

The impact of print media on COVID-19-related child health issues in India: First comprehensive report from the World

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Abstract

The study examined the coverage of COVID-19-related child health issues in four of the most widely circulated newspapers in Kolkata, India. Daily print versions of the TIMES of INDIA, SANMARG, ANANDA BAZAR PATRIKA, and BARTAMAN newspapers were scanned manually by a single investigator versed in all three languages. News items on health-related issues in children were archived and examined concerning various coverage parameters. A total of 582 relevant news items were scanned from April 2021 to March 2022. The TOI had maximum coverage [30.6%, n= 178], followed by ABP [29.4%, n= 171], BARTAMAN [21%, n=122] and SANMARG [19%, n= 111]. The numbers published closely reflected the surge in the total number of COVID-19 cases in May, June, and July 2021 and then in January 2022. Around 88% were of the descriptive type, and 12% were interpretive news. Frontpage coverage was sparse. TOI had significantly more articles covering a quarter page or more than the Bengali and Hindi dailies. This is the first comprehensive report on COVID-related child health issues coverage in Indian newspapers. Although the findings are mostly positive, there remains room for improvement in coverage regarding both the number and diversity of child health-related issues.

Keywords: Child Health; COVID; India; Newspaper; Print Media

1. Introduction

Mass media plays a central role in our lives, reflected in the time people spend watching television, reading newspapers and magazines, and surfing the World Wide Web. With the exponential development in communication technologies and their omnipresence in daily lives, information delivery has become instant and available round the clock. Print media is a collective term for printed mass media, including newspapers and health magazines, published daily or periodically. Although newspaper readership is on a slow decline, and this trend is seen across Hindi, English, and regional languages in India, newspapers remain one of the most readily available and trusted sources of information [1]. Worldwide studies have noted that print media has played a significant role in social, political, economic, and environmental issues [2]. Studies have also argued that the role of print media in facilitating access to information in

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any crisis or disaster situation cannot be denied. Common people, administrators, and policymakers benefit from such access [3].

The unexpected COVID-19 pandemic wrecked all aspects of human life but revolutionized the avenues of social interaction in the 21st century. During the pandemic, people worldwide hungered for reliable news sources, and the print media stood the test of space and time in this context [4]. People wanted trustworthy news about how the lockdown was affecting lives, how those who lost their employment were faring, how the millions who contracted the virus were coping, and about the many thousands who died as a result [5]. A study published by the Reuters Institute for the Study of Journalism and the University of Oxford [6] revealed that people from different countries (Argentina, Germany, South Korea, Spain, the United Kingdom, and the United States of America) credited news media with more excellent reliability than social media during the pandemic. According to this research, most respondents in every country surveyed said that news media had helped them grasp the gravity of the pandemic and explained what they could do in reaction to the situation.

In India, during the unprecedented situation of reduced mobility due to the nationwide lockdown, print media became a significant source of reliable information. According to a survey, "Impact of the coronavirus (COVID-19) on media consumption in India as of March 2020, by type of media" [7], the rate of media consumption increased significantly compared to the week preceding the lockdown. A very recent survey indicates that most (90%) of online news consumers in India are still reading printed newspapers, and online newspapers have not affected print newspaper circulation much [7]. However, print has possibly started losing young readers.

During the pandemic, every part of the country, including all its 28 states and 8 Union territories, and every aspect of life, was affected. Every kind of media was emphasizing COVID-19-related news, viewpoints, and concerns. However, the role of print media in this country concerning COVID-related child health issues has not been explored despite India having one of the largest child populations in the World. Also, we did not find any published study on this theme. Hence, in this novel study, we explored how Indian print media covered COVID-related child health issues to enhance societal awareness and foster appropriate public discourse on this health crisis.

2. Materials and Methods

This cross-sectional study was conducted from April 2021 to March 2022 in the Department of Pediatrics, Medical College and Hospital Kolkata, India.

