

Quality of news coverage of the **covid-19** pandemic in the Pakistani press



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Published by Media Matters for Democracy
2021

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This research is published under the Civil society for Independent Media and Expression (CIME) initiative jointly undertaken by the Centre for Peace and Development Initiatives (CPDI), Media Matters for Democracy, and the Pakistan Press Foundation.



Supported by the European Union

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Executive Summary

Throughout the Covid-19 global pandemic, the public has looked towards the news media for information to make sense of the public health crisis and to keep themselves safe. The need and value of news about the coronavirus was made greater by the viral misinformation about the virus that circulated on social media and endangered the safety of people everywhere. The quality and reliability of news about Covid-19 became a matter of life and death at times.

This research study examined the quality of Covid-19 news coverage in Pakistan's mainstream print and broadcast media by conducting content analysis of 1,952 news items published or broadcast by four selected news outlets over a period of six disparate weeks in the years 2020 and 2021. The news outlets included two Urdu TV channels, one Urdu newspaper and one English newspaper. The study also spoke to four key informants from the local news industry to validate and contextualise the findings.

The research revealed the following key findings:

Covid-19 coverage displayed traditional news values: A majority of the Covid-19 news coverage by the selected media outlets was timely, national in scope, neutral, and avoided mentions of conflict. However, the stories failed to significantly portray human interest accounts of people affected by the pandemic.

Urdu news organisations skew towards “bad news”: While the news coverage was generally evenly distributed across positive, negative and neutral tones, Urdu news organisations published more stories about Covid-19 that overall reflected negative developments, such as tragedy, disarray, and inefficient administrative responses.

General news quality of Covid-19 coverage was low: A majority of the news stories about the coronavirus did not show signs of exclusive enterprise reporting, did not quote medical experts, did not interview ordinary people facing Covid-19 impact, did not interview multiple sources and did not offer multiple viewpoints.

Health-related news quality of Covid-19 coverage abysmally poor: Less than 1% of the broadcast news stories about Covid-19 referenced medical research or provided reliable medical evidence to explain the pandemic. For print, the share of such health news stories was 5% or less.

Crisis communication indicators missing from majority of the coverage: Most of the Covid-19 coverage produced by the three Urdu news outlets failed to meet any of the seven crisis communication best practices. The stories performed the worst in explaining the why and how of the pandemic.

Newsroom managers admit shortcomings: News producers and editors interviewed for the research blamed physical safety risks, the state of professionalism in the news media, along with under-resourced newsrooms for a lack of quality health reporting on the pandemic. They also argued that the political influences on the editorial forced narratives about politicisation of

Covid-19 into the news.

The diffusion of misinformation following the outbreak of Covid-19 pandemic posed many challenges to the quality of reporting on the virus. It also highlighted the significant role journalists can play in debunking conspiracy theories and presenting accurate and reliable information, this study offers the following recommendations to improve the quality of health news coverage in the future:

Capacity building for health reporters: Dedicated and competent health reporters are likely to produce higher quality news coverage on public health emergencies, such as the Covid-19 pandemic. Therefore, news organisations should look to provide capacity building training for their health reporters on reporting in crisis, emergency and risk-oriented situations.

Crisis communication checklists: The crisis communication best practices identified by Parmer et al. (2016) provide a handy tool for newsrooms and journalists. These seven indicators can be converted into a brief checklist that reporters and editors can use alike before publishing stories in public health emergencies and disasters.

Collaboration between health institutions and news organisations: Journalists will often find it difficult to access reliable sources on deadline but they can try to collaborate with medical experts, medical associations, medical universities, and health institutions over time to diversify their source portfolio.

Innovation for human interest storytelling: The inability to perform field reporting due to physical safety risks should not stop reporters from producing human interest stories. Crowdsourcing information and opinions through social media is a popular technique used by reporters around the world to gather news and cultivate sources. Journalists in Pakistan can also use similar techniques.

Allocate resources for fact-checking and content development: News organisations should invest in fact-checking capabilities and content development strategies to effectively deal with misinformation and extraordinary coverage scenarios in future crises and emergencies.

Introduction

The health and safety of citizens during the Covid-19 pandemic and associated lockdowns were deeply linked with the supply of timely and credible information. Covid-19 ushered in an unprecedented global surge in health and other types of misinformation that directly affected the health and safety of the public by sowing mistrust about the origins of the virus, misleading them about cures, and instigating aversion and opposition to treatments and vaccination.

At the same time, as a 2020 Media Matters for Democracy study showed, people in Pakistan who were most interested in getting information about safety measures turned to the mainstream news media for details.¹ A majority of the survey respondents in the 2020 study got their Covid-19 news and information from TV news, and equally a majority of the respondents found mainstream media to be trustworthy with regards to information on coronavirus.²

On the other hand, journalists were battling with odds of their own to cater to the information demand. They risked their physical safety, faced restrictions on access, and worked with incomplete or unreliable data to report on the pandemic. Did these challenges affect the quality of the news and information they published? This study attempted to answer this question, and in doing so, it also tried to fill a research gap about the characteristics of Covid-19 news coverage in the country.

The research carried out a content analysis of mainstream print and broadcast news coverage of the Covid-19 pandemic in Pakistan to determine the quality of the information provided by the news media to the public during the health crisis. This analysis checked if the mainstream news coverage was evidence-based, credible, and timely. The analysis also looked at the extent and themes of the coverage. The study collected responses from working journalists to understand and contextualise the results.

The findings of this research can be used to initiate a meaningful discussion about the factors that affect the quality of health journalism in the country and the ways in which media coverage of public health emergencies can be improved in the public interest. The discussion on the factors can also tease out press freedom concerns and government-press relations during the pandemic. The recommendations of the research could prove helpful for journalists and media organisations, as well as health authorities to raise the standard of health reporting in Pakistan.

1. See: <https://www.digitalrightsmonitor.pk/wp-content/uploads/2020/12/MMfD-Public-Trust-Media-Covid-1.pdf>

2. Ibid.

Literature Review

The news media is an important source of information on health issues. The capacity of the media to get “the message out” means they can play an important part in public health (Entwistle & Watt, 1999, p. 175). But this also means that inaccurate or misleading health stories can have serious consequences because as Goldacre (2009) noted the health behaviours of people can be affected by what they read in the news.

