

ORIGINAL ARTICLE

Perceptions of the COVID-19 pandemic as demonstrated in drawings of Swedish children aged 4–6 years

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Abstract

Aim: To explore the perceptions of the COVID-19 pandemic, as expressed in the drawings of Swedish children aged 4–6 years.

Methods: We analysed 91 drawings with associated descriptions submitted to the Swedish Archive of Children's Art from April 2020 to February 2021.

Results: The visual and text analysis resulted in three themes. First, *illustrating the virus and embodying the danger* showed that young children understood the invisible enemy, combining realistic elements of the virus particle with fantasies of the 'virus monster' that needs to be fought off. Second, *life has changed for the worse* describes the profound effect the pandemic had on young children's lives also in Sweden, with comparatively mild restrictions and no school closures. Third, *the virus spreads across the world, affects people and infects their bodies* conveys young children's understanding of the pandemic as an existential challenge affecting the whole world. Children displayed surprisingly high levels of health literacy related to COVID-19, including contagion routes and the importance of hand hygiene.

Conclusion: The drawings of Swedish children aged 4–6 years demonstrated the profound, practical and emotional effects of the pandemic on their lives. Drawings also illuminated young children's level of health literacy regarding COVID-19.

KEYWORDS

children's drawings, children's experiences, health literacy, pandemic, visual analysis

1 | INTRODUCTION

When many European countries went into complete lockdown, closing schools for children of all ages, Sweden strived to keep preschools and schools open.¹ The arguments were based on the vast literature on the positive effects of school and formal education on human capital and child development, especially for children in vulnerable families. In addition, the government considered the UN Convention on the Rights of the Child, which states that education is a fundamental human right that needs to be promoted and protected for children to obtain the best possible health. Thus, in Sweden, during

the first wave of COVID-19, only the upper secondary school students had distance learning, while schools up to 9th grade largely remained open for on-site learning throughout the pandemic.

Nevertheless, children's lives were affected, as reported by a UNICEF survey² and the Children's Ombudsman in Sweden.³ Children and young people reported changes in school routines, reduced spare time activities and missing friends and relatives. Our own anonymous web survey based on >1100 children and young people aged 4–18 years⁴ showed that 77% of the respondents were worried about the pandemic. The most common concerns related to sickness and death, especially concerning elderly relatives, as

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well as existential worries and concerns about the future and the family economy. The Swedish children's rights organisation named Barnens rätt i samhället (BRIS)⁵ reported that calls from children had increased by 16% during the first year of the pandemic, with calls related to anxiety increasing by 61% and sadness by 55%. Other reasons for increased contact were family conflicts, including physical and psychological violence. Similar to other countries, children in Sweden were not considered a risk group for COVID-19, with very few deaths and complications reported among them.⁶

Few studies have addressed the perceptions of young children, as most studies have relied on parental reports. Although some studies were conducted directly with children, these comprised mostly school-aged children. A qualitative interview study on children aged 7–11 years conducted in the UK showed that children were highly aware of the social restrictions, the way the virus spreads and that it could cause death.⁷ They expressed fear, sadness and concerns about their future, but also curiosity about living through a historical time, which will be talked about in the future. A Spanish questionnaire study involving 250 children aged 3–12 years found their answers could be categorised into two groups: content relating to the coronavirus itself and to the lockdown in Spain, with loneliness being a common effect.⁸ Our own study relating to children aged 5–13 years with disabilities⁹ showed that they were also well aware of the pandemic and experienced boredom and loneliness, as well as concerns about their elderly relatives, whom they missed.

Studies that have investigated children's perspectives have focused mostly on what children express in words. This approach has two main limitations: the questions are often asked by adults and the focus on what children express in words has a linguistic preponderance. However, according to the theory of multimodality of communication, the spoken language is only one of several ways to engage in social interaction.¹⁰ A study conducted in Spain used drawings produced by children aged 7–9 years and found that children expressed a dislike of spending more time at home and not being allowed to socialise and hug friends and grandparents.¹¹ The most common feeling represented in the drawings was that of being scared. A Greek study conducted during the country's first lockdown used a convenience sample of 50 children aged 4–6 years with one-on-one adult-supported narrated drawings. Three overarching themes were found: how children represent the physical characteristics of COVID-19, the relationship between COVID-19 and people's health, and routines and various emotional states stemming from and towards COVID-19.¹² A Spanish study including 345 drawings from children aged 6–12 years also found symbols of COVID-19 and emotional expressions as common themes. The study also found illustrations of children taking action against the virus and of social relationships with relatives, at school and with friends.¹³

In sum, there is a paucity of research that specifically seeks to elicit preschool-aged children's perspectives on the pandemic. This study aimed to explore the perceptions that Swedish children aged 4–6 years had on the pandemic, as expressed in their drawings. The Swedish setting is especially relevant, given the unique strategy employed in Sweden for COVID-19.

