers and mortality rates cause people to be concerned (Lin, 2020). In this case, some precautions have been taken in Turkey as in all countries. When the pandemic began to spread, Turkey increased the precautions gradually. These coronavirus precautions could be summarized as follows: First precautions were often televised as 14 rules some of which are "Wash your hands frequently with soap and water by rubbing for at least 20 seconds; avoid from close contacts such as hugging and shaking hands." In addition, different precautions were taken day by day and the effects of the pandemic were tried to be

minimized. First, face-to-face education was suspended for 3 weeks and schools were closed as the case numbers began to increase. However, in accordance with the suggestions of the science board, education and training continued as distance education until the end of the term. During 2020-2021 education and training year, schools started face-to-face education gradually in October. First of all, pre-school education and primary school freshmen and seniors who will take the exam returned to face-to-face education (Türkiye Radyo Televizyon Kurumu, 2020).

Minimizing the impacts of the pandemic is the responsibility of all the people. Everybody should make self-sacrifice as the individuals having responsibility and abide the decisions made. It is only possible to become responsible people and behave appropriately to public welfare through acquisition of values in early ages. In this sense, it is important to understand how coronavirus is perceived in the world of the children. To have appropriate behaviours, coronavirus should be

understood and known correctly. It should be determined how the virus that is an abstract concept is perceived by the children to define the aspects and quality of the education to be given to the children about general health rules and pandemic. Pictures is one of the methods used to determine this perception.

Children could sometimes have difficulty in expressing themselves with words. For them, pictures are another way of showing their feelings and emotions. The pictures they draw are used as a data source to know about their intelligence, personality, immediate environment and inner world. These pictures drawn by the children as the thinking language of their inner world also suggest how the children perceive the world (Serin, 2003). The child draws without needing any special stimulus while perceiving the world and creates his pictures with his available talents without any protections because children are relaxed while drawing as if they are playing and behaves naturally. In this case, the pictures of the children are their real feelings (Arici, 2010).

The pictures in which the child depicts his inner world with lines are grouped under 5 main categories according to Lowenfeld's developmental stages in 1947. These categories are:

1. Scribbling stage (Age 2-4). In this stage, the children draw pictures by crisscrossing in circular lines called mandala. They draw alternative lines from the general to the specific; that is, they finish their drawing which begins at first with circular moves, shifting from shoulders to elbow and wrist (Kellogg, 1970).
2. Pre-schematic Stage (Age 4-7). The children now start to draw more consciously and more evident pictures. It is seen that drawings become more intentional and objects are more evident at the age of 5. When they are 7, the proportions of the pictures on the page are more realistic and pictures become to be a contact (Gürtuna, 2004; Roland, 2006; Yavuzer, 2007)
3. Schematic Stage (Age 7-9). In this stage, the child conceptualize the situations and objects.
4. Dawning Realism (Age 9-12). This is the stage in which tendency to draw the reality is seen.
5. The Pseudo-Naturalistic Stage (Age 12-14). This is the stage when teenagers reflect the proportions of the objects on the page (Lowenfeld and Britain, 1971).

On the other hand, when the relevant literature is scanned, while a number of studies about covid-19 were conducted (Erkut, 2020; Nassr et al., 2020; Serçemeli and Kurnaz, 2020; Orhan and Beyhan, 2020), it is seen that there are not any children-oriented studies. Therefore, it is considered that this study will shed light on subsequent studies as a source.

## METHOD

The design of this study is phenomenology which is one

of the qualitative research methods. Phenomenology focus on cases which are realised but about which there is not a detailed understanding. This focusing requires methodological, attentive and in-depth depiction and description of how people experience some phenomena; that is it focuses on how people perceive phenomena, what they feel about them, how they describe and interpret them and what they talk about these phenomena with other people (Patton, 2002). Phenomena can be seen as events, experiences, perceptions, concepts and situations in life (Yıldırım and Şimşek, 2011). Phenomenology is the conscious experience of people's own lives, in other words; it is a person's daily life and social activities. In this sense, this approach is an appropriate way to study on effective, emotional and often intense experiences of people (Merriam, 2009). The phenomenon tried to be explained in the study is the perceptions of pre-school children related to "covid-19" virus.

## Study group

Study group was formed by using purposive sampling technique. With this method, 58 children from 3 (n: 13), 4 (n:20), and 5 (n:25) age groups studying in an independent kindergarten in the fall term of 2020-2021 education and training year in the central province having a high socio-economical level composed the study group. The number of female students is n:33 and the number of male students is n: 25. All of the children in the study group have normal development and do not have any special disabilities.