The risks surrounding health news coverage may be greatest in the event of a new epidemic or, as observed in the case of Covid-19, a global pandemic when there is little information available in the public domain. In such situations, even the medical community might look towards mass media coverage. As Gholami et al. (2011) showed, even physicians in Tehran relied on news media sources to gather information about the H1N1 swine flu virus during the early weeks of the epidemic. It was only four months after disease onset when the World Health Organisation (WHO) declared it a pandemic that physicians turned to medical journals and books for information on the pandemic, the authors noted, but even then TV news remained an important source for them.

If the news media are as important to health communication as the literature suggests, then it is perhaps equally important that the news media deliver quality health coverage. But a review of academic literature shows that this is not always the case.

Saxon et al. (2018) found that while US newspaper coverage of Ebola "was mostly factual, it inconsistently presented quality risk-related information, and rarely used contextual information that would help readers accurately assess risk. Few articles also provided usable, actionable directives, a tenet of good crisis communication that enhances self-efficacy and lowers risk perception" (p. 1). Similarly, Pribble et al (2006) found that TV news about health mostly neither gave recommendations nor cited specific data sources nor discussed prevalence.

Ashoorkhani et al. (2012) did a content analysis of 410 health-related news items, published during a six-month span in the Iranian public press and found that 18% of the news articles were not fit for public distribution. Regarding important health issues as vaccines, Habel, Liddon and Stryker (2009) showed that comprehensive information on the HPV vaccine was missing from media coverage.

The problems with health news coverage appear to persist even when the media are reporting on medical research. The study of medical research published by two British newspapers by Bartlett, Sterne and Egger (2002) showed poor editorial choices. The authors noted that the two British newspapers underreported randomised trials even when press-released (even though randomised trials are more reliable than observational studies), picked bad news from observational studies over good news, and ignored research from developing countries.

Lai and Lane (2009) found that 43% of front page medical research news was based on research that had not matured yet – matured research tends to have a higher level of evidence in its support. They also discovered that news articles did not indicate the level of evidence of the research they

were reporting on, and less than 20% of the news reports indicated that they were based on preliminary research findings. Similarly, Smith et al. (2005) found news reporting of medical research by online news services to be poor.

Scholars have also tried to identify why there are issues with health news coverage. Ashoorkhani et al. (2012) followed up their content analysis with a focus group discussion with journalists that helped to illustrate that multiple factors had affected the quality of news, including poor knowledge, inadequate motivations and context-related barriers. Earlier, Larsson et al. (2003) had identified nine barriers to improving the information value of medical journalism: "lack of time, space and knowledge; competition for space and audience; difficulties with terminology; problems finding and using sources; problems with editors and commercialism" (p. 323).

The identification of challenges has also led researchers to propose solutions. Wilson et al. (2010) found that health stories produced by specialist health reporters working for a single news outlet score better for quality than compared with less experienced writers, indicating that news organisations should rely on specialist journalists for health coverage. Gollust, Fowler and Niederdeppe (2019), building on the argument that TV news is an important source for health information, recommended that public health practitioners and researchers should pitch stories to local journalists, collaborate with news outlets on health stories, and aid intervention in health news coverage by viewing the news being broadcast.

Cooper and Roter (2000) concluded that personal relevance and avoiding sensationalism should be viable strategies for broadcast news health reporting because their study found that TV news viewers were attracted to personally relevant health stories and not influenced by sensationalist elements in the health coverage.

While there is sufficient literature available about official health communication and effectiveness of public awareness strategies in Pakistan, similar scholarly evidence is scarcely available about how well or poorly the news media gives coverage to public health issues. Shah, Ginnosar & Weiss (2019) found that Pakhtun journalists felt financial constraints, time barriers, lack of health literacy, and lack of checks and balances impeded their ability to accurately report on the polio vaccination campaign.

A study that examined the correlation between public agenda and newspaper coverage of national issues during the 2013 general elections found that health coverage was mostly critical of the government, which reflected public dis-satisfaction with the availability of health facilities in the country (Shah et al., 2016).

Similarly, sufficient studies about the news coverage of epidemics, such as the dengue fever, are not readily available. A content analysis of newspaper coverage of HIV/AIDS by Kiran and Mahmood (2019) did, however, find that newspapers underestimated the severity of HIV/AIDS and the coverage was often dis-satisfactory and insensitive.

These findings seen together with international studies, which called out the poor quality of health news around the world, do not instil confidence in the Pakistani media's ability to cover the Covid-19 pandemic effectively. However, the literature review does identify the need to examine the Covid-19 news in the national media to determine whether or not it was given due coverage and whether or not that coverage was of a good quality. This kind of research can offer guidance for health news reporting best practices in Pakistan for both the ongoing pandemic and other health emergencies and crises.

Methodology

The following research questions informed the study design and methodology.

Research Question (RQ) 1. Did print and broadcast news media provide sufficient coverage to the Covid-19 pandemic?

RQ2. Was the news coverage of a high quality in terms of scientific evidence, reliable data, accuracy, attribution, and source diversity?

RQ3. What factors affected the media coverage of the Covid-19 pandemic?

The research was done in two stages. Content analysis was conducted of Covid-19 news media coverage to find the answers of RQ1 and RQ2. In order to further inquire into the factors that affected the coverage, key informant interviews with journalists working in editorial roles in TV and print newsrooms.

Since the global pandemic had been ongoing for over a year when the research was initiated in 2021, it was necessary to limit the scope of the content analysis and keep it focused. The study, therefore, looked at the news output of two newspapers and two broadcast networks for selected periods during the years 2020 and 2021 to identify Covid-19 related news coverage.

Typically, news outlets are selected for content analysis on the basis of circulation or prestige in order to examine the coverage of the best or the most significant news sources. Since reliable circulation or audience statistics are unavailable in Pakistan, the selection of news outlets for this study was done in accordance with the share of news organisations' ad revenue market, which provides an appropriate substitute for the audience share in the absence of data about the size of the news audience market. The daily English newspaper Dawn and the Urdu daily newspaper Jang were selected as the print publications on this basis alongside the two leading news networks Geo News and ARY News.³ The four news organisations are coincidentally but anecdotally among the most well-recognised news brands in the country.