2.1. Selection of newspapers

Four of the newspapers with the highest circulation in West Bengal, according to the Indian Readership Survey 2019, Quarter 4, were selected and followed up daily for one year (Apr 1, 2021 to Mar 31, 2022) [7]. These four newspapers – TIMES OF INDIA (TOI; Kolkata edition), which is published in the pan-India link language English; SANMARG, which is published in Hindi, the official language of the Government of India; and ANANDA BAZAR PATRIKA (ABP) and BARTAMAN, which are published in Bengali – were screened for news articles and government-issued health information on COVID-related child health issues and COVID-19 vaccination.

2.2. News scanning

All four daily newspapers published in Kolkata were procured from a reliable local vendor every day from Apr 1, 2021, to Mar 31, 2022. The coupons for subscription have been saved as a reference. If, due to any situation, physical copies of the newspapers could not be collected on a particular day (newspapers do not bring out print versions on selected national holidays), data was extracted from the available online version of the newspaper. The daily screening was done manually by a single investigator who is a native Bengali speaker, studied in English medium, and learned Hindi in secondary school. The relevant articles were cut out from the newspaper and archived with the newspaper name, date, page number, and location on the page. The issues with health and disease-related news in children (up to 18 years of age) were selected. This study did not include health-related advertisements, advertorials by private enterprises, and articles in supplementary pages related to lifestyle and entertainment.

2.3. Data capture

The data were entered into a structured Data Collection Form, which included items like the headline of the issue, publishing newspaper, page number and location on the page, headline, area on paper (quarter or more, less than quarter), journalistic genre, source of the news (international, national, regional), citation of the source, category of

news, type of article (descriptive or interpretive), presence of photographs and their nature (documentary, artistic) and highlights of the article.

2.4. Statistical analysis

The data were transcribed to a Microsoft Excel spreadsheet and analyzed using MedCalc version 19.6 (MedCalc Software Ltd., Ostend, Belgium, 2020) software. They have been summarized by routine descriptive statistics, namely mean and standard deviation for numerical variables and counts and percentages for categorical variables. Qualitative variables were compared between newspapers by Chi-square or Fisher's exact test. Odds ratios with 95% confidence intervals (CI) have been presented for selected comparisons. A p-value of less than 0.05 was considered statistically significant for all comparisons.

3. Results

The study analyzed the involvement of print media in COVID-related child issues. A total of 582 news items were published in four selected newspapers from April 2021 to March 2022. In the 365 days, TOI covered child health issues on 109 days, ABP on 117 days, BARTAMAN on 102 days, and SANMARG on 86 days. The child health-related articles were published mainly during May, June, and July 2021 (Figure 1). The mean monthly coverage was 18.3 ± 10.45 days for Bengali, 9.1 ± 5.99 days for English, and 7.2 ± 5.81 days for Hindi dailies. The maximum coverage was seen in June and July 2021 for Bengali and Hindi dailies and in May and June for the English daily.

Table 1 Comparison of various parameters of news items on child-related COVID-19 issues published in selected daily newspapers in Kolkata