Key notes

- It has been assumed that young children in Sweden have not been greatly affected by the pandemic as pre-schools did not face lockdowns.
- This study provided unique insights into the emotional responses and experiences of Swedish children aged 4–6 years to the pandemic, as expressed in their drawings.
- The drawings revealed the profound effects of the pandemic on young children's lives and surprisingly high levels of health literacy regarding COVID-19.

2 | METHOD

2.1 | Materials

Data comprised images produced by children in Sweden during the COVID-19 pandemic. The images were submitted to the Swedish Archive of Children's Art from the beginning of April 2020 until the end of February 2021. The Archive has collected children's images since 1977 and stored more than 700 000 submissions, accessible to researchers, students and the general public upon request.

At the beginning of the pandemic, the Archive reached out and encouraged children to submit images for their pandemic collection. Announcements were made through the Archive's own website and social media outlets, and by emailing their network, encompassing colleagues, school staff and professional groups working with children. In addition, the Eskilstuna Art Museum invited children's culture centres around Sweden to their network mailing list. The following questions were included in the distributed document as prompts for the children to create their images: How do you feel? How does it look? What is different now? Is there anything else you would like to describe?

In the instructions, the children were encouraged to describe their images using their own words, with an adult assisting the younger children. Background information, such as age, date, location and gender, was requested from each contributor.

In total, the COVID-19 collection comprised 1282 images. Of these, 106 drawings had been submitted by children aged 4–6 years (Figure 1). The drawings were photographed and identified with a number. The images, along with background information about the child and the related text, were entered into the NVivo software (Version 20, Alfasoft AB, Gothenburg, Sweden) for qualitative analysis. For demographic information about the children included in the study, please see Table 1.

2.2 | Analysis

A specific type of visual analysis called semiotic visual analysis was used in this study. Semiotic visual analysis is based on understanding

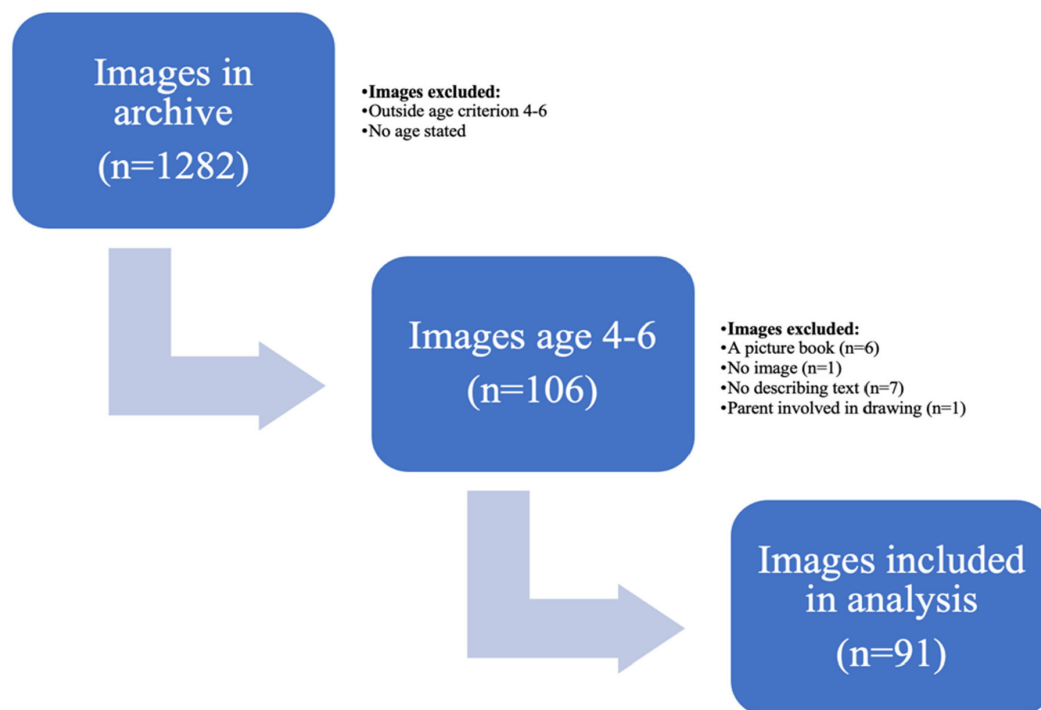


FIGURE 1 Flowchart presenting a selection of the material.