To tackle the content analysis of an ongoing development such as the pandemic, content selection was based on flashpoint events during the years 2020 and 2021 which were significant in hindsight for their impact on the health and safety of the public. A review of Pakistan's timeline of Covid cases and deaths published by the National Command and Operation Center (NCOC) was done to determine the peaks of the pandemic in the country.⁴

3. The information supplied by the Media Ownership Monitor: Pakistan were used to identify the four selected news organisations: <https://pakistan.mom-rsf.org/en/findings/market/>

4. See: <https://covid.gov.pk/stats/pakistan>

For this purpose, six weeks were identified as critical:

1. The week starting Saturday, 13 March 2020, when a National Security Committee meeting was held and the first large-steps were taken to contain the spread of Covid-19 in Pakistan;⁵
2. The week starting Thursday, 7 May 2020, when the federal government decided to lift lockdown restrictions gradually;⁶
3. The week of Thursday, 28 May 2020, when cases in Pakistan first began rising after the Eid holidays marking the start of the rise of its first Covid wave towards the peak;⁷
4. The week of 10 June when the wave of Covid-19 infections and deaths reached its peak;⁸
5. The week of 18 November when the winter wave of Covid-19 cases was firmly established in the country;⁹ and,
6. The week of 18 April 2021 when the third wave of Covid cases marked by the Delta variant peaked.¹⁰

For these weeks, the alternative-day coverage was considered for print and TV to avoid repetition in the case of developing news stories. For TV, the coverage selection period was started at the top of the identified week and followed every other day, for example for the week of 13 March, the dates of 13, 15, 17, and 19 March were selected. Furthermore, the 3pm and 9pm news bulletins were used for content selection as these were found to be the most detailed news bulletins during the day.

For print, the clock was started from the next day of the start of the reporting period in accordance with the style of print coverage (where today's developments are printed in tomorrow's newspaper). For example, for the week of 13 March, the dates of 14, 16, and 18 March were studied for print coverage for the research. For print, the coverage selection was limited to the front page, back page, and national pages of these publications as these carried the most important stories. The data was collected from the website and YouTube channel of ARY News, the YouTube channel of Geo News, the newspaper archives section of Dawn, and the ePaper archive of Jang. Pakistani news channels have a peculiar style of news bulletins where headlines are presented in the first 10 to 15 minutes and then after a commercial break, some of the headlines are repeated in the form of news reports, some of which are not more detailed than the headlines. Since the headlines carried informational values, therefore for the purposes of content analysis, the headlines were considered equal units of news items at par with the news reports broadcast in the bulletin. Since both newspapers selected for the study are national publications with multiple city-based editions, the Islamabad/Rawalpindi editions were used for analysis.

5. See: <https://www.dawn.com/news/1540587>

6. See: <https://tribune.com.pk/story/2216003/live-ncc-meet-today-discuss-opening-schools-nationwide-tally-soars-24073>

7. See: <https://tribune.com.pk/story/2229196/live-176-stranded-pakistanis-india-return-today-nationwide-covid-19-tally-jumps-59151>

8. See: <https://covid.gov.pk/stats/pakistan>

9. Ibid.

10. See: <https://www.thenews.com.pk/latest/822252-pakistan-reports-highest-single-day-death-toll-in-2021-with-149-fatalities>

A coding sheet was developed and used for the content analysis. It is available in Annexure A. The coding sheet documented some general information about the monitored coverage. These details included the date of publication, the page placement of the print story or the time of the news bulletin when the broadcast story was aired, headline, length or duration of the news story, byline, dateline, and the number of other stories published on the same page or broadcast in the same bulletin for comparison.

To evaluate the quality of coverage, the first check was made against the criteria of newsworthiness used most commonly in newsrooms and taught in journalism schools around the world.¹¹ The newsworthiness criteria typically includes eight values, of which seven were used for this study: timeliness, proximity, conflict, human interest, sensationalism, prominence, and novelty. The criterion of “impact” was left out of this analysis because the Covid-19 pandemic was inherently newsworthy on the basis of impact.

The above newsworthiness criteria is an abbreviated replacement for the news values that have been revisited many times since Galtung and Ruge first examined them in 1965.¹² One of the more recent and well-cited reviews of news values was done by the media scholars Tony Harcup and Deirdre O’Neill who came up with their own list of values in light of the transformations caused in journalism by digital media. From the new values proposed by Harcup and O’Neill (2017), the frames of “good news” and “bad news” were chosen to evaluate Covid-19 coverage so as to find the overall tone of coronavirus news reports.

To ascertain general news quality of coverage further, an abridged version of the quality criteria in Belt and Just (2008) was used. This included checking for authoritative sourcing, balance, and enterprise reporting. Since Covid-19 news coverage invariably involved health and science concepts, a simplified and modified version of the two questions used by Ashoorkhani et al. (2012) was used to assess the quality of health related information in the Covid-19 news coverage. Furthermore, the Index of Scientific Quality test proposed by Oxman et al. (1993) to check if news stories distinguished facts from opinions through attribution was used to cap the quality assessment of the Covid-19 news coverage.

The coding sheet also noted the existence of anonymous, ordinary, and data sources along with the total number of sources in the story.

To judge whether or not the Covid news coverage of the top Pakistani news outlets was providing sufficient explanation about the coronavirus, the crisis communication criteria used by Parmer et al. (2016) was applied to the coverage. The Parmer criteria judged if stories had explained the known and unknown details about Covid-19 impact, such as how and why the virus spread. It also checked for statements of accountability and commitment about the health crisis from responsible entities in the news stories. Finally, it determined if the stories had expressed empathy for those affected and provided them with actionable information or not.

A questionnaire was developed for the key informant interviews based on the preliminary findings of the content analysis. The questions are available in Annexure B.