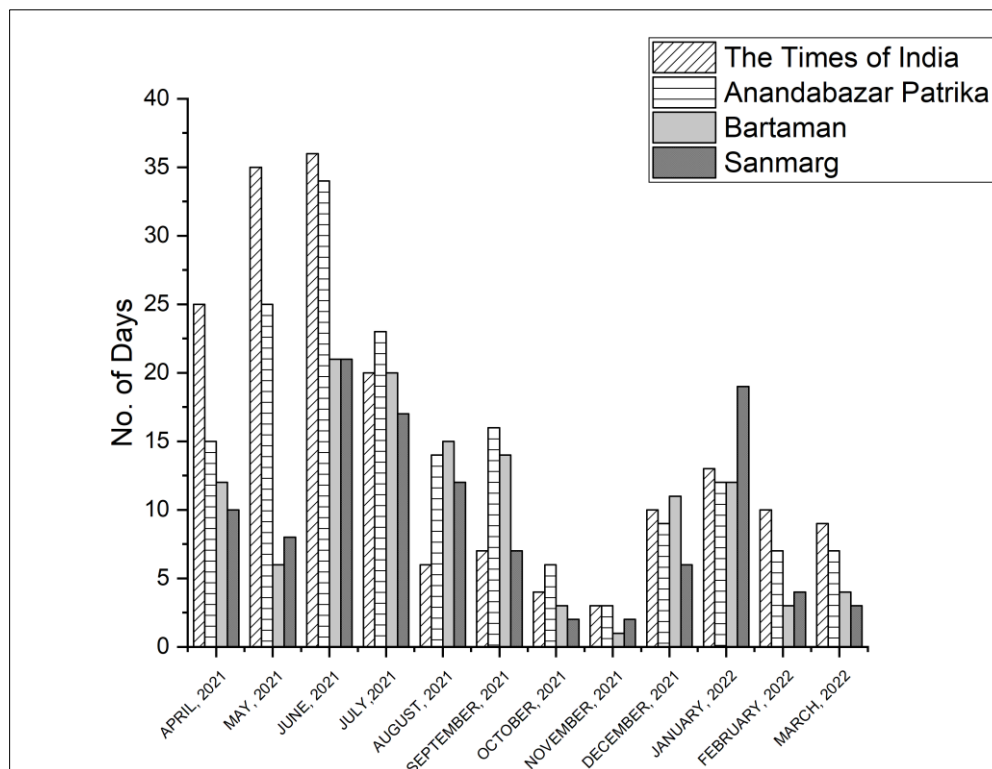
News parameter	coverage	TOI (n=178) n (%)	ABP (n=171) n (%)	BARTAMAN (n=122) n (%)	SANMARG (n=111) n (%)	p-value
Origin of news						
International		40 (22.4)	31 (18.1)	21 (17.2)	18 (16.2)	0.140
National		95 (53.3)	83 (48.5)	71 (58.1)	54 (48.6)	
Regional		43 (24.1)	57 (33.3)	30 (24.5)	39 (35.1)	
Type of news article						
Descriptive		153 (86)	150 (88)	113 (92)	95 (85.5)	0.293
Interpretive		25 (14)	21 (12)	9 (8)	16 (14.5)	
Page						
Front Page		21 (12)	24 (14)	11 (9)	29 (26)	0.001
Others		157 (88)	147 (86)	111 (91)	82 (74)	
Area on paper						
Quarter or more		24 (13.4)	8 (4.6)	6 (4.9)	4 (3.6)	0.002
Less than quarter		154 (86.5)	163 (95.3)	116 (95)	107 (96.3)	
Type of images						
Documentary		20 (11)	4 (2)	3 (2.4)	1 (0.9)	0.041
Artistic		64 (36)	19 (11)	32 (26)	27 (24.3)	
Category of news						
Personal		40 (22.0)	34 (19.8)	9 (7.3)	13 (11.7)	0.108
Social and educational		55 (30.8)	53 (30.9)	39 (31.9)	43 (38.7)	
Disease burden & statistics		25 (14.0)	20 (11.6)	20 (16.3)	14 (12.6)	
Vaccination		36 (20.0)	40 (23.3)	30 (24.5)	23 (20.7)	
Treatment		22 (12.3)	24 (14.0)	24 (19.6)	18 (16.2)	

TOI: TIMES OF INDIA; ABP: ANANDABAZAR PATRIKA

Table 2 Comparing daily newspapers according to various parameters of news items on child-related COVID-19 issues

News coverage parameter	Single Paper	Paper combinations	Odds ratio (95% CI)	p-value
	SANMARG	TOI + ABP + BARTAMAN	SANMARG vs TOI + ABP + BARTAMAN	
Page				
Front Page	29	56	2.62 (1.58 – 4.35)	< 0.001
Others	82	415		
	TOI	ABP + BARTAMAN + SANMARG	TOI vs ABP + BARTAMAN + SANMARG	
Area on paper				
Quarter or more	18	24	3.34 (1.76 – 6.33)	< 0.001
Less than quarter	386	154		
	TOI	ABP + BARTAMAN + SANMARG	TOI vs ABP + BARTAMAN + SANMARG	
Type of images				
Documentary	20	8	3.05 (1.26 – 7.38)	0.019
Artistic	64	78		

