












# Lesson in understanding parents' perspective: perception of quality of care and COVID-19-related fears among users of paediatric health services over the COVID-19 pandemic in 11 facilities in Italy

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## ABSTRACT

**Background** The COVID-19 pandemic had an important psychological impact on children and their families. This study aims to explore paediatric health services users' perceptions of quality of care (QOC) and COVID-19-related fears, and their evolution over time in relation to COVID-19 pandemic.

**Methods** In a multicentre cross-sectional study involving 11 public hospitals providing paediatric care across the Italian territory, we collected data from services users through a validated questionnaire. We analysed four indicators—(1) QOC perceived in relation to COVID-19; (2) overall QOC perceived; (3) fear of accessing health services due to COVID-19; (4) fear of contracting COVID-19 in hospital—and calculated Spearman's correlation indexes ( $\rho$ ) with the number of COVID-19 new cases over time. Subgroup analyses were conducted by macroregions and single facility.

**Results** Data from 956 services users were analysed. QOC indicators were stable over time at values close to the maximum (range 77–100 and median 100 for COVID-19 QOC, range 74–98 and median 80 for overall QOC), and no correlations were found with the COVID-19 new cases ( $\rho=-0.073$  and  $-0.016$ , respectively). Fear of accessing care and fear of contracting the infection varied over time in between 0%–52% and 0%–53%, respectively, but did not correlate directly with number of COVID-19 new cases ( $\rho=0.101$ ,  $0.107$  and  $0.233$ ,  $0.046$ , respectively). At subgroup analyses, significantly higher frequencies of fear ( $p$  values  $<0.05$ ) and lower QOC ( $p$  values  $<0.001$ ) were reported in South Italy, and three facilities showed moderate correlation between these indicators.

**Conclusions** COVID-19-related fears and perceived QOC may be mediated by more complex cultural and facility/regional-level factors, than simply by epidemic peaks. Subgroup analyses can help unpack major differences within the same country.

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ The COVID-19 pandemic had an important psychological burden on children and their families, especially in seeking care. While literature describes the causes and the consequences of perceived fear in seeking care, less is known about the link between the pandemic epidemiological trend and perceived fear and quality of care.

## WHAT THIS STUDY ADDS

⇒ Our study aims to describe that perceived fear and quality of care did not correlate with the epidemiological trend of COVID-19, as they could be influenced by a complex network of sociocultural factors.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The regular monitoring of indicators considered in this paper could help healthcare workers and policymakers to deal with possible future pandemics.

## INTRODUCTION

The COVID-19 pandemic caused profound and widespread challenges for children and their families in European countries, mostly due—more than to the disease itself, which is most often mild in healthy children—to its indirect effects, such as schools' closure, social isolation, reduced healthcare access and economic crisis.<sup>1</sup>

Several studies documented the effects of the COVID-19 pandemic on healthcare access. A study conducted in UK reported that one out of three presentations in Paediatric Emergency Departments (PED) had

a delay in accessing care.<sup>2</sup> Another study in Italy highlighted that, during the pandemic, children with infectious diseases had a significant delay in accessing care when compared with the prepandemic period.<sup>3</sup> Other evidence suggested that reluctance in seeking adequate medical care severely affected patient outcomes,<sup>4</sup> especially for patients with disabilities, chronic diseases and malignancies,<sup>5 6</sup> as well as acute emergencies such as sepsis, diabetic ketoacidosis<sup>7</sup> and appendicitis.<sup>8</sup>

Previous studies showed that many different factors may explain fear in accessing health services and delay in seeking care during the COVID-19 pandemic, including doubts on the quality of care (QOC) provided at hospital level, and fear of contracting the infection.<sup>4</sup> In previous reports, many different individual-level factors, such as young parental age,<sup>9</sup> having a child with chronic illnesses,<sup>9</sup> as well as psychological traits, such as the perception of loneliness and death obsession<sup>10</sup> were found to be related to a higher level of fear/hesitancy in accessing health services.

However, there is little evidence of the possible links between the evolution over time of the COVID-19 pandemic, in terms of new positive cases, and the fears perceived by paediatric health service users, as well as the perceived QOC. A better understanding of parents' perspectives may be useful beyond the pandemic for paediatricians and healthcare providers in order to improve quality of service.

This study aimed to investigate the correlation over time between the pandemic trends (in terms of COVID-19 new positive cases) and the QOC perceived by paediatric health service users, and their COVID-19-related fears, across 11 hospitals in Italy distributed across the whole national territory. We also conducted a subgroup analysis by macroregions in Italy (north and centre/south), to assess whether findings changed by geographical distribution. This study used data from the CHOICE (Child HOspItal CarE) project, which aimed at assessing QOC according to the WHO Standards for improving QOC for children at facility levels.<sup>11</sup>

## METHODS

### Study design

This was a multi-centre cross-sectional study in the form of a survey and is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement<sup>12</sup> (the STROBE checklist is provided as online supplemental table 1).