11. See: <https://ohiostate.pressbooks.pub/stratcommwriting/chapter/news-value-types/> and <https://ohiostate.pressbooks.pub/stratcommwriting/chapter/news-value-types/>
12. See Galtung and Ruge’s original list of news values: <https://www.galtung-institut.de/en/2015/galtung-and-ruge-news-values-an-update-by-prof-galtung-october-2014/>

Limitations of the research

The research design has the following limitations:

- Since the research looked at a small selection of news organisations, its findings may not be generalisable to the entire print and broadcast news industry in the country.
- Since the research only looked at content from the selected news outlets disjointedly spread across the period of just over a year, it may have missed notable examples of good or even ideal journalism produced by these outlets around the issue of the pandemic outside of the monitoring days. Therefore, the analysis and findings are only indicative of the news reports included in the sample.
- The content analysis only focussed on selected print and broadcast news media and does not claim to offer insight or commentary on mainstream or alternative digital news sources and their coverage of Covid-19.

Content Analysis

The research found and analysed a total of 1,952 news reports related to Covid-19 published or broadcast altogether by the selected print and TV news organisations during the monitoring period. The following table shows the total number of news reports by publication as well as a weekly breakup of the reports.

| News organisation | Covid-19 news reports published in Week 1 (13-19 Mar 2020) | Covid-19 news reports published in Week 2 (7-13 May 2020) | Covid-19 news reports published in Week 3 (29 May-3 Jun 2020) | Covid-19 news reports published in Week 4 (10-16 Jun 2020) | Covid-19 news reports published in Week 5 (18-24 Nov 2020) | Covid-19 news reports published in Week 6 (18-24 Apr 2020) | Total news reports related to Covid-19 in the sample over the six weeks |
|-------------------|--|---|---|--|--|--|---|
| Dawn | 31 | 27 | 18 | 18 | 11 | 8 | 113 |
| Jang | 95 | 90 | 77 | 81 | 34 | 44 | 421 |
| Geo News | 145 | 191 | 88 | 102 | 114 | 77 | 717 |
| ARY News | 173 | 141 | 98 | 119 | 80 | 90 | 701 |
| Total | 444 | 449 | 281 | 320 | 239 | 219 | 1,952 |

Table 1 Total number of Covid-19 news stories with weekly breakup

Comparison of Covid-19 news output among publications

The Urdu language daily newspaper Jang published nearly four times as many Covid-19 related news reports as the English language daily newspaper Dawn. The Urdu news channels were more prolific, with nearly 1.7 times more Covid-related reports than the Urdu newspaper and more than six times greater than the English paper.

However, the style and news treatment of Urdu newspaper publishing and Urdu TV news bulletins also meant that these news reports were often shorter in length and carried fewer details than the English newspaper.

The Covid-19 related news reports published by Dawn, for example, had a median word count of

512 words compared with 390 words for Jang. While not strictly comparable, the median duration for the Geo News Covid-19 related news reports was 55 seconds and the median duration for ARY News was 71 seconds. These roughly one-minute broadcasts could arguably have contained information carried by a 250-word news article. This shows that while Dawn published fewer Covid-19 stories in absolute terms, it might have relayed relatively more, or equivalent amount of, information to its readers due to its lengthier news reports.

Comparison of Covid-19 news output over time

The number of news reports were relatively high at the onset of the global pandemic and remained high in the week the first lockdown was lifted with contingencies. But the number of Covid-19 news reports declined generally over the year during the weeks where content was monitored and the coronavirus news coverage did not reach the levels of the first week and second week even during the third (Delta-variant) wave of Covid in April 2021 even though case load increased in the country tremendously and led to the enforcement of another full lockdown.

Number of Covid-19 news reports over time

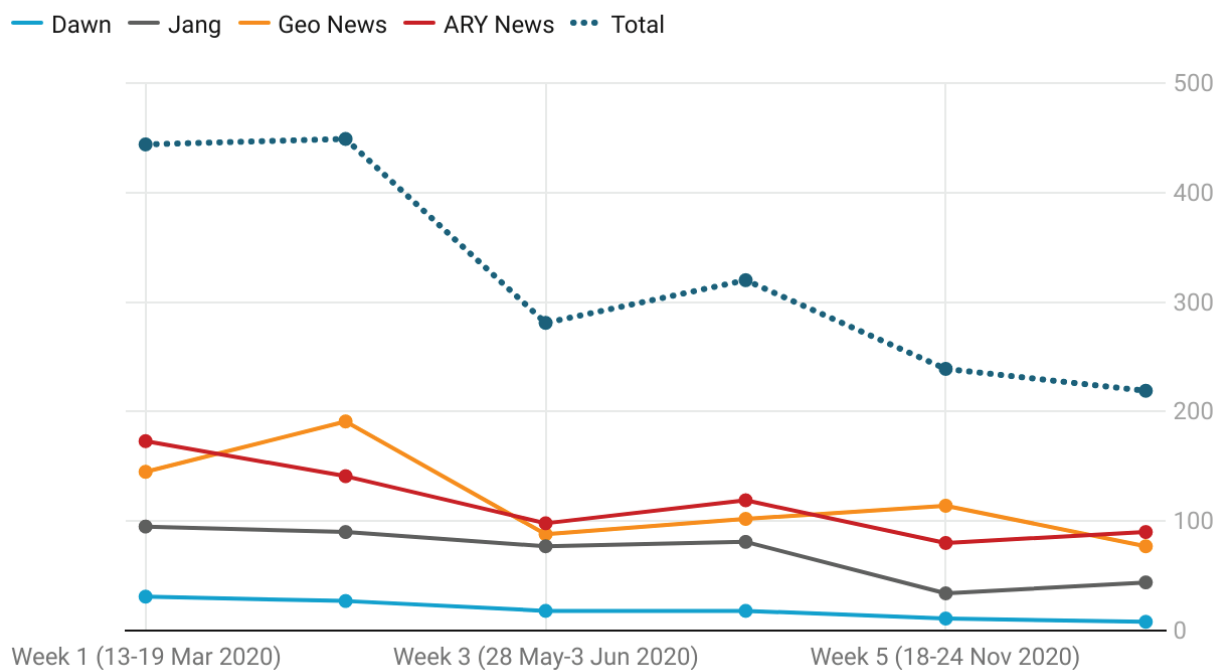


Figure 1 Trend line of Covid-19 news reports

Covid-19 news coverage as share of total news output

The study also looked at the Covid-19 news coverage in each selected news outlet as a share of the total news items published or broadcast by the outlet in the monitoring period. Overall, there were 5,506 news items published or broadcast by the four news organisations during the monitoring period, out of which 1,952 were related to the coronavirus. This gives the Covid coverage an overall news share of 35% distributed over the four selected news outlets. One in every three stories denotes significant attention, but drilling down into the statistics shows how the news organisations' focus shifted over time.