TOI: TIMES OF INDIA; ABP: ANANDABAZAR PATRIKA; CI: confidence interval

**Figure 1** Monthly distribution of the number of days COVID-related child health issues were published in 4 different daily newspapers from West Bengal

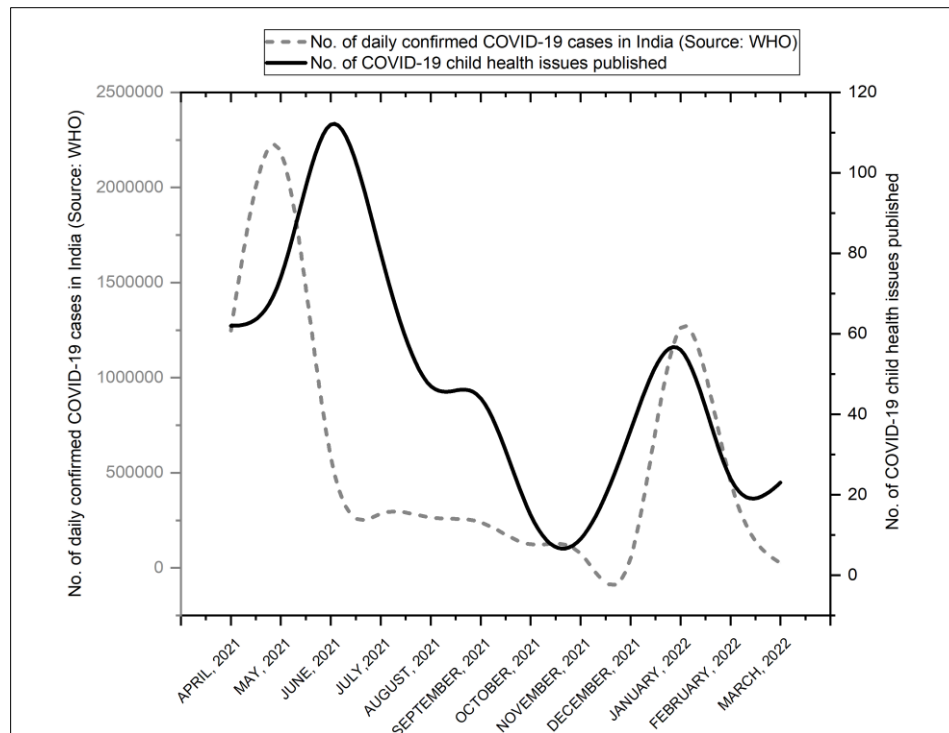


Figure 2 Pattern of news coverage of COVID-19-related child health issues compared to the number of confirmed COVID-19 cases in India

Concerning the number of news items, TOI had maximum coverage (30.6%, $n = 178$), followed by ABP (29.4%, $n = 171$), BARTAMAN (21%, $n = 122$), and SANMARG (19%, $n = 111$). The highest publications were in June (24%, $n = 141$), followed by July (19%, $n = 111$) and May (17%, $n = 104$), whereas the most minor publications were in October (10%, $n = 61$) and November (12%, $n = 74$). This pattern closely followed the surge in COVID-19 cases in May, June, and July 2021, as seen in Figure 2. The relationship between the daily COVID-19 case count and print media publication throughout the year is shown in Figure 2. The number of print media publications increased in line with the pandemic's growing intensity.