## Data gathering

The data were gathered through document review and interview techniques. The pictures drawn by the children and semi-structured interview forms prepared by the researcher were used as documents. While preparing interview forms, it has been noted that the questions are open-ended and clear and they should not be directive for the children. For validity, the interview form was presented to 3 academicians in pre-school education in the field of assessment and evaluation and they were asked for their opinions. Thus, content and face validity of the interview form was controlled. Face validity is about what the assessment instrument measures; that is, the questions prepared measure what is intended. (Ercan and Kan, 2004). After putting it into final form, the interview form became ready to be implemented in accordance with academicians' suggestions. Preliminary test of the questions prepared by 3 teachers at school was conducted and it was decided that one question should be corrected. Then, 3 questions were written about children's perceptions of Covid-19.

To gather data for the study, necessary permission was taken first from district national education directorate and then from the ethics committee of the university. Afterwards, the parents were met in the school in which the study will be carried out and they were requested to sign voluntary participant approval form to include their children in the study. The researcher met each age group on different days and after giving each child a drawing paper, he wanted them to draw a picture in which they express what coronavirus means to them and to tell their pictures. The researcher took notes on the back of finished pictures. After drawing pictures, with 30 children, he conducted individual interviews recorded. For the interview, the researcher and the child completed the interview in an empty computer classroom by paying attention to social distance. Each interview took 6 to 9 min. Before the questions of the interview, they talked about the picture the child drew and he was asked about what he meant in the picture. Then, the researcher asked 3 questions he prepared about coronavirus and took notes when necessary. To make the children's answers more clear, he added final questions such as "What else should be done? What happens if you don't... Have you ever seen or heard?" These final questions differed for each child. The questions of the interview are as follows:

What is Corona virus?

How does Corona virus infect us?

How do we prevent from Coronavirus?

### Data analysis

In this study, descriptive and content analysis methods were used to analyse the qualitative data received from interview and document review. Content analysis include the thematical analysis of printed, visual, etc. materials in terms of certain categories by scanning them systematically (Saban, 2009). Content analysis was used to analyse the pictures drawn. The main process followed in content analysis is to gather similar data within the scope of certain concepts and themes and interpret them by organizing in a way that readers could comprehend (Yıldırım and Şimşek, 2011). In this context, coronavirus themed pictures were classified as 4 categories according to the findings from the pictures drawn by the children: "the environment in which coronavirus is picturized", "the way how coronavirus is picturized", "the effects of coronavirus on children's lives" and "ways to prevent from coronavirus". The findings obtained are given in tables along with digital data in the relevant categories. In the analysis of the interviews with the children, descriptive analysis method was used. Descriptive analysis is a method by which the researcher summarize and interpret the findings he gets through various data gathering techniques and he often directly quotes from the observations and interviews (Özdemir,

2010). The studies conducted gradually in this context are as follows:

**Building a framework for descriptive analysis:** At this stage, at first coding was done in a way that each child from each age group was given numbers from one to ten. The interview questions were literally transcribed in the computer environment and repetitive situations were coded. In accordance with these coding, the themes under which the data would be gathered were determined.

**Data process according to thematic framework:** At this stage, the data obtained were determined by being coded in a way that they will be subthemes of four themes. For instance, the theme of "the definition of coronavirus" has three subthemes; shape, colour, name. Thus, the themes and subthemes formed are as shown in Table 1.

**Identification of findings:** At this stage, the data by being placed under the determined themes and subthemes were identified with direct quotes. While quoting directly, the child's opinion was given in quotation marks and italics as C.1 according to age group in relation to coding.

**Interpretation of findings:** At the stage of discussion, cause and effect relationship was established based upon research questions and the children's opinions were interpreted by comparing other studies conducted according to themes and subthemes.

Studies were conducted to increase the validity and reliability of the findings during the research process. The measures that the researcher took for the reliability in line with the opinions of Goetz and Le Compte (1984) are as follows; first, the researcher leads the way for a comparable research for other researchers by clearly defining his own role in this research. Secondly, the general qualities of the study group and why they were preferred in the study were explained in detail. Thirdly, socio-economic situation of the school and the environment in which the research and interviews were carried out were depicted. The fourth measure taken is to form and define the conceptual framework to be used in data analysis. The last measure taken by the researcher is to explain and state all stages related to data gathering and analysis methods with all the details. In addition, diversity in data gathering, expert review, participant approval and transmissibility are among other measures to be taken for validity and reliability (Yıldırım and Şimşek, 2011). In this context, in order to determine the children's perceptions of Covid-19 in the study, two different methods of data gathering techniques – interview and document review – were used and validity and reliability were tried to be established. For the expert