The analysis findings show that apart from the Jang newspaper, all the outlets devoted at least half of their coverage for the coronavirus news in the early days of the pandemic, specifically the week of 13-19 March 2020 and the week of 9 to 13 May 2020. However, as indicated by the trend line in Figure 1, as the number of stories on Covid-19 declined with time, the proportion of coronavirus coverage as a function of the news outlet's total news output also decreased. To the point that by the time the third wave was at its peak in April 2021, the newspapers were carrying only one Covid story in every six news reports on the monitored pages. The TV news bulletins were slightly more attuned to the Covid crisis, but even their volume of coverage decreased by half between March 2020 and April 2021, with just over a quarter of the stories being about the coronavirus during the third wave. Figure 2 provides the details of the analysis of Covid coverage as a share of each publication's total news output during the monitoring period.

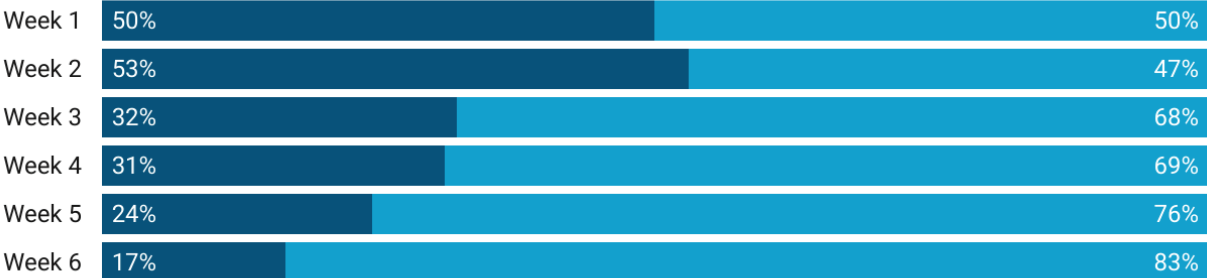
Covid-19 news coverage by placement and timing

In terms of placement, front page coverage is reserved for most newsworthy topics followed in importance by the back pages, because readers might turn to the back pages without flipping through the paper. Jang displayed more Covid-19 news reports on its front page compared to Dawn, which had more back-page coronavirus coverage. Remember that only front, back and national pages of the Islamabad/Rawalpindi e-paper editions of these publications were monitored for coronavirus news coverage during the selected time period. For broadcast news in Pakistan, the 9pm news bulletin is considered the most significant primetime slot. Both Geo News and ARY News had a roughly equal distribution of broadcast news reports related to Covid-19 between the 9pm bulletin and the afternoon bulletins monitored for the research, with Geo News airing a majority of its Covid coverage at the most significant hour. For the purpose of the report, the 3pm news bulletin was given preference for the afternoon bulletin, but where it was not available in the news archives of the TV channels the 12pm bulletin was selected. In only one instance for both Geo and ARY, a 6pm bulletin was used where a 9pm or 3pm bulletin was unavailable.

Share of Covid-19 news coverage

■ Percentage share of Covid news reports ■ Percentage share of other news reports

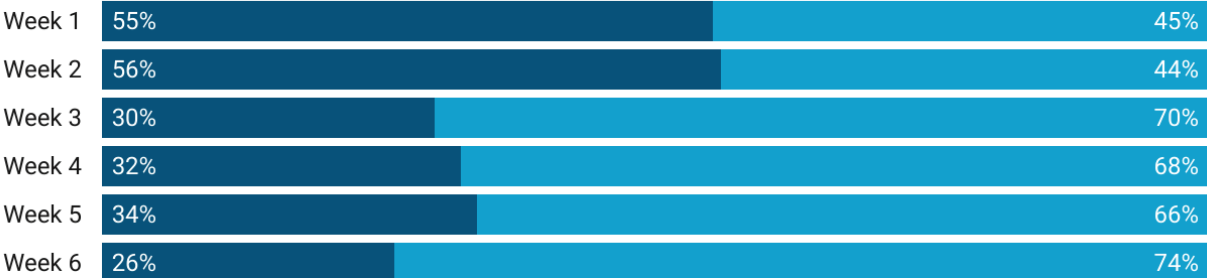
Dawn



Jang



Geo News



ARY News



Figure 2 Share of Covid news coverage in total news output

Print placement of Covid-19 reports

■ Front Page
 ■ National Pages
 ■ Back Page

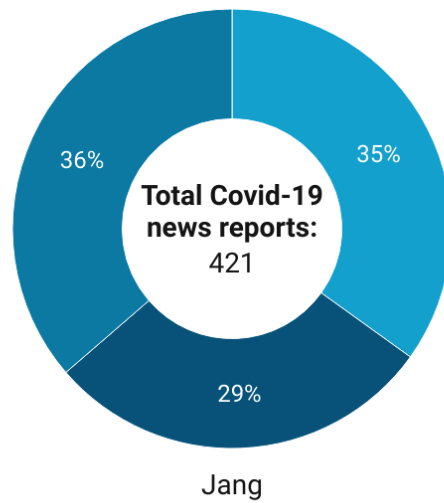
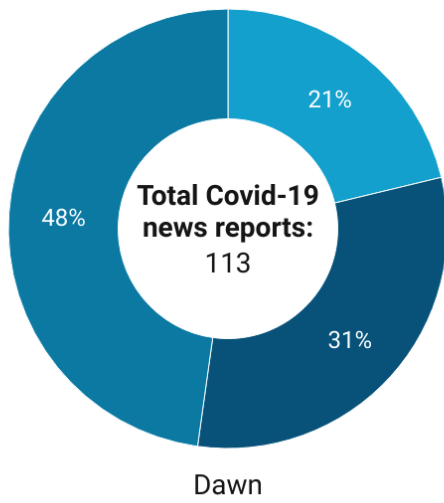