Our results reveal that the publication frequency of international, national, and regional news by all four newspapers is not significantly different ($p = 0.140$) (Table 1). National news coverage was 53.3% in TOI, 48.5% & 58.1% in ABP and BARTAMAN, and 48.6% in SANMARG newspapers. Of all the issues published, 88% were of the descriptive type, and 12% were interpretive news. Thus, all three languages' print media published more descriptive news items than interpretive items (Table 1). The four newspapers printed significantly less child health-related news on the front page (Table 1). There was a statistically significant difference, with SANMARG publishing twice as much news on the front page (OR 2.62; 95% CI 1.58 to 4.35; $p < 0.001$) compared to others. Most news articles covered less than a quarter page in terms of area on paper (86.5% in English, 95.3% and 95% in Bengali, and 96.3% in Hindi) (Table 1). The English daily (TOI) had significantly more articles covering a quarter page or more as compared to the Bengali (ABP & BARTAMAN) and Hindi (SANMARG) dailies (OR 3.34; 95% CI 1.76 to 6.33, $p < 0.001$) (Table 2). Twenty-nine percent of articles were accompanied by at least one image. Amongst these, 16.5% were documentary in nature, and the remaining 83.5% were artistic. Hence, artistic images were more common than documentary images across all the newspapers, as shown in Table 1. Moreover, English newspapers (TOI) published significantly more creative photos than the other two languages (OR 3.05; 95% CI 1.26 to 7.38, $p = 0.043$).

English articles cited the professional opinion of a doctor or a national or international institution in 24% of articles, whereas Bengali and Hindi articles cited this in 19% and 17%, respectively. Nineteen percent of the news items cited scientific institutions as their source. In contrast, the English news articles cited references to scientific institutions more frequently across the three languages than doctors' expert opinions ($p = 0.037$). Notably, multisystem inflammatory syndrome in children, a unique aspect of pediatric COVID-19, was mentioned in only 7 of the 582 items scanned (1.2%).

4. Discussion

Our country is home to the largest child population in the World. According to the 2011 census, 40% of India's population are children. Child health presents specific issues and is, at most times, significantly more varied than adult health. In this scenario, newspapers can play a significant role in raising awareness of child health issues and promoting public discourse, as they are easily accessible sources of information for the public and require no specialized skills or technology. A vast array of information is presented in the newspaper, even though the question arises: how extensively and effectively is the newsprint media relaying child health-related information to its readers? Considering this question, our study is possibly the first to evaluate the quantity of child health-related articles published in the COVID-19 era in India. Studies in this area are, on the whole, limited. We found only one study from Spain that analyzed the tone and content of Spanish newspaper articles about mental disorders in children and adolescents (0-18 years) during the COVID-19 pandemic [8].

In the current study, we selected four widely circulated daily newspapers that garner the maximum readership among the local population across all print media and cover various socioeconomic strata. The total number of COVID-19-related child health articles published during one year of the COVID period was 582, and TOI and ABP newspapers accounted for the largest share (30.5% and 29%, respectively). The publication rate increased substantially in May, June, and July 2021, and declined gradually in September, October, and November 2021, commensurate with the progression of the pandemic. Again, the publication rate rebounded during the dramatic increase in COVID-19 cases in January 2022. Hence, it is safe to assume that the print media was proactive in addressing COVID-19 in India; otherwise, it would have given less importance to COVID-19-related child health issues. However, it is crucial to continuously deliver child health-related news to society during any mass health crisis. Additionally, it is notable that scientific publications related to COVID-19 were not prominently featured in the newspapers.

Due to the scarcity of data on child health issues in the news, we have compared our findings to previous studies on overall coverage of health issues in India. A survey conducted by Paul *et al.* in Manipur [9], covering ten local newspapers (4 English and 6 Manipuri), found that the English newspapers published a maximum (55.1%) of the health articles. Another study by Gupta *et al.* covered two national newspapers, one Hindi and one English, and found that the English newspaper carried more health news than the Hindi newspaper [10]. Additionally, this study found that the most coverage of health-related news occurs during the winter and rainy seasons. However, in our case, the maximum number of child health-related news items were published in May to July 2021 and January 2022. This may be attributed to the timeframe of the pandemic, where June 2021 saw the peak of the second wave of COVID-19, and to the launch of vaccines for the Indian pediatric and adolescent population in January 2022. This underlies the fact that health issues coverage in Indian newspapers tends to follow the public interest, which is acceptable from the publisher's point of view, but not so acceptable if we consider the more significant role of print media to be continuous awareness generation on essential issues. Child health is always an important issue.