**Table 1.** Themes and subthemes formed.

Themes	The qualities of coronavirus	The effects of coronavirus	The transmission of coronavirus	Ways of protection from coronavirus
	Name	Health effects	Contact	Mask
	Shape	- Fever	Not wearing masks	Healthy diet
	- Circle	- Soar throat		Washing hands
	Colour	- Cough		
	- Red	- Ageusia		
	- Pink	Social effects		
	- Blue	- Staying at home		
		- Getting bored		
<b>Subthemes</b>		Psychological effects		
		- Death		
		- Missing school		
		- Missing friends		
		- Longing for playing in the parks		

review, after the interviews with the children were transcribed in the computer environment, themes were formed and categorized by the researcher. The transcripts of the interviews were presented to two academicians who are expert in their fields and teach scientific research class on bachelor's and master degrees and they were requested to code them. In the calculation of the reliability among coders, the formula of Reliability = [Consensus / (Consensus + Dissensus)] x 100 was used (Miles and Huberman, 1994). According to Miles ve Huberman, the results over 80% are accepted reliable. The reliability of this study was calculated as 96% over 30 children. To confirm that the children's opinions were clearly understood, the researcher, during interviews, made the children repeat their sentences to receive confirmation without being directive. The findings were interpreted and discussed in a cause and effect relationship.

**FINDINGS**

In this part of the study, there are review of the pictures drawn by the children and the findings obtained after the assessment of data from the interviews done with the

children. First, the data from the pictures were analysed and they were explained as tables.

**Findings from the pictures**

According to Table 2, coronaviruses are depicted in three environments in the pictures drawn by the children—home environment, on the street and at hospital -. Only one child from 3 age group drew home environment. In the age group of 4, while 4 children depicted hospital, 16 children drew coronaviruses in places such as streets and parks. In the age group of 5, 4 children picturised the hospital environment and 21 children depicted the virus in parks, bazaar or school garden. Any children from 4 and 5 age groups did not depict the virus in home environment. The sample pictures related to this theme are shown in Figures 1 to 3.

In Figure 1, C.2 from age group 3 said “coronaviruses float around, if they catch us, we will be sick.” In Figure 2 from age group of 4, C.4 said “There is a man with coronavirus and he is hospitalized. Viruses wanders everywhere.” In Figure 3, C.10 at the age of 5 said “when we stay home, the viruses do not infect us and they cannot make us sick. We must stay home.”

**Table 2.** Distribution of Coronavirus themed pictures according to the environment picturized.

Age group	n	The environment picturized	%	f
3	13	Coronavirus at home	7.6	1
		Coronavirus in street	92.3	12
4	20	Coronavirus at hospital	5.7	4
		Coronavirus in street	94.2	16
5	25	Coronavirus at hospital	7.6	4
		Coronavirus in street	92.3	21

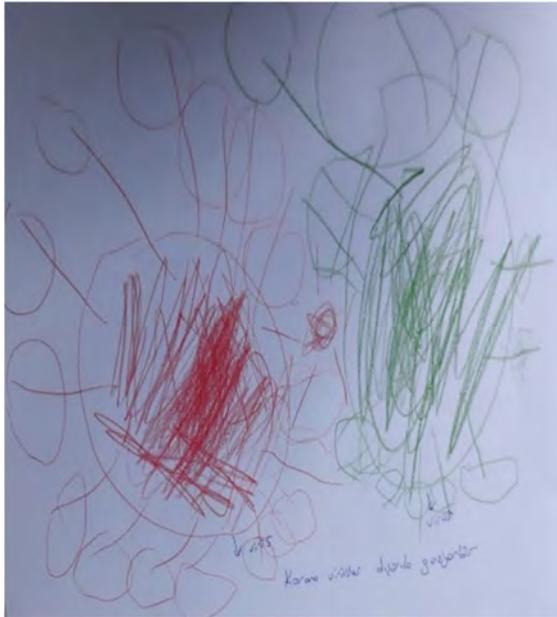


Figure 1. 3-year-old C.2.



Figure 3. 5-year-old C.10.

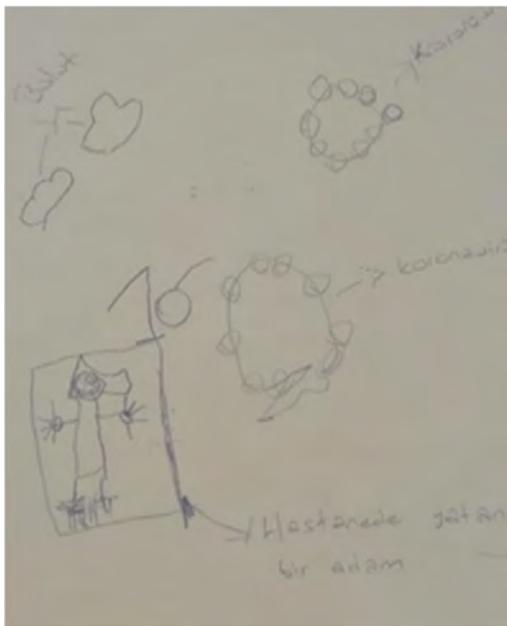


Figure 2. 4-year-old C.4.