Figure 3 Print news coverage placement

Broadcast time of Covid-19 reports

■ 9pm bulletin
 ■ Afternoon bulletins

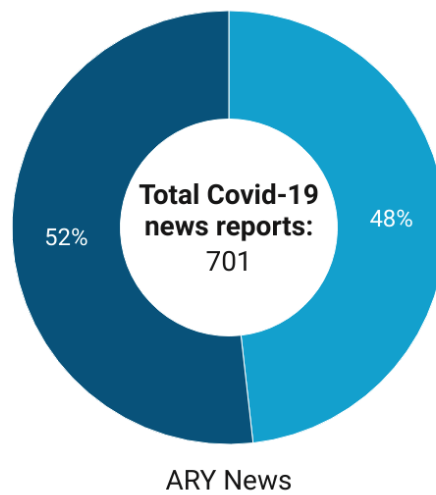
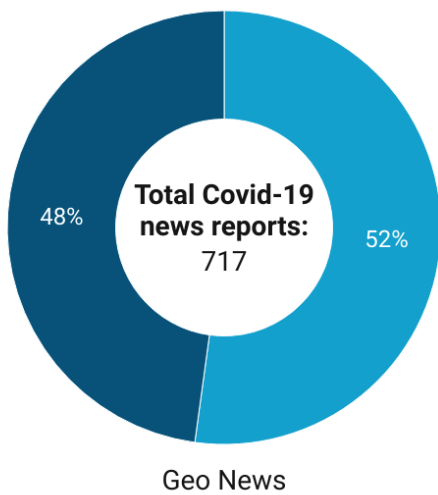


Figure 4 Broadcast news coverage times

It should be noted that even though Geo News had the highest total number of news reports related to Covid-19 during the monitoring period among the four news organisations, its 9pm bulletin on 3 June 2020 and its 3 and 9pm bulletins on 20 and 22 April 2021 did not carry any Covid-related news reports. In the first of these instances, the bulletin only had news reports about an ISPR statement, weather news from Karachi and coverage of protests related to Geo/Jang owner Mir Shakil ur Rehman’s detention. On the two April days, the Geo bulletins mostly only covered political current affairs, law-and-order incidents including a bomb blast in Quetta, and developments related to the Tehreek-e Labbaik protests. Similarly, the ARY News 12pm bulletin on 18 November 2020 did not contain any coronavirus coverage and was dominated by coverage related to the Pakistan Super League cricket tournament.

Who reported the Covid-19 news stories and from where

The content analysis also looked at the bylines of the news reports published or broadcast on the selected media to check the share of reports produced by health reporters, non-health beat staff correspondents, the monitoring desk, and national or international news agencies.

During the Covid-19 pandemic, it was also noticed that news organisations around the world created a pandemic beat to assign reporters for dedicated coverage on the coronavirus as it was the most important news topic of the time. Dawn was the only news organisation in the sample that showed this sensibility. Ten percent of Dawn’s 113 stories were filed by a reporter who appeared to dedicatedly cover the National Command and Operation Center (NCOC) set up by the federal government in Islamabad to oversee the country’s pandemic response. The English newspaper also published four Covid-related articles by independent experts during the monitoring period. These included articles with the headlines “Covid-19: where does testing help?” and “What can we do to salvage Pakistan's Covid-19 response?”

| Byline category | Dawn | Jang | Geo News | ARY News |
|---|-------------|-------------|-----------------|-----------------|
| Health reporters | 12 | 0 | 0 | 0 |
| Staff reporters | 78 | 212 | 45 | 63 |
| News agencies | 17 | 67 | 0 | 0 |
| Monitoring desk | 2 | 98 | 2 | 0 |
| Independent experts | 4 | 0 | 0 | 0 |
| Multiple (Staff + news agencies + monitoring) | 0 | 44 | 0 | 0 |
| No byline | 0 | 0 | 670 | 638 |
| Total reports | 113 | 421 | 717 | 701 |

Table 2 Bylines of monitored news content

A full 80% of Dawn's Covid coverage was done by its staff correspondents, including the aforementioned health reporter. In comparison, half of Jang's coverage of the coronavirus was by its staff reporters while the other half was either based on information from news agencies and international news sources or a mix of staff reporting and externally sourced information. Jang also did not attribute any coverage to a specific health reporter nor was it obvious from the bylines if it had assigned a special reporter to the pandemic as most of its bylines were attributed to anonymous "staff reporters" or "correspondents".

TV coverage was especially poor in getting correspondents or health reporters involved in coronavirus coverage. Around 93% of Geo News Covid coverage and around 91% of ARY News Covid coverage involved a news presenter simply reading out the information from the studios without identifying any news reporter.

In the few cases where news reporters presented beepers or news packages, Geo coverage was limited to eight Pakistani cities: Karachi (15 reports), Lahore (13), Islamabad (6), Peshawar (4), Rawalpindi (3), Gujranwala, Hyderabad, and Muzaffarabad (1 each). While ARY's coverage was limited to 14 cities: Karachi (19 reports), Lahore (15), Peshawar (9), Islamabad (6), Faisalabad (5), Quetta (3), Sukkur and Larkana (2 each), and Abbottabad, Chiniot, Gujranwala, and Rawalpindi (1 each). This does not mean that these or other cities were never represented in the news beyond this accounting; the non-dated non-bylined Covid news reports on the two TV news channels covered many cities, but these numbers only show the cities where the news channels showed a field reporter on air to present the news.

Just under half of Dawn's news reports related to Covid carried an Islamabad dateline, whereas around 40% of Jang stories on the coronavirus did the same. This is perhaps an indication that the reporting revolved around the pandemic response of the federal government.

Traditional news values in Covid-19 news coverage

The Covid-19 news reports were evaluated against seven traditional news values – timeliness, proximity, interest, conflict, sensationalism, prominence, and novelty – to see if the stories adhered to the values that typically dictate news coverage.

