The Effect of Culture on Children's Depiction of Covid-19 in Their Drawings

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Abstract

Many studies have used drawing to examine children's representation of covid-19 but no study to date has compared the drawings produced by children from different countries. In this study, French and Moroccan children aged 9-11 years-old were asked to draw everything they thought of when hearing the word covid-19 or coronavirus. The drawings were rated using a posteriori content analysis, revealing the use of seven graphic indicators. When comparing French and Moroccan children, we found no difference in the overall number of indicators but we found numerous differences in the types of indicators used to depict covid-19. French children depicted death and home/restricted places more frequently, whereas Moroccan children depicted the virus and cultural signs more frequently. In contrast, we found no cultural difference in children's use of biomedical indicators. These results are discussed in terms of the influence of country-specific sources that may have shaped children's representation of covid.

Keywords: Drawing; covid-19; children; culture

Introduction

On January 9, 2020, the discovery of a new coronavirus was officially announced by the Chinese health authorities and the World Health Organization. On January 30, 2020, a state of health emergency was declared internationally. Government health restrictions have affected schools, educational and recreational centers, formal childcare arrangements, and various early childhood services throughout the world. The closure of schools and daycare centers has reduced children's learning opportunities, their interactions with peers as well as with important educational figures such as teachers [1,2]. As a result, many children have been forced to adapt to sudden changes in their daily routines. Although not a medically vulnerable population, children were significantly affected by the pandemic. Numerous studies showed the significant consequences of covid-19 for children, in terms of physical/mental health, wellbeing and education [2-4]. But much less research has been conducted about children's representation and comprehension of covid-19.

However, examining children's conceptions is essential to help them handle the situation and to design and implement teaching or communication campaigns [5].

An interesting way to probe these representations is to use drawings. Drawing is a familiar and enjoyable activity [6], which is less intimidating than a conventional interview [7] and helps children disclose their thoughts on topics that are abstract, or difficult to talk about, such as illness/health, science, death, bullying, loneliness, the brain for example [8-12]. As a matter of fact, several studies using drawing to access children's representation of covid-19 have been published in the last 2 years [13-24]. Among these studies using drawings, some have used a purely qualitative and descriptive approach [13,15,20,21,23,24] whereas others have used specific analysis grids and conducted statistical analyses on the data [14,16-19,22]. These studies indicate that, when asked to portray covid-19 in their drawings, children usually depict the vi-

rus itself, but also medical and psycho-social indicators. It is interesting to note that, although these studies have involved children from different countries (Greece, Australia, Sweden, Brazil, Spain, Canada, France, Saudi Arabia, Italy, UK), no study to date has aimed to make a cross-cultural comparison of the drawings produced by the children.

And yet, culture can play an important role in children's representations: it shapes their perception of health, illness and of its causes [25-27]. Furthermore, the management of the covid-19 health crisis and its impact have been very different from one country to another [28]. This leads to the logical assumption that there may be cultural differences in the way children conceive of covid-19. The purpose of this study was to test this assumption.

The present study was design to compare children's representations of covid-19 between France and Morocco. We chose to compare these two countries because they have both similarities and differences in the way the health crisis was managed and in its impact. We chose to include children from 9 to 11 years of age because the level of graphic development at this age allows children to express their ideas with much fewer limitations than younger children [6]. We did not go beyond 11 years of age, however, because beyond this age children begin to lose interest in drawing [6]. We also chose this age range in reference to studies on the representation/understanding of illness (and more precisely of covid-19) which show that it is only from the age of 8-9 years that children provide scientific and not only mythical or anthropomorphic descriptions of illness (e.g., Byrne [29]). The representations are thus richer and more diverse at this age, with a more multidimensional conception compared to the youngest (e.g., Bonoti, et al. [30]).

Method

Participants

A total of 123 children participated in this study: 63 French children (33 boys and 30 girls) and 60 Moroccan children (25 boys and 35 girls) ranged from 9 to 11 years of age (with a mean age of 10 years and 1 month). The exact age range was as followed: 9 years 2 months to 11 years 7 month. A t-test revealed that French and Moroccan participants did not differ in age, t (119) = 0.63, p = .53. Parental written consent was obtained and children were tested in accordance with national and international norms that govern the use of human research participants.