### Setting and population

Data were collected in 11 public hospitals providing care for children in Italy, distributed across the national territory and with different characteristics in terms of organisational structure (ie, facility level and type) and work volume (online supplemental figure 1 and table 2).

We collected data from service users, that is, parents or other caregivers of patients between 0 and 15 years

admitted to the Emergency Departments observation units or paediatric wards of participating sites, between 30 April 2021 and 22 March 2022. Whenever appropriate based on family assessment, we encouraged the involvement of children in completing the survey. Exclusion criteria for parents/caretakers were: age under 18 years; psychiatric disorders; parents/caretakers of children older than 15 years; parents/caretakers of a deceased child; parents/caretakers of a child admitted to intensive care, neuropsychiatric or surgery department.

### Data collection procedures

Parents/caregivers were invited to complete a validated questionnaire<sup>13</sup> on the QOC either through an online platform or in a paper format. The questionnaire was based on the WHO standards for improving QOC for children in facility levels.<sup>11</sup> Details regarding the process of prioritisation of the WHO Quality Measures and the validation of the questionnaire—demonstrating good levels of validity, reliability, acceptability, perceived utility and internal consistency—have been detailed elsewhere<sup>13</sup> with a summary provided in online supplemental table 3.

Respondents were approached by research staff during clinical shifts, and data were collected using REDCap (Research Electronic Data Capture) V.8.5.21, Vanderbilt University, at the moment of access in the PED, with the use of a tablet, allowing a single entry for each questionnaire. In the Paediatric Emergency setting there were no periods of service discontinuation in all the hospitals of the network. The centralised platform allowed for data entry directly from respondents or by research staff entering data from paper-based questionnaires into REDCap. REDCap is a software that registers only completed (full) responses. Data not provided through the online platform were excluded, due to the impossibility of accurately determining the day on which the questionnaire was filled.

### Study variables and data analysis

Due to the descriptive primary aim of this study, the sample size was set as the maximum possible number of parents who could be reached during the data collection period for each facility involved in the project.

Data cleaning procedures were predefined and included removing cases with missing information on key variables (ie, facility site, date of compilation) or on more than 90% of close-ended questions under analysis, including sociodemographic variables. According to the data cleaning plan, suspected duplicates were defined as cases that exhibited identical answers to more than 90% of the socio-demographic questions and same information on key variables (ie, facility site, date of compilation).

First, we conducted a descriptive analysis of respondents' socio-demographic characteristics and the study key variables. The four key variables analysed in relation to our research question are listed below.

1. The 'COVID-19 QOC Index', calculated based on 10 predefined Quality Measures related specifically to

organisational changes due to the COVID-19 pandemic. This index had a predefined scoring system (online supplemental tables 3 and 4), resulting in a score ranging from 0 (low QOC) to 100 (high QOC).

2. The **'Overall QOC Perceived'**, calculated based on the following question: 'In general, what score do you give to the QOC received in the hospital?' (answers: values from 0, low quality, to 10, high quality). The score provided by the service users was standardised to a score from 0 to 100, by multiplying it by a factor of 10.
3. The **'Fear of accessing health services'**, assessed using the following predefined question: 'Has the fear of contracting COVID-19 infection in the hospital delayed the decision to bring your child to the hospital?' (answers: *No, Yes, to a little extent* and *Yes, crucially*). These data were analysed as percentage frequencies of answers provided, for each of the three categories of answer (0–100%).
4. The **'Fear of contracting COVID-19 in the hospital'**, assessed using the following predefined question: 'Currently, are you concerned that your child or yourself or other caregivers may contract the infection in the hospital?' (answers: *No, Yes, to a little extent* and *Yes, crucially*). These data were analysed as percentage frequencies of answers provided, for each of the three categories of answer (0%–100%).

Data were presented, by each facility and on the overall sample, as absolute numbers and percentage frequencies and by means, SD, medians and IQRs for non-normally distributed data.

Second, we conducted an analysis of the distribution of the selected key variables over time when compared with the COVID-19 new positive cases, at a national and at a regional level. Data on the COVID-19 epidemiological situation in the whole country and in each individual regions under analysis were downloaded from the Italian Civil Protection's COVID-19 emergency database, which is freely available online.<sup>14</sup> Daily data for new COVID-19 positive cases in the time range in which the questionnaires were administered (30 April 2021–22 March 2022) were extracted. For increasing data accuracy, the results over time were graphically rendered by considering both daily values and moving averages with a span of 7 adjacent days (the average of the values of the day in question, the previous 3 days and the next 3 days). The latter technique provides smoother curves and avoids isolated spikes due to extreme values. In cases where there was more than one questionnaire completed on the same day, the average value was calculated and considered in the analyses. The correlation between the indicators and COVID-19 new positive cases, both at national and regional levels, was studied by considering Spearman's rank correlation index.