Timeliness: Almost all of the Covid-19 news reports by each news outlet were related to recent developments, especially events of the past 24 hours. The few Covid-related news reports that were not considered time-sensitive included Jang newspaper's monitoring desk dispatch about herd immunity and another monitoring report about research evidence that dogs could identify Covid-19 in humans. For Geo News, a brief report about Covid impact on the sport of cricket was one of the few non-time-sensitive reports, and the recurring news segment by ARY News to pay tribute to frontline workers and soldiers involved in pandemic responses was marked non-time-sensitive for the purpose of the analysis.

Timeliness of Covid-19 news coverage

Share of news reports based on current or recent events as % of total Covid-19 news reports

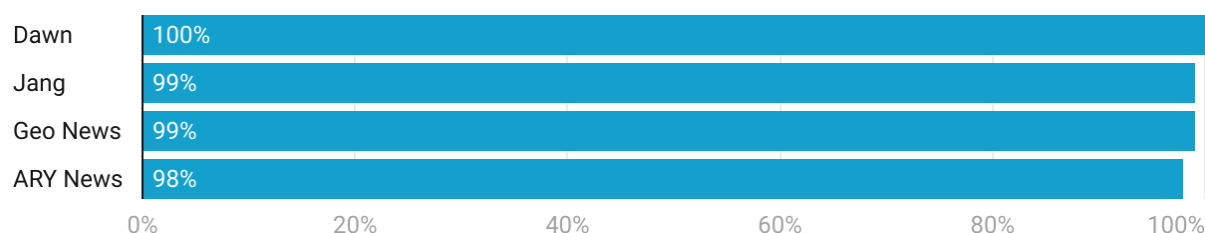


Figure 5 News values: Timeliness

Proximity: Except Jang, which published a lot of international reports about Covid-19 often without localizing them, the majority of the news coverage in the selected news outlets was national in scope. The local stories in the analysis refer to news reports that were concerned with the events in only one city or town. Figure 6 shows the share of national, international, provincial, and local news coverage with respect to the coronavirus in each selected news organisation.

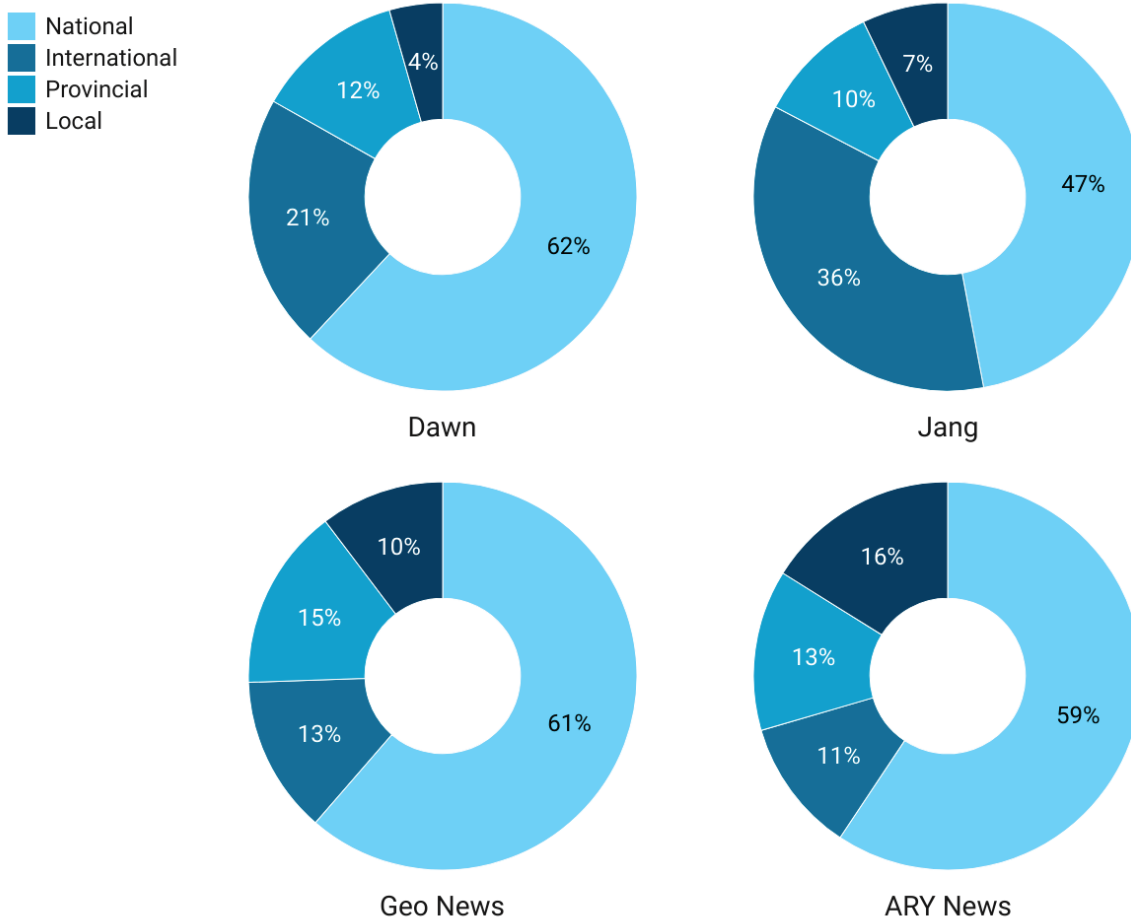
Human interest: A vast majority of the monitored Covid-19 news items across the four news publishers were regular hard news stories. Human interest stories, including features about Covid-19 impact, varied from a tiny 3% of the total stories for the print publications to 8% for the TV news channels.

Conflict: The pandemic response in Pakistan was marked by political conflict between the federal and provincial governments and the ruling and opposition political parties. The conflict and confrontation was covered prominently by the news outlets.

A third of all Dawn stories about Covid-19 included elements of conflict among different actors. A quarter of the Jang and Geo news items on the coronavirus referred to some type of controversy regarding the issue, and one in every five ARY News items about Covid-19 portrayed conflict about the pandemic response. Examples of these included an ARY News report in June about one opposition politician blaming the spread of the coronavirus on the mental chaos of the Prime Minister or a Geo broadcast in November about the government claiming the political protests by an alliance of opposition parties will be responsible if a fresh lockdown is imposed. Figure 7 displays the full results of the conflict-proportion analysis.