Material and Procedure

Given the restrictions imposed by the covid-19 at that time, participants were recruited through a snowball sampling and all data collection procedures were conducted online. This type of online procedure has been widely used in studies examining children's view of covid-19 at this time of the pandemic, including studies using drawing [13-15,17-19,21-24]. Researchers identified families through their social networks and through main social media platforms (i.e., WhatsApp, Facebook), who then suggested other participants to join the study. A short presentation of the project was inserted, inviting parents who were interested to respond in order to be contacted by one of the researchers and receive full instructions on how to participate. The parents who contacted the researchers then received a document specifying that it was a free drawing task to be produced by the children and that the parents would take the role of investigators.

Children were given a white blank A4 paper, a pencil, a set of colored pencils, and an eraser. There was no time constraint in this study so that the children were free to elaborate the content of their drawings. And it was important that children were placed in a room without material (e.g., television, telephone) or human (e.g., family, friends) distractions. If more than one child was involved, parents were asked to ensure that they did not draw in close proximity. Parents were invited to give the following instruction: "I would like you to draw everything you think of when you hear the word covid-19 or coronavirus. You can draw different things in your picture so that it is clear what the coronavirus is to you. You can take as much time as you want and you can use as many colors as you want". To be sure not to influence the child, parents were asked not to go beyond the instructions given and not to make any suggestions on how the drawing should be done. Once the drawing was completed, the parents were invited to send it by e-mail, along with an information form (children's age and gender, demographic information and any comments on the drawing). The drawings were collected between June and September 2021. Finally, we sent each participating family a handout entitled "Talking to children about Coronavirus" reminding them of some of the recommendations of the British Psychological Society (e.g., "it is good to talk", "be truthful but remember your child's age", "allow children to ask questions", "try to manage your own worries", "give practical guidance") [31].

Coding of the Drawings

We conducted a content analysis to determine the number and types of graphic indicators used to depict covid-19. A posteriori analysis was performed, based on the drawings collected, following the basic principles of content analysis [32-34]. This coding process is used to generate a rating grid that is a close reflection of the content of the drawings. It has been widely used to examine how children represent various types of concepts or ideas (e.g., health/illness, emotions, bullying, etc.) through their drawings [30,35,36]. Based on this method two raters were first asked to independently identify each and every graphic item relative to covid-19 in the drawings. The two raters then compared the items they identified and agreed on a final list. Finally, they discussed the items in the list and defined graphic indicators from it. The following seven graphic indicators were generated: virus (animate or inanimate), preventive hygiene measures (e.g., mask, gel, handwashing), preventive social measures (e.g., social distanciation), medical setting (e.g., doctor, hospital, ambulance), death (e.g., cemetery), home/restricted places (e.g., house, closed school, closed restaurant) and cultural elements (e.g., national flag, religious symbols). Figure 1 presents examples of drawings illustrating each indicator.
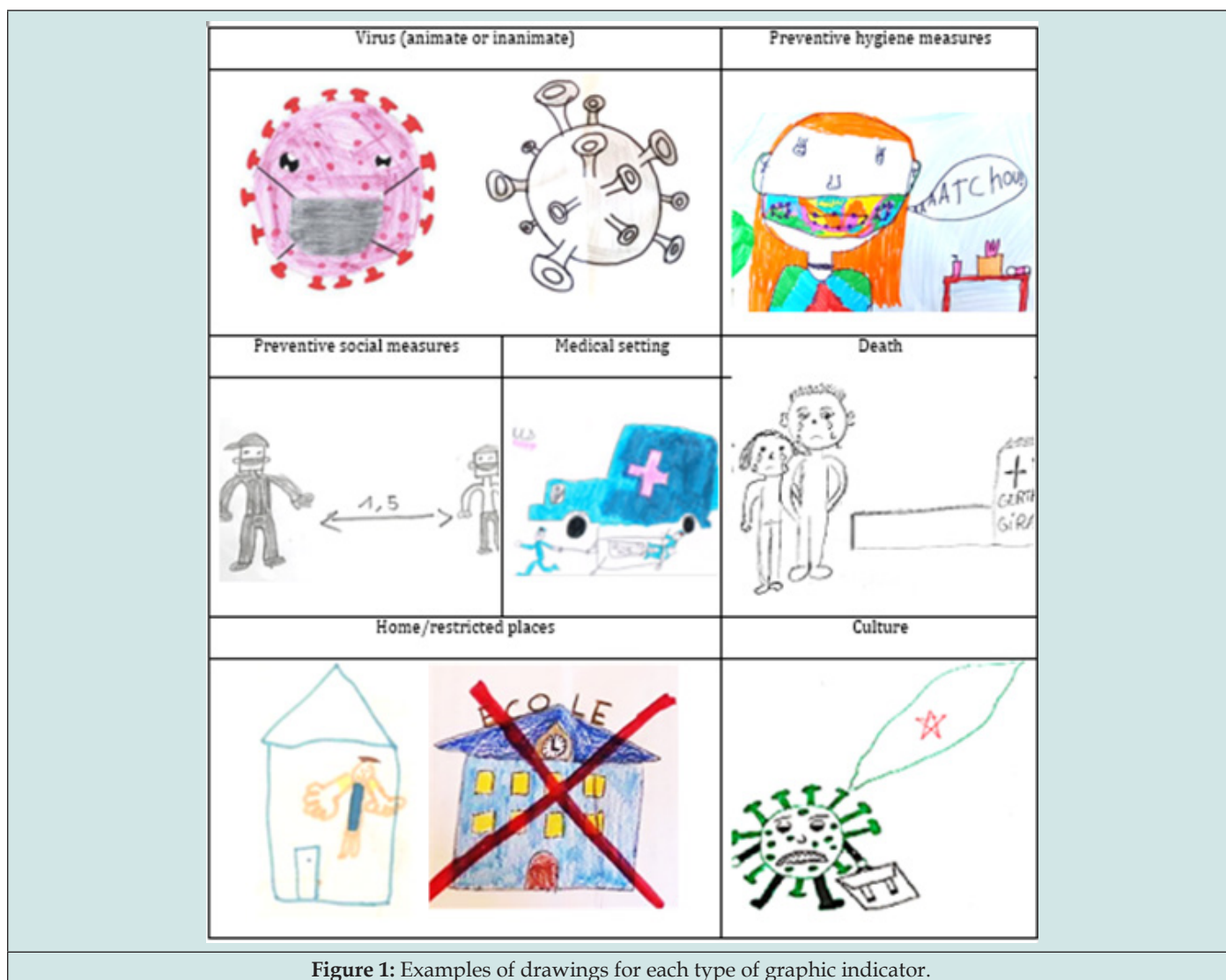
Figure 1: Examples of drawings for each type of graphic indicator.