In addition, to assess whether findings changed by geographical distribution, we conducted a subgroup analysis by macroregions. Regions were grouped according to the Italian National Institute of Statistics (<https://www.istat.it/en/organisation-and-activity>), combining islands

with South Italy. A second subgroup analysis was also conducted, dividing the data into two COVID-19 periods. These periods were identified by splitting the dataset on 1 November 2021, which corresponds to the start of the Omicron variant phase in Italy<sup>15</sup> (online supplemental tables 5–7). The distributions of the variables of interest were compared between periods and correlation coefficients were calculated with the number of new COVID-19 cases within each time period. Comparisons were made using the two-proportion Z test.

All the tests were two-tailed and a p value of <0.05 was taken as statistically significant. R (R Foundation for Statistical Computing, Vienna, Austria) V.4.2.1 was used for data analysis.

### Ethical considerations

Approval for data collection was obtained by the Ethical Committee of the Friuli Venezia Giulia Region for the coordinating centre (Study ID: 2976, RC 15/2019 Prot. 0035348, 3 December 2019) and by ethical committees of all 12 participating hospitals. Anonymity in data collection was ensured by not collecting any information that could disclose participants' identity.

### Patients and public involvement

Patients and/or the public were involved in the design, or conduct, or reporting or dissemination plans of this research.

## RESULTS

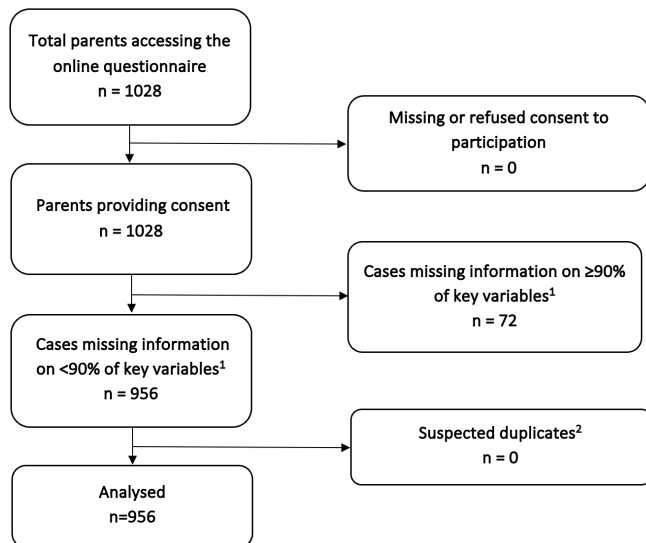
### Characteristic of the sample

Data from 1028 responders were gathered in 11 different Italian hospitals. A total of 72 (7%) parents were excluded from the study since lacking information about the questionnaire compilation date (figure 1). Zero observations were identified as suspected duplicates.

Characteristics of respondents and their children are summarised in online supplemental tables 8 and 9, respectively. Among the 956 analysed parents, the majority of respondents (87.4%) were mothers, with a median age of 38 years (IQR 32–43). Overall, in 817 (85.5%) cases both parents were of Italian nationality; 327 (34.2%) of respondents held a university degree or higher.

The age distribution of the children showed that a significant portion (56.6%) fell below 6 years old, with an equal representation of both sexes. Approximately half of the children (49.8%) were admitted to the Emergency Department. Overall, almost one out of two children (45.0%) were hospitalised for a period between 3 and 7 days.

A total of 318 (33.3% of cases) children actively participated in answering the survey alongside their parent(s) or caregiver(s). Most of the children who participated in the questionnaire were from older age groups (41.5% between 6 and 12 years and 43.4% between 12 and 16).



**Figure 1** Flow chart of selection of valid completed surveys for analysis. Notes: <sup>1</sup>Missing information on close-ended questions including sociodemographic questions or time of compilation of the survey; <sup>2</sup>suspected duplicates identified as cases with same answers to sociodemographic questions and other close-ended questions and, when available, same date of questionnaire completion.

### Descriptive analysis

When analysed on the overall sample, the COVID-19 QOC index resulted in scores very close to the maximum value (median 100, IQR 90–100), while the overall QOC perceived had slightly lower values (median 80, IQR 80–90, [table 1](#)). In the entire sample, the percentages of parents and caregivers who reported that COVID-19 delayed their decision to access care and that they were concerned about contracting the infection in the hospital were very similar (32% and 31.6%, respectively, when combining the answers *Yes, crucially* and *Yes, a lot*, [table 1](#)).

### Indicators over time

The analysis of the distributions of the four indicators over time ([figures 2–5](#)), when conducted at a national level, showed a lack of direct correlation between COVID-19 new

cases and any other indicators of interest. The COVID-19 QOC index remained substantially stable with values near the maximum (range 77–100) and a lack of correlation between COVID-19 new cases at national level (Spearman's correlation index=−0.1842, [figure 2](#)). The overall QOC perceived also was stably around high values (range 74–98) and did not correlate with the number of COVID-19 new cases at the national level ([figure 3](#), Spearman's correlation index=−0.0821). Fear of accessing care ([figure 4](#)) and of contracting the infection in the hospital ([figure 5](#)) had some more variation over time (ranges 0%–52% and 0%–53%, respectively, when combining the two possible answers) and did not correlate directly with the number of COVID-19 new cases (Spearman's correlation indexes ranged from 0.233 to 0.046).