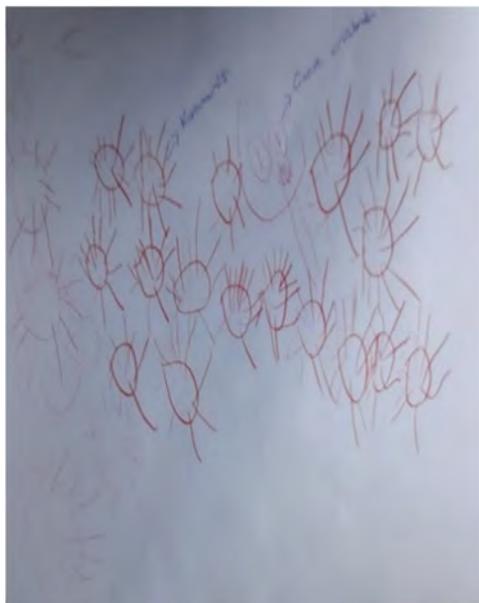
According to Table 3, the age group of 3 depicted the coronaviruses as fear elements. In their pictures, they generally drew a child who is afraid of coronavirus. In the age group of 4, 5 children pictured the people staying home because of social effects of coronavirus, 4 children drew patients hospitalised and there is only a child who misses his friends and longs for playing in the parks. In the age group of 5, there are 6 children drawing a person staying home, 3 children depicting a hospitalised person,

Table 3. Distribution of Coronavirus themed pictures in relation to its effects on children's lives.

Age group	n	Effects of coronavirus	f
3	13	Psychological effects	10
		- Being anxious	
		Social effects	5
- Staying at home			
4	20	Physical (health) effects	4
		- Being hospitalized	
		Psychological effects	1
		- Missing friends	
- Longing for playing in the parks	1		
5	25	Social effects	6
		- Staying at home	
		Physical (health) effects	3
		- Being hospitalized	
		Psychological effects	5
		- Missing friends	
- Death	5		
- Missing school	4		
- Longing for playing in the parks	2		

5 children missing their friends, 5 children depicting death, 4 children missing the school and 2 children

longing for playing in the parks. There are sample pictures in accordance with this theme in Figures 4 to 6.



**Figure 4.** 3 years old.



**Figure 5.** 4 years old.

In the pictures above, in Figure 4, C.6 from the age group of 3 drew a child caught among coronaviruses. When asked what he meant, he said "Coronaviruses float around and as he did not wear mask, this child was surrounded by viruses and he is afraid." Figure 5 belongs to C.11 from the age group of 4. He said, "I missed my



**Figure 6.** 5 years old.

friends and school very much but I had to stay home because there is corona everywhere." When he was asked what he wanted to tell in his picture. He stated that the one looking out of the window in the picture is himself. In Figure 6, 5-year-old C.15 explained his picture as "everybody has to stay home, nobody goes out, because coronavirus is very dangerous streets are empty and there is coronavirus everywhere."

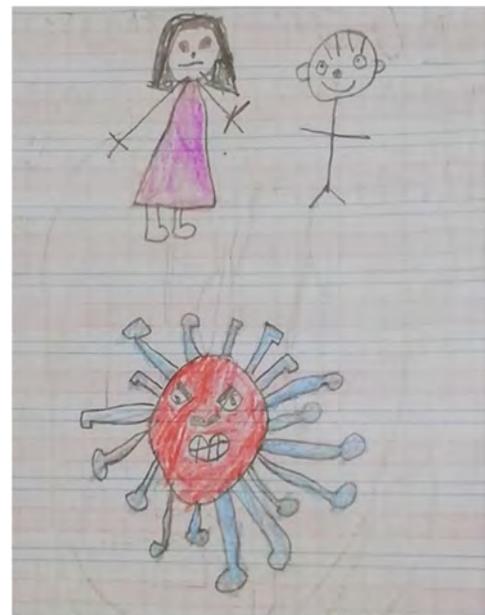
In Table 4, the shapes of coronavirus are grouped according to their colour, size and expression. All the children participating the research drew coronavirus as round and with spikes and fringes around it. In addition, age group of 3 drew coronaviruses in red (7), blue (3) and green (3); age group of 4 pictured in red (4), blue (2), green (2) and as colorless (2), age group of 5 drew them in red (9), blue (5), green (8) and brown (2). While 34 children depicted large coronaviruses, 24 drew small ones. 2 children from the age group of 3, 3 children from the age group of 4 and 5 pictured coronaviruses with a smiling face. 4 children from the age group of 4 and 6 from the age group of 5 drew them with a sad face. 2 children from the age group of 5 depicted a horrible coronavirus.

Figure 7 belongs to C.8 from the age group of 3. In the picture, coronavirus is happy and two children next to it are scared. In Figure 8, C.11 from 4 age group depicted coronavirus as angry and horrible. Similarly, in Figure 9, C.7 from 5 age group pictured coronavirus as angry and red and the child below as sad and scared.