Subsequently, the raters were asked to independently review and rate each drawing for the presence of any of the seven indicators, assigning a single point to each type of graphic indicator included in the drawing. The inter-judge agreement was high (96%, kappa coefficient = 0.9) and the judges resolved the few cases of disagreement through discussion. Finally, the number of graphic indicators was recorded for each drawing and we also recorded the occurrences of each type of graphic indicators in French and Moroccan children's drawings.

Results

Number of graphic indicators

We conducted an analysis of variance (ANOVA) on the number of indicators (0-7), with children's country (France, Morocco) as a between-participants factor. The results revealed no significant effect of the country ($F(1, 121) = 1.59$, $p = .21$), with French children depicting a mean number of 2.29 indicators and Moroccan children depicting a mean number of 2.05 indicators.

Types of Graphic Indicators

To determine whether participants produced different graphic indicators according to their culture we compared the number of drawings depicting each indicator between French and Moroccan children using Chi-square analyses. Table 1 presents the number (and percentage) of drawings depicting each type of graphic indicator, as a function of children's country.

These analyses revealed that death was more often depicted by French (12/63, 19%) than by Moroccan children (0/60, 0%), $x^2 (1) = 12.70$, $p < .001$. The same difference was found for home/restricted places, with a higher number of drawings depicting this indicator in French children (17/63, 27%) compared to Moroccan children (6/60, 10%), $x^2 (1) = 5.83$, $p < .01$. We also found a marginal difference for social preventive measures between French (12/63, 19%) and Moroccan children, (5/60, 8%), $x^2 (1) = 2.96$, $p = .08$. In contrast, Moroccan children more frequently depicted cultural items (12/60, 20%) compared to French children (0/63, 0%), $x^2 (1) = 14.00$, $p < .001$. And there was also a significant difference

for the depiction of the virus between Moroccan (53/60, 88%) and French children (45/63, 71%), x^2 (1) = 5.42, p < .05. When considering animate versus inanimate depictions of the virus in the drawings, we found that Moroccan children more often depicted animate virus (43/60, 72%) compared to French children (27/63, 43%), x^2

(1) = 10.40, p < .001 and that there was no significant difference for the inanimate version of the virus between French and Moroccan children. Finally, we found no significant differences between French and Moroccan children relative to their use of the indicators preventive hygiene measures and medical setting.