When the time trend analysis was conducted at the regional/facility level (online supplemental figures 2–5), it confirmed in general the same results, with very low Spearman's correlation indexes, demonstrating lack of correlation, except for three facilities showing some Spearman's correlation indexes suggesting moderate correlation. Specifically, data from the facility located in Bari had Spearman's correlation indexes equal to −0.5587 to −0.4959, 0.4872 and 0.5434, respectively, for COVID-19 QOC index, overall QOC perceived, fear to access health services and fear of contracting COVID-19. The facility in Mantova had Spearman's correlation indexes around 0.40 for the variables: COVID-19 QOC index ( $\rho$ =−0.1166), fear to access health services ( $\rho$ =0.0524) and fear of contracting COVID-19 ( $\rho$ =0.5122). Finally, the facility in Alessandria had a Spearman's correlation index equal to 0.2925 for the overall QOC perceived, and equal to 0.4977 for the fear of contracting COVID-19.

### Subgroup analyses

Significant differences were observed by macroregions ([tables 2 and 3](#)). The results for the COVID-19 QOC index and overall QOC perceived were significantly lower in the centre/south than in the north (mean of 89.93 vs 94.64 and 79.9 vs 85.4, respectively, both  $p$  values <0.001).

Considering both the answers *Yes, crucially* and *Yes, to a small extent*, almost half (45%) of respondents in the centre/south reported delaying access to health services because of the fear of COVID-19, compared with 21.4% in the North Italy ( $p$  value <0.001). In addition, considering again both the answers, 35.2% of service users from central/southern hospitals were concerned of contracting the infection in the hospital, compared with 27.9% of service users from northern Italian centres ( $p$  value=0.018).

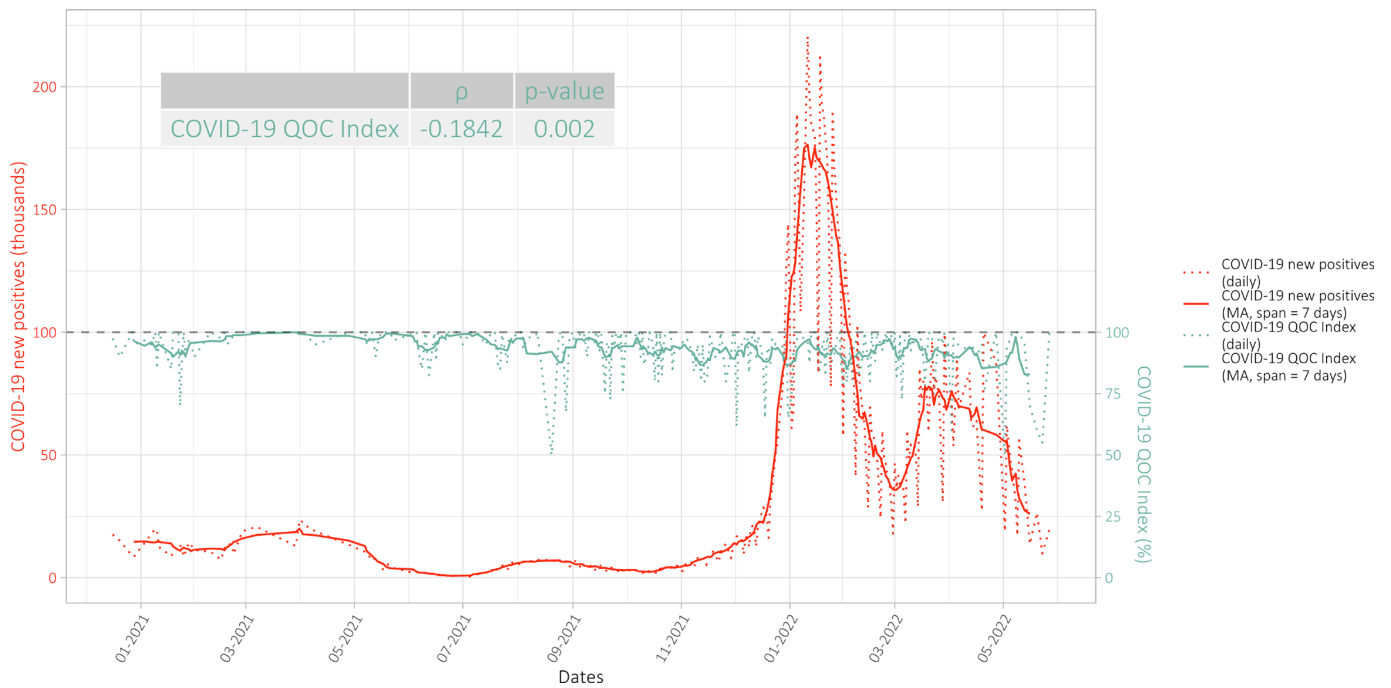
### DISCUSSION

This study generated several new findings. It clearly showed that, when all responders were pooled together, QOC was perceived as good, while still a large proportion of service users had COVID-19-related fears, and all these indicators lacked a significant correlation with the COVID-19 peaks. However, when data were analysed by macroregions, major