Most news items in our study across all three languages were descriptive rather than interpretive. Descriptive news refers to fact-based reporting, whereas interpretive news is generally used to denote journalism that goes beyond description and factual reporting, focusing more on explaining why an event occurred. Moreover, approximately 93% of the news issues studied covered less than a quarter of the total print area of a newspaper page. A study by Tejedor *et al.* provided information on the COVID-19 pandemic on the front pages of daily newspapers in Spain and Italy. It was found that most pandemic-related news was presented in the form of short pieces or briefs [11]. In our study, the English newspapers (TOI) had significantly greater articles covering a quarter page or more. A possible explanation is that English newspapers tend to have a more educated and affluent readership in India, and the publishers may give more importance to health-related news than vernacular newspapers. According to a study by Paul *et al.*, English and Manipuri language newspapers published a maximum of small-sized articles, comparable to our results [9]. This underscores the possibly less enthusiastic attitude of the publishers toward child health-related articles.

Approximately 45% of the items published in the four newspapers were about children's COVID-19 vaccinations. The continuous vaccine updates in the newspapers during the COVID-19 pandemic were a positive approach from the print media. In contrast, a study by Das *et al.* analyzed online mass media news on vaccines from 2015 to 2020. It documented that measles-rubella was the leading vaccine in the news (23.2%), followed by coronavirus [12.8%] and polio (10.4%) [12]. This difference can be explained by the fact that the topic of COVID-19 vaccination in India's pediatric and adolescent population gained momentum in 2021, and vaccination finally started in January 2022 [13]. Hence, there is more excellent coverage of the COVID-19 vaccine than other vaccines in our study. In 2020, the most frequent themes were the development of the Ebola (10%), chickenpox (9%), and meningitis vaccine (6%) vaccines [14]. Thus, newspaper coverage of vaccine-related news depends on the country of publication and the current scenario of vaccine research, availability, and crisis in the region.

In the present study, approximately 27% of all child health-related articles had at least one image. Globally, mainstream media photographically documented intimate and difficult moments of COVID-19 while also publishing hopeful images and photography significantly impacted public sentiment [15]. It is well known that pictures can have a dramatic impact and change adherence to health instructions. However, there were significantly fewer documentary images than artistic images. Graphical representation of data may facilitate a better understanding of the severity and trends of a health issue.

Approximately 20% of the news issues in our study had citations by doctors or national and international scientific institutions. Tejedor et al. identified notable references to entities associated with hospitals and healthcare scenarios in their research [11]. Citations of expert opinions from healthcare professionals, articles in reputable journals, and statements issued by scientific institutions enhance the credibility of the published news. It may influence the readers' opinion on generating an appropriate response. Evidence-based treatment and prevention protocol updates from international and national scientific bodies, as well as expert opinions from doctors and epidemiologists, have been reflected in our studied newsprint media.

Our research had some limitations. Firstly, this study may not accurately reflect the national news coverage picture, as it focuses on a single metropolis. Secondly, only one year of news was examined during the second wave of the COVID-19 pandemic. Furthermore, only the top four newspapers were considered, whereas less widely read newspapers and other forms of print media, such as popular magazines, were omitted. In addition, no attempt was made to interview journalists and editorial staff to assess child health reporting from their perspective.

5. Conclusion

This is the first comprehensive report on COVID-related child health issues coverage in Indian print media, done from Kolkata. English news articles cited references to scientific institutions more frequently. Although the findings are mostly positive, there remains room for improvement in coverage regarding both the number and diversity of child health-related issues, supporting citations etc. Newspapers can play a crucial role in guiding the public and policymakers through health crises and informing their responses, and we hope our study will spur further research in this field.

Compliance with ethical standards

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Disclosure of conflict of interest

We have no conflicts of interest to disclose.

Author Contributions

SS (Investigation, Methodology, Resources, Writing—original draft), TM (Formal analysis, Review), BB (Data analysis, Writing—original draft, review & editing), DR (Data analysis, Investigation), AH (Data analysis, Writing—review & editing), IB (Data analysis, Writing—review & editing), RKM (Conceptualization, Methodology, Data Analysis, Writing—review & editing).

Statement of informed consent

Informed consent was obtained from all individual participants included in the study wherever applicable.

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