According to Table 5, ways of protection from coronavirus were drawn as wearing masks (f:1) in the age group 3, staying home (f:15), wearing masks (f:10), washing hands (f:10), social distance (f:5) in 4 age group. In the age group of 5, they were drawn as staying home

**Table 4.** Distribution of Coronavirus themed pictures according to the types of depiction.

Age group	n	Types of coronavirus	f
3	13	Colour	
		- Red	7
		- Blue	3
		- Green	3
		Size	
		- Large	4
		- Small	9
		Expression of type	
		- Smiling face	2
		Colour	
- Red	4		
- Blue	2		
- Green	2		
- Colorless	2		
4	20	Size	
		- Large	14
		- Small	6
		Expression of type	
		- Smiling face	3
		- Sad face	4
		Colour	
		- Red	9
		- Blue	5
		- Green	8
- Brown	2		
5	25	Size	
		• Large	16
		• Small	9
		•	
		Expression of type	
		• Smiling face	3
		• Sad face	6
		• Horrible face	2

**Figure 7.** 3 years old.**Figure 8.** 4 years old.

(f:8), wearing masks (f:15), washing hands (f:5), using disinfections (f:2), using cologne (f:3), vaccination (f:1), keeping social distance (f:7).

According to the Figures 10 to 15, the child drew mask and street environment and depicted someone without a mask getting the virus. In this age group, the children's pictures are generally scribbles. In Figure 11, C.6 stated that the virus gets sad when he meets soap and

water. In Picture 3, 5-year-old C.13 referred to absolute necessity for vaccination. In Figure 14, 4-year-old C.7 picturised a sad coronavirus meeting someone wearing a mask. In Figure 15, 5-year-old C.4 said "All of us should stay in our homes. Hospital personnel in streets should also wear masks; schools are closed and I missed the school very much." In his picture, there are people looking out of the window in a 4-storey-building and there is a cross mark suggesting that the school is closed.



Figure 9. 5 years old.

Table 5. Distribution of Coronavirus themed pictures according to ways of protection from the virus.

Age group	n	Protection from coronavirus	f
3	13	Wearing masks	1
4	20	Staying home	15
		Wearing masks	10
		Washing hands	10
		Social distance	5
5	25	Staying home	8
		Wearing masks	15
		Washing hands	5
		Disinfection	2
		Cologne	3
		Vaccination	1
		Social distance	7

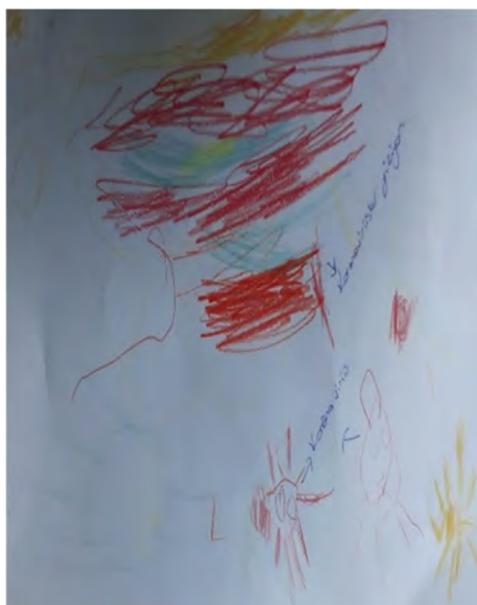


Figure 10. 3 years old.



Figure 11. 4 years old.

### Findings from the interviews

According to the data from interviews with children, 3 themes as the qualities of coronavirus, transmission of coronavirus and ways of protection from coronavirus were determined. In Table 6, the themes and subthemes formed are shown.

According to the answers given to this question, three themes were determined - functional qualities, physical qualities and symptoms of coronavirus-. While the children described what the coronavirus is, they first stated that it is a virus making people sick and then

depicted its physical qualities by looking at what they see on TV channels and internet databases. When depicting coronavirus, they generally described the image as a large red circle seen on TV and the spikes around it. As shown in Table 7, when age groups are considered, 3 age group had difficulty in describing the virus, they either kept quiet or focused on its being a disease. While 4 age group generally concentrated on the lethal effect of the virus, 5 age group stated that the virus is a disease and it spread from China.

There were common answers about the transmission of coronavirus in each age group (Table 8). For the children,



Figure 12. 5 years old.



Figure 14. 4 years old.



Figure 13. 5 years old.



Figure 15. 5 years old.

Table 6. Themes and subthemes obtained from the answers given to interview questions.