**Table 1** Descriptive analysis of the four indicators

	Q1	Median	Q3
COVID-19 QOC index	90	100	100
Overall QOC perceived	80	80	90
	Answer	N	%
Fear of accessing health services	Yes, crucially	70	7.3
	Yes, to a little extent	236	24.7
	No	650	68.0
Fear of contracting COVID-19 in the hospital	Yes, a lot	43	4.5
	Yes, pretty much	259	27.1
	No	654	68.4

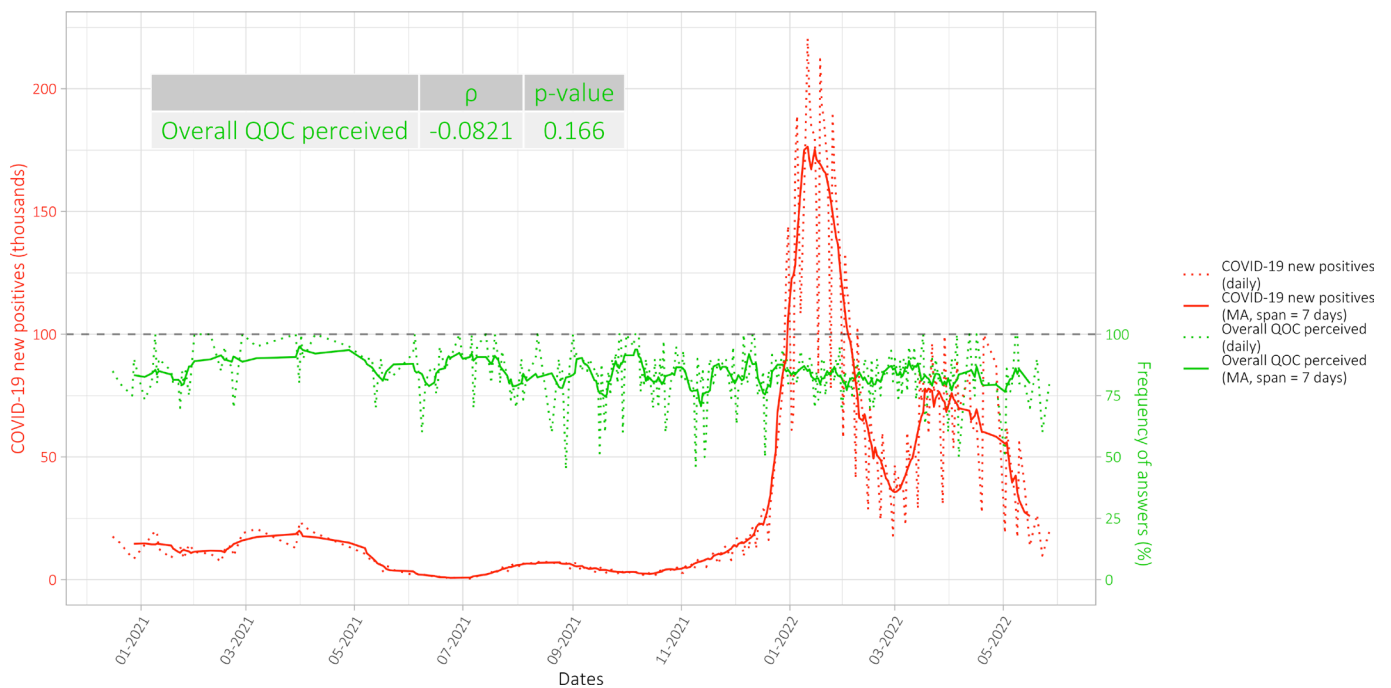
Q1, first quartile; Q3, third quartile; QOC, quality of care.