TABLE 1 Age and gender of participants.

Age	Percentage of total (%)	Gender	Percentage of total (%)
4	23	Girl	34
5	45	Boy	34
6	32	Not stated	32

and describing two dimensions of an image.¹⁴ One dimension is the denotation, meaning what images represent and how. The second is connotation, which has to do with what is the associated meaning of the image. To achieve a valid visual analysis of children's drawings, it is also important to consider the child's own explanations accompanying the drawing.¹⁰ An example is provided in Figure 2. By visually examining this drawing, it would have received the code 'What the virus looks like', based on the picture of the virus and 'Corona is not good', which is written in Swedish on the drawing. However, by reading the explanatory text about the image in this five-year-old's words, additional codes can be crystallised, which are underlined in the text excerpt below. The reader may note that Swedish children typically use the word 'Corona' when referring to COVID-19 and the pandemic.

It feels boring with corona because you can get sick and maybe go to the hospital. And corona is a little dangerous. They can bite you, but they don't have mouths and eyes and that. I want corona to go away now because it's so boring. No one loves corona. You can't forget to wash your hands so that corona comes off the hands.

The first step in the analysis was, thus, to examine all the drawings visually. Each drawing was separated from its description. Furthermore, its denotation was objectively described using words, addressing aspects such as shapes, colours, figures, centred objects, facial expressions and any relevant minor details. In some cases, the drawing was difficult to interpret, in which case the child's own interpretation was used to better understand the denotation. The second step was to translate the denotation into the manifest content of the drawing.¹⁵ By viewing the drawings multiple times, categories were identified under which the images could be sorted (Table 2). Some images were sorted under more than one manifest visual category due to multiple motives. To analyse the drawings further, the third step was to conduct a manifest content analysis of the explanatory text attached to the drawings, resulting in several different manifest text codes and categories. The fourth step was to conduct a combined semiotic visual analysis and text content analysis (Tables 3-5). The initial codes were then sorted into sub-categories, categories and finally, themes forming the latent content or connotation of the images. The three analysts met regularly to review the codes, categories and resulting latent themes.

3 | ETHICAL CONSIDERATIONS

This study has followed the ethical guidelines of the Swedish Research Council. The project was part of a larger project on children's voices in the public space during the pandemic, which received approval from the Swedish Ethical Review Authority (Dnr 2020-05096). All drawings were sent to the Archive, knowing that it was a public database, available for publication or research. The children's identities were



FIGURE 2 Age 5, Jönköping, 2020. 'Corona is not good'. ©Swedish Archive of Children's Art.

TABLE 2 Manifest visual content.

Category	Number of drawings
The virus	44
The symptoms	17
Contagion/hand hygiene	14
Feelings	11
Consequences	9
Fight the virus	7
Death	3

not known to us or to the Swedish Archive of Children's Art; thus, no sensitive personal information about the children requiring parental consent was handled. Nevertheless, several measures were taken to protect the integrity of the children whose drawings were included in the study. These measures were needed as some of the drawings included the first names and age of the child, and the Archive recorded information about the municipality that submitted the drawings. Thus, we removed all potential identifying information from the transcripts and also from the photographs of the drawings themselves. The drawings were pseudonymised, and the list containing the code list assigned to each drawing was kept at the Swedish Archive of Children's Art.

4 | RESULTS

4.1 | Demographics

The most common age was 5 years, and there was an equal gender distribution; however, more than a third of the drawings did not state any information regarding age and gender (Table 1). The production

date was mainly during the first few months of the pandemic, and seven Swedish municipalities were represented in the submissions within this age group, with Eskilstuna and Uppsala contributing 23% each.

4.2 | Denotation – what did the images represent?

The most common representations were the virus itself, symptoms, images of the contagion and hand hygiene, followed by feelings and consequences of the virus or of societal restrictions (Table 2). Examples of symptoms were images explicitly depicting snot and coughing or sneezing. Examples of the contagion were flying virus particles or hands covered with dots, representing the virus particles.

In the column labelled sub-category in Tables 3–5, the results of the text analysis are presented. They reflect the children's expressions and their explanations of the characteristics and effects of the virus as well as actions taken by the children themselves and society to protect against the virus.

4.3 | Connotation – what did the images mean?

The fourth step of the analysis, combining both the visual and text content, resulted in three latent themes. First, *illustrating the virus and embodying the danger*; second, *life has changed for the worse*; and third, *the virus spreads across the world, affects people and infects their bodies*.