Qualities of coronavirus	Transmission	Ways of protection from coronavirus
Functional qualities (sicken, infect, kill)	Social distance (contact, touch)	Wearing masks
Physical qualities:	Unhelathy diet (eating chips etc.)	Healthy diet (drinking milk, vegetable and fruit juice and water)
- Figure (circle, uneven, branches, spikes)	Not wearing masks	Follow the hygiene rules (washing hands, having bath, using disinfections)
- Colour (red, green, colourful)		Staying home (unless it is obligatory, not going out; if you do, keeping social distance, wearing masks and avoiding from contact)
- Size (small, invisible)		
Symptoms (disease, fever, cough, tiredness, abdominal pain)		

**Table 7.** Findings from the question “what is coronavirus?”

Age group	What is coronavirus?
Age 3	<p>C.1. I have never heard. Nobody told me.</p> <p>C.2. coronavirus has viruses and it disperses them. I saw it on the fruit with my mom. It was in it. It was just like a snake but it was too small. If it infects us, we die. It has a gun in its hand and it kills us. The disease floats around, you have fever and a runny nose.</p> <p>C.3. It is dust and garbage.</p> <p>C. 4. It infects us.</p>
Age 4	<p>C.1. It is a germ increasing the disease and killing the men. When it infects, it comes more and we have corona and then we die.</p> <p>C. 2. It makes us sick. I heard from my friends. My friend got infected. We are at school, he is at home.</p> <p>C.3. Coronavirus likes infecting children much. What infects is the viruses. I haven't seen it, it is invisible. I see it only in cartoons. It has spikes and it is circular. We have a runny nose, we sneeze, our feet are cold. The person begins to die.</p> <p>C.4. the germ is everywhere. This germ infects us until it comes to our mouth; we have recently had seizures, you are in a big trouble then.</p> <p>C.5. the Chinese brought it and they sent it to us. It infects people, badly infects people. We understand we are sick when we cough. We have backpain. We can never heal again.</p> <p>C.6. Germs are very very dirty things. I saw coronavirus on the Internet, it had short hands like a spider. It was round and also big and it becomes sometimes red, sometimes blue and sometimes pink. It catches us because it is bad. It tries to eat us and it tries to infect us as it is bad. When we are sick, we go to the doctor's. we have abdominal pain, headache and we have earache.</p> <p>C.7. It infects women. It also makes men sick. It is infecting by coming closer. When you are sick, your heart fails.</p>
Age 5	<p>C. 1. Bats. The Chinese ate bat and then this disease spread into other countries. My parents told me, I heard from them. Mom showed its shape on the phone. It has spikes on it.</p> <p>C. 2. It means disease. It makes people sick with germs. Very small germs but it can infect so much. It is very very small. You have fever and get sick. We cannot go to school.</p> <p>C. 3. It emerged as the Chinese ate bat. There are many viruses. It infects us. It kills us. It causes bad things in our bodies. When you have fever, you understand you have it.</p> <p>C. 4. Disease. I haven't seen it because it is too small to see. You draw a circle and it has antennas around it. We have fever.</p> <p>C. 5. You have sore throat. It infects lungs.</p>

**Table 8.** Findings from the question “How does Coronavirus infect?”

Age 3	<p>C: 1. Corona infects everyone; if you go closer, you can have it and stay home</p> <p>C. 2. We get sick if we do not wash our hands.</p> <p>C.3. It comes through our mouths.</p> <p>C.4. It infects if we do not wear our masks.</p>
Age 4	<p>C. 1. If you don't have distance from people and your mask is open, it infects.</p> <p>C. 2. If you don't obey the rules. If you don't wear the mask.</p> <p>C. 3. It infects from the Chinese, Dad told me. When people go far away, corona comes. We are talking mouth to mouth, we touch each other and it comes through our throat and it makes us sick.</p> <p>C. 4. It comes onto us when we wander outside.</p> <p>C. 5. It comes in like this, goes through here, it comes from our mouth to our stomach. If we do not eat healthy vegetables, our stomach gets weaker, but if we do, we are stronger and we immediately beats the coronavirus. The disease will come from here; that is, we are gonna swallow it from here, it will stay here on our throat, it will cover there and then other parts. So it goes.</p> <p>C. 6. It infects us if we do not wear masks.</p> <p>C. 7. It infects us if we do not wear masks.</p>

**Table 8.** Continues.

	C. 1. If you touch each other and get closer every day, you get sick.
	C. 2. In crowded places. There are things without vitamins. At shops, markets, toy shops, bazaars, schols, workplaces, outside and nowhere else. For example it is in İstanbul. It comes through our eyes, noses and mouths and it makes us sick.
Age 5	C. 3. If we do not have a healthy diet, viruses coe and infect us. It directly comes here (showing his throat and mouth). It comes to every part of us and we get sick, we feel tired, we cannot go anywhere; they – the doctors – inject us.
	C. 4. If we open our masks, and if we open it in crowded places.
	C.5. It infects everybody. By infecting, I mean .. when someone touches him, he immediately gets corona.
	C. 6. It comes to us when we go out.

modes of transmission of the virus are contact, not keeping social distance, not wearing masks, unhealthy diets and going out. In addition, wandering in crowded places is also one of the modes of transmission. Each age group similarly defined the transmission.