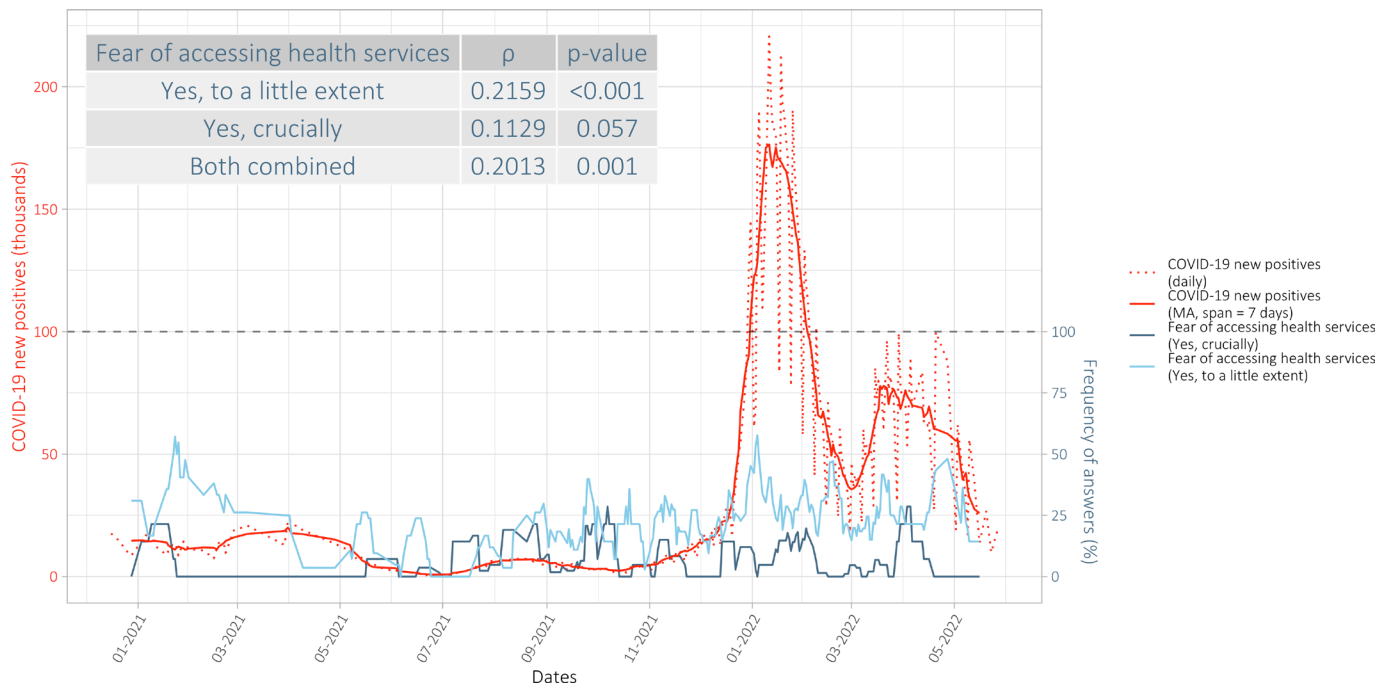
**Figure 2** COVID-19 QOC index versus COVID-19 new positive cases. Note: the red line refers to the number of new COVID-19 positives in thousands in Italy. The dotted line indicates the daily time trend, while the full line refers to the MA values with a span of 7 days. The resulting value of Spearman’s correlation index is reported in the grey box. MA, moving average; QOC, quality of care.

differences were observed, as well as some significant correlation with the COVID-19 epidemic curves. Overall, these data suggest that COVID-19-related fears and perceived QOC may be mediated by more complex cultural and facility/regional-level factors,

than by simply the epidemic peaks. Conducting subgroup analysis by regions/single facility proved to be critical in unpacking major differences within the same country, which however may have multiple explanations.



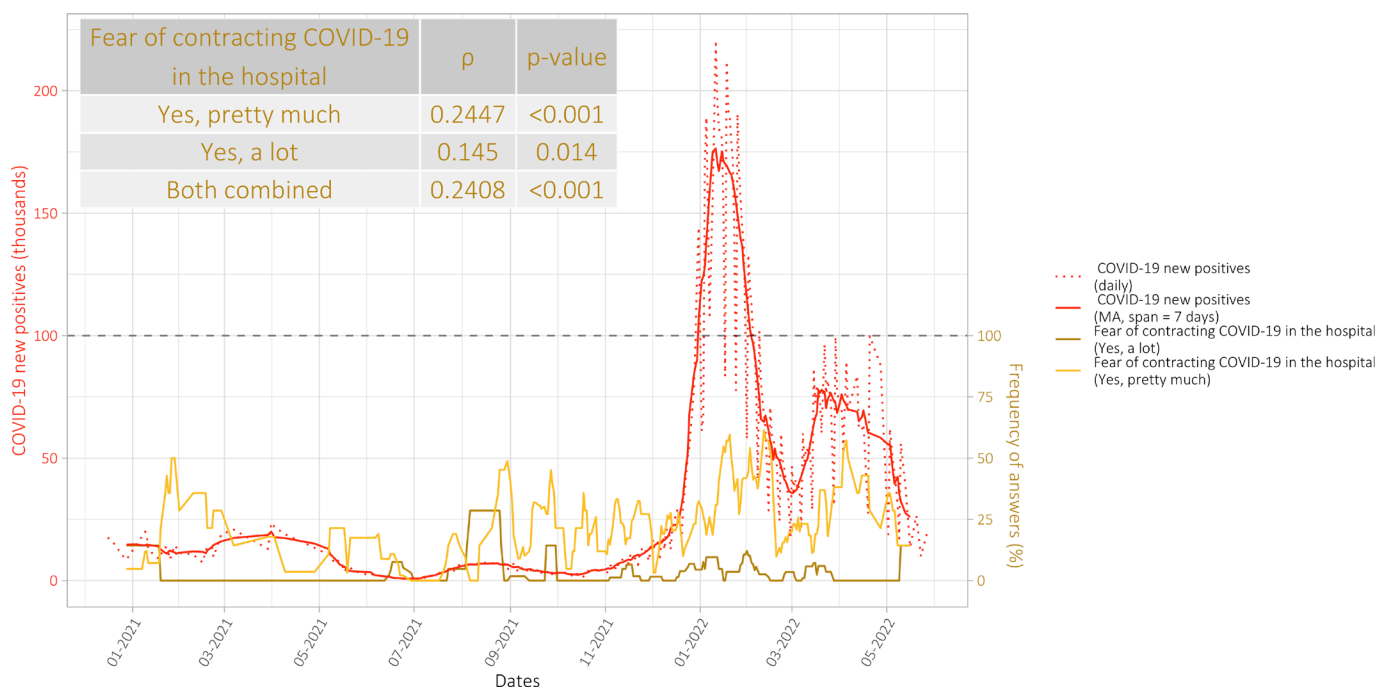
**Figure 3** Overall QOC perceived versus COVID-19 new positive cases. Note: the red line refers to the number of new COVID-19 positives in thousands in Italy. The dotted line indicates the daily time trend, while the full line refers to the MA values with a span of 7 days. The resulting value of Spearman’s correlation index is reported in the grey box. MA, moving average; QOC, quality of care.