Below follows a description of the themes, with reference to their respective tables, where the themes, categories and sub-categories are presented comprehensively. The codes are not included in the tables, but examples of corresponding codes are given in the text.

TABLE 3 Theme 1– Illustrating the virus and embodying the danger (N = 87).

Theme 1	Category	Sub-category	Number of drawings
Illustrating the virus and embodying the danger	What is the Coronavirus	Appearance	38
		Characteristics	10
		Where the virus can be found	8
		Drawings in category	56
	Corona is an enemy that must be defeated	Corona is a creature	13
		Corona destroys things	5
		Fight against Corona	9
		Drawings in category	27
	The beginning and end of Corona	Origin	3
		When the virus disappears	2
		Drawings in category	5
	<i>Drawings in theme</i>		87

TABLE 4 Theme 2 – Life has changed for the worse (N = 56).

Theme 2	Category	Sub-category	Number of drawings
Life has changed for the worse	New rules have many consequences	New rules	17
		Consequences of new rules	7
		Nothing has changed	1
		They speak of corona on tv	1
		Drawings in category	26
	Actions to protect yourself from Corona	Washing hands and things	2
		Wearing a face mask and being outside	2
		More ways to protect yourself	2
		Drawings in category	6
	Negative emotions	Anger	3
		Sadness	10
		Fear and worry	4
		Feels boring	2
		Drifting through space	1
		Drawings in category	20
	Thinking of the elderly	Missing grandparents	3
		Feeling sorry for the elderly	1
		Drawings in category	4
	<i>Drawings in theme</i>		56

TABLE 5 Theme 3 – The virus spreads across the world, affects people and infects their bodies (N = 77).

Theme 3	Category	Sub-category	Number of drawings
The virus spreads across the world, affects people and infects their bodies	The symptoms and consequences if you get Corona	Symptoms of the infection	27
		Drawings in category	27
		The virus spreads in society	20
		The virus has spread between people and countries	6
	Sickness and death have affected many people	Drawings in category	26
		Sickness	14
		Death	10
		Drawings in category	24
		Drawings in theme	77

4.4 | Illustrating the virus and embodying the danger

In this study, the most common motif in the children's drawings was the virus particle itself (Table 3). The children ascribed different attributes to the virus, such as dumb, evil or bad (Figure 2). It was common to draw the virus as a very large object, centrally placed on the paper (Figures 2 and 4) or being unproportionally large (Figure 3), giving the sense of the magnitude of the threat caused by the virus. Besides representing the virus as very large, many children also conveyed the notion that the virus was everywhere and it being invisible, making it difficult to know how to avoid it. It was, indeed, the fact that the virus is not visible that seemed to set off children's fantasies. Codes found in the explanatory text accompanying the drawings of the virus, in the sub-categories of Corona is a creature and Corona destroys things (Table 5), included: 'Corona can eat all children', 'Grandma is captured in the middle of a monster', 'The flowers turn into blood' and 'The cars are melting'. Children represented the virus as an evil creature that, quite literally, had to be fought off or killed, with the latter being expressed using six codes. In these cases, the child him or herself was the person who fought off the virus with a knife, sword or pickaxe (Figure 4).

4.5 | Life has changed for the worse

The children conveyed the profound effects of the pandemic and the associated restrictions on their everyday lives and social



FIGURE 3 Age 5, Uppsala, 2020. 'A boy coughed and put his hands over there (on the house) and someone came and touched it, then they got sick. X means that you shouldn't go outside and catch bacteria. The bacteria are under ground. Blue faces mean you feel sick'. ©Swedish Archive of Children's Art.



FIGURE 4 Age 5, Eskilstuna, 2020. 'Corona. Two children fighting Corona'. ©Swedish Archive of Children's Art.

FIGURE 5 Age 6. 'Closed for playing'.
©Swedish Archive of Children's Art.



relationships very clearly (Table 4). Under the sub-category new rules, children showed that they had a good understanding of how to prevent the spread of infection, exemplified by the code 'You must keep a distance and no hugging'. However, the children also reflected on the consequences of the rules on they themselves and for the people in their surroundings. A typical consequence was the cancellation of trips and activities the children enjoyed doing (Figure 5). For this theme, an important category was negative emotions, in response to the pandemic and the changed life circumstances. The feeling represented was sadness, exemplified by the code 'Feels like it's raining in all the countries', accompanying a drawing of an unhappy cloud with rain. Other feelings such as loneliness, anger, fear, feeling bored and worry were also described and/or depicted (Table 4). Worrying related, in particular, to grandparents, whom the children missed very much.