Following the rules about wearing masks, hand hygiene and social distance were regarded significant as the ways of protection from the virus in all age groups. The children

suggested that hands should be often washed and they recommended protection through disinfection and cologne for hand hygiene. Especially, they mentioned about haelthy diets; vegetables, fruit, milk, cheese, egg and drinking a lot of water were important forthem. In addition, staying home is the safest way for the children. C.7 from 5 age group talked about the necessity of vaccine for the virus (Table 9).

**Table 9.** Findings from the question “What are the ways to prevent from Coronavirus?”

	C.1. We should not go out.
	C. 2. By washing our hands with soap and staying home, not going out.
Age 3	C. 3. By washing our hands and of course if we do not go out.
	C.4. If we have a bath and wash our hands.
	C. 5. By using disinfections.
	C. 1. We should wear masks and pay attention to social distance. Do not touch anywhere with your hands.
	C. 2. You should wear masks. You mustn't take it off. If you touch somewhere, you should wash your hands.
	C. 3. We should wash our hands often and regularly. We should have healthy meals and we should wash our hands before and after the meals and after we meet our friends. We should not talk to our friends mouth to mouth, we shouldn't contact and wes sould wear masks. We wear masks while riding bicycle.
Age 4	C. 4. If we wear masks, we do not have coronavirus. We shouldn't touch the walls. We mustn't eat unhealthy food; let's eat healthy things. Egg is healthy; strawberry, milk and apple are healthy, mandarin is healthy, cherries. You shouldn't get closer to anyone. Let's have a regular diet; if we are infected, this coronavirus does not finish. If coronavirus gets closer to us, we will stop these coronaviruses. If we wear masks, it will end.
	C. 5. You should wear masks. You will keep the social distance. We will talk from afar. We will not bump into someone or we will not hug. We will not use soemthing that someone else uses.
	C. 6. Wash your hands and wear masks. When you get home, undress immediately and change your clothes.
	C. 1. We will wear our masks and eat our food. We will wash our hands with soap. With disinfection and cologne. We will pay attention to our diet. We wash our hands after we go to toilet.
	C. 2. Wash your hands often. We should have a healthy diet. Broccoli, milk, olives, cheese, eggs.
	C. 3. We should have a healthy diet; if we do, even if it infects us, we beat it, but if we do not eat healthy things, our body will not be strong. We should wear masks, face shields. We should try not to be infected.
Age 5	C. 4. We should obey hygiene rules. We should wear our masks, face shields; we should wear gloves. We should wash our hands according to the rules – in between our fingers, front of our hands, our palms. For example, you can wash your hands well. You should follow the rules. I mean that's all. You should also have a healthy diet. You should have soup, eat cauliflower and carrots.
	C. 5. For example we should be in quarantine, we should protect ourselves. We should wear masks and stay home. We should drink a lot of water and wash our hands. Then, we should not touch contaminated things, when you get home, wash your hands. For example, do not sit anywhere where someone else stands up. For example, if the person who stands up has coronavirus, if you sit there, you also have corona.

Table 9. Continues.

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- C. 6. We should eat molasses, drink milk, eat bananas, eat oranges, eat mandarin. We should have a good sleep. We should pay attention so that the virus does not infect us. You should not take your mask off outside; if you have to go to the market, go after you wear your mask. I only remember these.
- C. 7. We should be vaccinated against the virus. We should wash our hands. And we should keep social distance.
- C. 8. Wash your hands. We should have a bath. We need to drink water, we should eat fruit and vegetables. Stay away from everybody. If someone contacts you, you will avoid from him.
- C. 9. Keep the distance and stay home. Stay away from coronavirus. If you don't want to be infected, stay away from dangerous environment; we will stay where we go only for a while, we should get back home immediately. When we get home, we should wash our hands and have a bath. We should eat healthy food. Soup or what is at home, fruit. Fruit is very healthy.
- C. 10. You should wear masks. It must cover our nose, too. We will not stand very close to each other and keep social distance. We will not touch anywhere. Only way to overcome it is soap and water.
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## RESULTS, DISCUSSION AND RECOMMENDATIONS

In this study, it was aimed to determine how pre-school children perceive Covid-19 pandemic through their pictures. Therefore, 58 children from 3, 4 and 5 age groups were requested to draw a coronavirus themed picture and then individual interviews were carried out with 30 children, 10 from each group.