**Figure 4** Fear of accessing health services versus number of COVID-19 new positive cases. Note: the red line refers to the number of new COVID-19 positives in thousands in Italy. The dotted line indicates the daily time trend, while the full lines refer to the MA values with a span of 7 days. The resulting value of Spearman's correlation index is reported in the grey box. MA, moving average

Study findings may be justified by multiple reasons. High perceived QOC could be due to health system-related factors such as a more robust healthcare network, trustworthy medical education, easy access to healthcare, financial aspects such as a higher average

families' income and different perception of community values. This is the first study to analyse the overall QOC perceived by paediatric health service users during the COVID-19 pandemic, so we lack a comparison with the prepandemic period findings. However, other studies



**Figure 5** Fear of contracting COVID-19 in the hospital versus COVID-19 new positive cases. Note: the red line refers to the number of new COVID-19 positives in thousands in Italy. The dotted line indicates the daily time trend, while the full lines refer to the MA values with a span of 7 days. The resulting value of Spearman's correlation index is reported in the grey box. MA, moving average

**Table 2** COVID-19 QOC index and overall QOC perceived by macroregions in Italy (30 April 2021 to 22 March 2022)

		N	Mean	SD	Q1	Median	Q3	P value
COVID-19 QOC index	Centre/south	429	89.93	16.60	90	95	100	<0.001
	North	527	94.64	10.89	95	100	100	
Overall QOC perceived	Centre/south	429	79.9	16.3	70	80	90	<0.001
	North	527	85.4	13.2	80	90	100	

Q1, first quartile; Q3, third quartile; QOC, quality of care.

related to childbirth highlighted the lack of correlation between satisfaction with care received and many other variables related to the process of care, suggesting that the outcome of cure (a healthy baby) may, at the end, be more relevant to parents than the process itself.<sup>13</sup>

The variation in the frequency of perceived fear over time may be due to multiple factors, both at the individual level, at the facility level and in the general context. For example, in previous studies, higher levels of fear and anxiety were found to be associated with lower social class, unemployment<sup>16</sup> and previous mental-health conditions.<sup>17</sup> Furthermore, anxiety can similarly spread virally, with the mechanism of ‘emotion contagion’,<sup>18</sup> with the use of social media being associated with higher anxiety,<sup>19</sup> especially in more susceptible individuals. Notably, the COVID-19 period was characterised by multiple intercorrelated changes at once. The epidemic itself had multiple peak phases and low prevalence periods, which may have resulted in phases of strong physiological fatigue alternated by other periods of relative optimism. If from one side evidence strongly suggested worsening in mental-health indicators,<sup>20 21</sup> high distress among health staff and high staff turnover<sup>22-25</sup> and major difficulties in many work sectors affecting most of the population and in particular parents and female workers,<sup>24 25</sup> there were also major reorganisations in the health system.<sup>26</sup> The COVID-19 epidemic was an important opportunity to align with international protocols for risk management,<sup>24</sup> reorganise care including improving effective leadership<sup>27</sup> and adopting many new tools and digital technologies.<sup>28 29</sup> Variations in COVID-19-related fears may therefore reflect a mixture of positive and negative factors happening at once, including some improvements in

QOC, but also challenges in healthcare provision, overall resulting in a long period of instability, with either low or variable confidence towards the health systems, and with high variability in the subjective perceptions mediated both by contextual and individual aspects. Information on COVID-19 pandemic and the perception of the information received may also have played a key role in COVID-19-related fears.

A geographical gradient in reported QOC has been observed in other studies,<sup>30-32</sup> and it can be explained as the results of several historical, sociocultural and economical aspects.<sup>33 34</sup> Historically, QOC is perceived as poorer in the South of Italy with people moving from south to north in the idea of obtaining better care.<sup>35</sup> While this phenomenon is decreasing, the stereotype of South Italy providing poorer healthcare is still persisting. Differences in the availability of resources and in organisational aspects across different geographical regions<sup>35</sup> may also have affected the observed differences at subgroup analyses. All the above cited factors may have occurred at different degrees of intensity in different regions/facilities, thus justifying differences found at subgroup analyses.