4.6 | The virus spreads across the world, affects people and infects their bodies

This theme revolved around the symptoms, the spread as well as the suffering and death caused by COVID-19 (Table 5). Children were very well informed about the symptoms of the COVID-19 infection, with 'You get snot and/or a cough' being the most common code in the sub-category symptoms of the infection (Table 5). Children provided an explicit portrayal of snot in their drawings (Figure 6); in fact, once we started looking, many drawings included yellow or green snot hanging from people's noses, even if that was not the focus of the drawing. Many of these young children were also, surprisingly, well aware of how the virus spreads. The code 'The contagion is on the hands', being the most common in the sub-category the virus spreads in society. It was, in fact, typical for



FIGURE 6 Age 6, Bromölla, 2020. 'The Corona virus. You puke, then cough and then you get well or die'. ©Swedish Archive of Children's Art.

children to include virus particles, represented as tiny dots covering people's hands and/or in the air in their drawings (Figure 3).

Children also showed a strong awareness of the pandemic being just that – a disease that has spread all over the world, exemplified by the code 'It spreads from country to country'. Sickness and death were represented in numerous drawings (Figure 6). In the category sickness and death have affected many people (Table 5), children showed that they were well aware of the distribution of risk, exemplified by the codes 'Elderly people are at risk' and 'Younger people do not get as sick'.

5 | DISCUSSION

This study has provided a unique insight into the perceptions that Swedish children aged 4–6 years have of the pandemic. This was made possible through an accessible means of self-expression by young children, namely drawings, accompanied by explanatory notes provided by the children. Despite the comparatively mild restrictions with no lockdown or school closures for young children, the drawings examined in this study conveyed the fact that children in Sweden were also affected by the pandemic, both socially and emotionally. Congruent with previous research, children expressed a range of negative emotions related to the pandemic and the social restrictions imposed as a result.^{4,11–13} The children in this study also displayed surprisingly high levels of health literacy related to the virus as such, its spread, the symptoms, the disease and death caused by COVID-19. This is similar to what has been reported for

older children,⁷ but which was not as apparent in the drawings produced by children aged 4–6 years in a Greek study.¹² Although there were many similarities in young children's emotional experiences between different contexts, Swedish children's drawings involved social interactions (Figure 3). In contrast, the Greek study involving children of the same age had no social interactions whatsoever, reflecting the lockdown situation. Representations of the virus (Figure 2) and its consequences closely resembled reports by media, as also described by Idoiaga et al. 2022.¹³ This phenomenon served to remind us that young children often become – perhaps unwilling – consumers of news media during societal crises.

By encouraging young children to draw pictures using open prompts, such as how a disease feels, looks like or what is different now, it is possible to understand their interpretations of a situation and related emotions. Paediatricians can initiate conversations revolving around children's drawings to estimate the levels of health literacy and gauge the child's emotional response related to a clinical problem and its treatment. Drawings allow adults to get a glimpse inside children's worlds and assess how much they know and understand as well as what misunderstandings and/or unhelpful fantasies they might have conjured up. Such insight may allow paediatricians to provide adequate information to and support the child in dealing with treatment. It is also valuable to remember that when adults talk about 'fighting' something, young children might interpret that quite literally. This, on the one hand, can allow children to have helpful fantasies about contributing to solve the problem, but it might also warn adults about any unrealistic expectations the child might place on him/herself in fighting a chronic or severe disease.

5.1 | Strengths and limitations

Preschool teachers mostly responded to the invitation sent out by the Swedish Archive of Children's Art. This is one of the reasons for the large number of drawings submitted to the Archive and for drawings coming in bundles from certain educational units, rather than individual submissions, although these existed as well. Clearly, the output of the children in an educational setting is directly dependent on how the teacher presented the assignment to them and how the pandemic had been discussed in the class. Although drawings where an adult had clearly been involved in its creation were excluded, it is unknown how the adult's presence during the drawing process might have affected the resulting picture.

Overall, the Swedish Archive of Children's Art's COVID-19 collection included drawings that geographically represented a large portion of Sweden. However, the data selected for this study, based on children aged 4–6 years, represented children from a relatively small portion of the country. There is also a clear risk of selection bias in submissions, which is why general claims cannot be made about health literacy in this age group with regard to COVID-19.

6 | CONCLUSION

The drawings produced by Swedish children aged 4–6 years revealed the profound, practical and emotional effects of the pandemic on their lives. The analysed drawings also illuminated the high level of health literacy among young children with regard to COVID-19. Even when young children are not directly affected, it is important to consider their perceptions and information needs in future societal or health crises. Drawings can be a helpful tool to assess children's health literacy regarding a specific disease.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

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