Table 1: Number (and percentage) of drawings depicting each type of graphic indicator, as a function of children's country.

	France	Morocco	Comparison
	N = 63	N = 60	France/Morocco (x^2)
Virus	45 (71%)	53 (88%)	x^2 (1) = 5.42, *p* < .05
Preventive hygiene measures	42 (67%)	34 (57%)	x^2 (1) = 1.30, *p* = .25
Preventive social measures	12 (19%)	5 (8%)	x^2 (1) = 2.96, *p* = .08
Medical setting	15 (24%)	13 (22%)	x^2 (1) = 0.08, *p* = .78
Death	12 (19%)	0 (0%)	x^2 (1) = 12.70, *p* < .001
Home/restricted places	17 (27%)	6 (10%)	x^2 (1) = 5.83, *p* < .01
Culture	0 (0%)	12 (20%)	x^2 (1) = 14.00, *p* < .001

Discussion

The present study was design to compare children's representation of covid-19 between two countries, France and Morocco, which have both similarities and differences in the way the health crisis was managed and in its impact. Children were asked to draw everything they thought of when hearing the word covid-19 or coronavirus. The drawings were rated using a posteriori content analysis, revealing the use of seven graphic indicators. Children's use of these indicators was compared between the two groups, French and Moroccan children.

The graphic indicators reported in this study were broadly consistent with those found in previous research, with some indicators related to the medical dimension (i.e., preventive hygiene measures, medical settings), some indicators related to the psychosocial dimension (i.e., preventive social measures, death, home/restricted places, culture) and the depiction of the virus itself (either animate or inanimate). When comparing French and Moroccan children, we found no difference in the overall number of indicators but we found numerous differences in the types of indicators they used to depict covid-19. French children depicted more frequently death and home/restricted places and there was also a tendency for preventive social measures. The result relative to the depiction of death could be linked to the actual impact of the covid-19. Indeed, Regarding the proportion of covid-related mortality, France ranks 11th worldwide, while Morocco ranks 54th [37]. And even when the number of deaths is considered with respect to the number of inhabitants in each country, France remains 5 times more affected than Morocco. The unprecedented media coverage of covid-19 in France [38] has given children access to this information. The larger depiction of home/restricted places in French children's drawings could be related to the communication campaign in France which emphasized the "stay at home" message with specific visuals for this purpose [39].

On the other hand, Moroccan children depicted more frequently the virus itself (more precisely in its animated form) and cultural elements compared to French children. Note that, in line with previous studies the virus, particularly its animated form, was widely represented by children in the sample [18,20] but with a higher prevalence among Moroccan children. The larger depiction of the virus, as an animated entity, by Moroccan children may also relate to the communication campaign and to the visual sources available for children. Indeed, in Morocco, information capsules were adapted to different ages and broadcast to children in several languages throughout the country. In these capsules, the virus was usually shown in an animated form. Regarding cultural elements, only Moroccan children drew them. When considering that this referred in particular to religious signs, it is not surprising to observe this difference given that Moroccan culture places much more emphasis on religion than French culture and among these two countries, only Morocco has a state religion.

Interestingly, the only two indicators for which we did not find significant or marginal differences are the one related to the medical dimension of the covid-19: preventive hygiene measures and medical setting. The medical dimension is usually the first to be reported by children when they describe their representation of illness in general (whether through interviews or drawings) [11]. This might also suggest that these are central components of covid-19 and thus might be considered cultural invariants, but this would have to be tested by including other countries in this analysis.

To conclude, this study, using drawing to compare French and Moroccan children's representation of covid-19, suggests that children's representations are influenced by at least two country-specific sources. The first would be the actual impact of covid-19 and the way it was conveyed in the media. The second would be the communication and prevention campaign deployed in each country. These campaigns largely relied on the use of visual aids that

were shown to have a strong influence on the public's representations [40-42]. It demonstrates that drawing is a medium sensitive to cultural influences and that it is important to take culture into account when questioning this type of representation.

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