We believe that the observed findings are of major relevance in terms of policies. As a matter of fact, the geographical gradient of fear, perception of reduced QOC and reduced access to health services is related to a well-documented reduced trust in National Health System (NHS) among population in the South of Italy. This is a well-described phenomenon in the country, documented by a consistent literature and decades of history of ‘sanitary migration’ by patients/families from the South of Italy to get care in the North of Italy,

**Table 3** Fear of accessing health services and getting infected in the hospital by macroregions in Italy (30 April 2021 to 22 March 2022)

	Answer	Centre/south		North		P value
		N	%	N	%	
‘Has the fear of contracting COVID-19 infection in the hospital delayed the decision to bring your child to the hospital?’	Yes, crucially	43	10.0	27	5.1	<0.001
	Yes, to a little extent	150	35.0	86	16.3	
	No	236	55.0	414	78.6	
‘Currently, are you concerned that your child or yourself or other caregivers may contract the infection in the hospital?’	Yes, a lot	20	4.7	23	4.4	0.018
	Yes, pretty much	135	31.5	124	23.5	
	No	274	63.9	380	72.1	



especially in the setting of rare diseases, complicated/severe illnesses.<sup>36</sup> These phenomena imply increased cost both for the population and for the health system.

The data of this study confirm the persistence of this effect, bringing new evidence related to the context of the COVID-19 pandemic, which, per se, increases emotions and anxiety. Remarkably, some differences in quality of paediatric care between North and South of the country are still reported<sup>37</sup>; however, heterogeneity in QOC has also been documented among health centres in the North of Italy.<sup>37–40</sup>

According to these results, we suggest that policymakers should: (1) adopt policies to ensure that the quality of paediatric care is regularly monitored by key meaningful objective indicators; (2) use findings of the quality assessment to take actions to improve QOC, so that all children receive high-quality care independently from their geographical location; (3) adopt policies to inform the population, and increase trust in the NHS independently from the geographical location; and (4) monitor service user's perspective on QOC. Notably, all these aspects will be important increasing preparedness to future possible pandemic.

Among the strengths of this study there are the numerosity of the facilities involved across the national territory, and the standardised methods of data collection, using a validated questionnaire,<sup>13</sup> allowing easy replication of data collection in other sites or in the future to monitor data in the postpandemic period.

Among the study limitations, we acknowledge the simplification of a complex feeling like fear, necessary for pragmatical reason of data collection. In addition, this paper aimed at exploring fear in the context of the COVID-19 pandemic, and results are not generalisable in other time periods. Our study aimed at answering a specific exploratory research question, and not at investigating the vastitude of factors potentially affecting fears. Our questionnaire did not assess the different possible causes of fear and potentially related factors both at individual level (eg, knowledge, attitudes, personalities, socioeconomic status, previous COVID-19 infections, previous experience of quarantine, etc) and at the facility level (eg, existing resources and protocols, specific aspects of the QOC). However, it should be noted that a comprehensive assessment of all factors potentially related to fear may include a very long list of variables at different levels, including personality traits, sociodemographic factors, cultural factors and health system factors, in many instances difficult to quantify in an objective way due to the lack of standardised data collection tools or due to limited feasibility. For example, the assessment of personality trait was not done for practicality, since otherwise a much more burdensome data collection had to be implemented, seriously limiting acceptability for patients. In addition, we missed a comparison between the prepandemic and pandemic period. Moreover, we do not describe the impact of COVID-19 vaccines on the perceived QOC. Results are therefore explorative, and

more research is needed to better elucidate the complex relationships in between epidemics, individual factors and health systems. At the same time, our study is adding new data, which can complement already existing literature on fear anxiety during the COVID-19 pandemic.

The results of this study are not generalisable to different settings. Considering that the COVID-19 pandemic is not fully over, and other pandemics may also happen in the future, we suggest that this study may be considered just a starting point, to favour reflection on considering monitoring indicators related to access to care more often, if not on a regular basis, as suggested also by the sustainable developmental goal Target 3.8 (achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all).<sup>41</sup> Notably, COVID-19 fears have resulted in delayed access to care and worsened health outcomes,<sup>4</sup> while monitoring this indicator, together with a better understanding of its causes, will increase preparedness for possible future pandemics. QOC should also be monitored on a regular basis, using multiple indicators, as suggested by the WHO.<sup>13</sup>

## CONCLUSION

Overall, this study adds to previous evidence, suggesting that both perceived fear and QOC did not vary over time due to variables such as vaccine availability, lockdown periods and death rates and were not related to the epidemiological trend of the infection. It rather shows that general emotions and social trends matter more in this perspective than hard epidemiological data. While subgroup analyses can help unpack major differences within the same country, more studies are needed to further explore multiple factors explaining these differences. Monitoring key indicators of perceived fear to access care and QOC over time will increase hospital preparedness and will contribute improving QOC.

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