According to the results from the study, the findings obtained from the pictures the children drew and the findings at the end of the interviews were consistent. In regards to these results, the pictures of the children in 3 age group were about only one object and they were generally close to scribbling method and they had less details. They drew pictures in the form of overlapping filled circles and with vertical or horizontal lines. During this period, the children's pictures are in the scribbling stage (2 to 4 years) and this stage is the first stage of the children's drawing activities, pictures emerge as a dynamic result of the children's arms and bodies. The children name what they scribble as an object but often there is no similarity between the scribbling and the object (Linderman, 1997). The pictures they draw are the results of what they perceive before (Artut, 2004). Here, for instance, the child stated that his scribbles are swimming coronaviruses. In this aspect, it is seen that the pictures the children draw and their ages are developmentally consistent.

In schematic stage between 4 and 7 ages, the children start to draw with symbols with the effect of symbolic thinking. The child depicts the characteristics of the world he sees and knows and the likes of the objects in his pictures with symbolic elements (Kermer and Şevinç, 2003; Görtuna, 2004). Moreover, it is observed that the places picturised at this stage are more conscious. In this study, there are different objects in the pictures of 4 age group. For instance, they used situations, objects and symbols appropriate for the place in their pictures. The depiction of a sword in the hand of coronavirus in order to kill the people in one of the pictures can be given as an example. The children's pictures in 5 age group were drawn more detailed and figures were more clear. In the

drawings in this age group, the children's spatial positions and human figures reflect the reality more. In addition, the children in this group also used some symbols. For example, the world is depicted sad or water and cologne are drawn as a way of protection against the virus. In this aspect, it could be said that the children's pictures are developmentally relevant to their ages and drawing stages. These findings are in accordance with similar studies of Metin and Aral (2012), Yıldız-Çiçekler, C., and Öner-Koruklu (2013) and Sapsağlam (2017).

According to the findings from the pictures drawn by the children, in 3 age group, the children drew children who are afraid of coronavirus. Considering this, it could be stated that the children are scared and anxious about the virus. The media, case and death numbers explained every day and worries of parents could have part in it. Also, coronavirus is large and the children are small in their pictures. This could be interpreted as they regard viruses as stronger and harmful than them. Another conclusion is that the children depict the virus in outdoor environments. Accordingly, it can be stated that the children think virus exist out of their homes.

In the age group of 4, the children concentrated on the effects of coronavirus more and they drew a hospitalised man, longing for friends and school because of staying home and social distance keeping everyone separated. In their pictures, there is not a colour they especially prefer to use. However, they depict coronaviruses round, red and with spikes around it. It is thought that the visual image of coronavirus on TV affects this. While explaining what they drew, the children generally told that they didn't like coronavirus and they wanted it to leave as soon as possible.

The 5-year-old children's pictures were more clear and detailed. The pictures were drawn proportionally to the page. It was observed that the children chose warmer colours. The theme of their pictures is the ways of protection from coronavirus. They depicted empty playgrounds, streets and children staying home and looking out of windows. The safest place for the children is their home. While telling their pictures, they stated they were afraid of coronavirus. In this aspect, it could be said

that their pictures are consistent with their ages.

During interviews, the children in each age group talked about what coronavirus is, how it infects people, what its symptoms are, what happens in our bodies, what should be done to prevent from the virus in detail. When the findings from the interviews are analyzed, it is seen that detailing in their answers is in proportion to their ages. While the children in 3 age group answer the questions with one or two words, the ones in 4 age group answered with a sentence and 5 age group used a few sentences. They made use of conjunctions and prepositions and their answers included cause and effect relationship. This is in relation to their cognitive and language development (Piaget, 1959; Piaget, 2007; Vygotsky, 1998).

When it comes to coronavirus, the perceptions of the children in the age group of 3 were immediately about the ways of protection from the virus. For them, these ways are hand hygiene, having bath and using disinfections.

4-year-old children's perceptions of coronavirus are pessimistic. They stated that whoever is infected die slowly. In this case, they could be thinking that this is an incurable disease. Not keeping social distance, not wearing masks and going out and wandering are the ways of transmission. To protect from the virus, people should wear masks, keep social distance and wash their hands.

5 age group defined coronavirus as a germ making people sick and stated that it occurs with fever and cough. Healthy diet, avoiding contact, drinking a lot of water, hand hygiene and staying home were determined the was of protection from coronavirus for the children in the age group of 5. It can be said that the media has an impact on all these. During this process, especially frequent public service ads about 14 rules on the media and parents' and teachers' suggestions made the children become more conscious about the virus. The strict measures taken especially in the period when the schools started again also had an important effect.

Consequently, coronavirus occupies a significant place in the children's lives; the children are afraid of it and they are very anxious. During this process, in order to make the children be worried less, parents should behave more cautiously and should avoid attitudes and behaviours that will make their children anxious. Pre-school teachers should reduce the children's worries while talking about the virus and be a guide for both parents and children for taking necessary cautions more consciously against the virus. In this process when distance education goes on, they should ensure the children's communication with both their friends and teachers continue by integrating them into education as much as possible; thus, it will be possible to grow more conscious, more sensitive, healthier and more responsible individuals about the diseases.

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