Proximity of Covid-19 news coverage

Share of news reports based on geographical scope as % of total Covid-19 news reports



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News

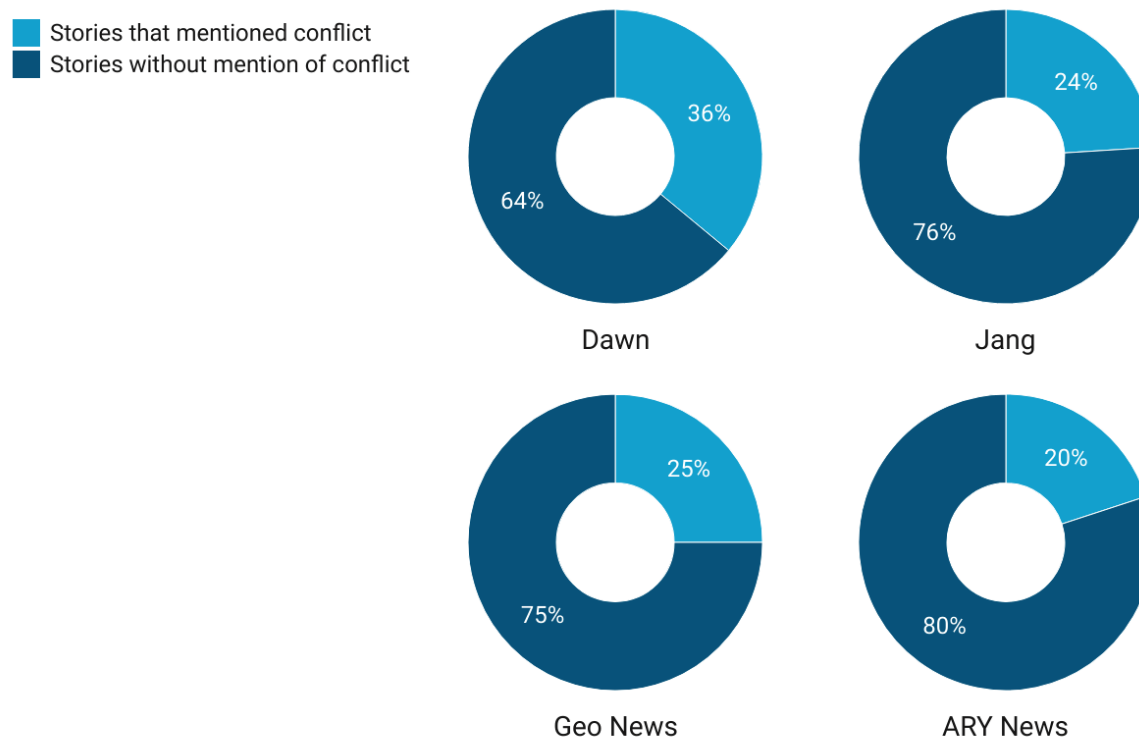
Figure 6 News values: Proximity

Sensationalism: The headlines of the Covid-19 news items were analysed to see if they used negative, neutral or positive language to frame the information being reported. A headline was only considered negative if the use of negative words did not meet the criterion of accuracy. Majority of the headlines were found to be neutral. However, for both Jang and ARY News, around one in every five headlines was found to be negative or sensationalist. Jang was especially conspiratorial with regards to international coverage, publishing news items such as “*Ho sakta hai Amreeki fauj ne Wubhan mein coronavirus pehlaya ho, Cheen*” (tr.: Perhaps the American army spread coronavirus in Wuhan: China) and “*Corona hayatyati bathiyar, jaan booj kar phelaya gaya, siyastdanon ka kbhayal*” (tr.: Corona biological weapon, spread intentionally, politicians think), which arguably fell in the category of Covid misinformation. Sensationalist headlines by ARY News mostly suffered from possibly intentional unfortunate phrasing, for example one report used the phrase “*panjay gaarnay laga*” (or getting its claws in) for Covid spread and another used “*corona ka garb*” (or the fortress of the coronavirus) for places affected by Covid. Jang and Dawn had a lower share of sensationalist headlines, with 10% each. One common denominator for the sensationalism across the three Urdu

Urdu news outlets were statements by PTI leader Khurram Sherzaman to denounce the Sindh government’s lockdown measures and raise doubts about Covid-19 cases in the province. His statements, which were used for headlines, appear to fall under the “politicisation” theme of Covid misinformation.¹⁴

Conflict in Covid-19 news coverage

Share of news reports that mentioned some conflict in relation to pandemic response as % of total Covid-19 news reports published by each news outlet



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News

Created with Datawrapper

Figure 7 News values: Conflict

Prominence: The Covid-19 news coverage in all news outlets was dominated by elite sources and the actions of prominent people and organisations, such as government officials and government agencies etc. This finding resonates with the earlier finding that a majority of the stories did not include human interest narratives about Covid impact.

14. See: <https://en.unesco.org/covid19/disinfodemic/brief1>

| Was the story about the actions of power elites (including elite organisations and people)? | Dawn (% of total Covid-19 stories) | Jang (%) | Geo News (%) | ARY News (%) |
|---|------------------------------------|----------|--------------|--------------|
| Yes | 92 | 77 | 90 | 88 |
| No | 8 | 23 | 10 | 12 |

Table 3 Covid coverage analysed for prominence

Novelty: Dawn offered the most no-nonsense and conventional coverage of the coronavirus with only three stories that offered a novelty angle (articles about museum closures, telemedicine and flaws in a Covid app). The Urdu news outlets were more prone to the shocking, surprising or bizarre developments surrounding Covid-19, with a whopping one in every three Jang stories about the coronavirus qualifying for novelty, one in four for ARY News, and one in five for Geo News. The Jang novelty stories included a report about people drinking cow urine in India to stave off Covid, world leaders changing their handshake styles due to the coronavirus, panic grocery buying in the US, the youngest baby who got infected with the virus, and Pakistan’s fourth position among countries with most babies born during the pandemic.

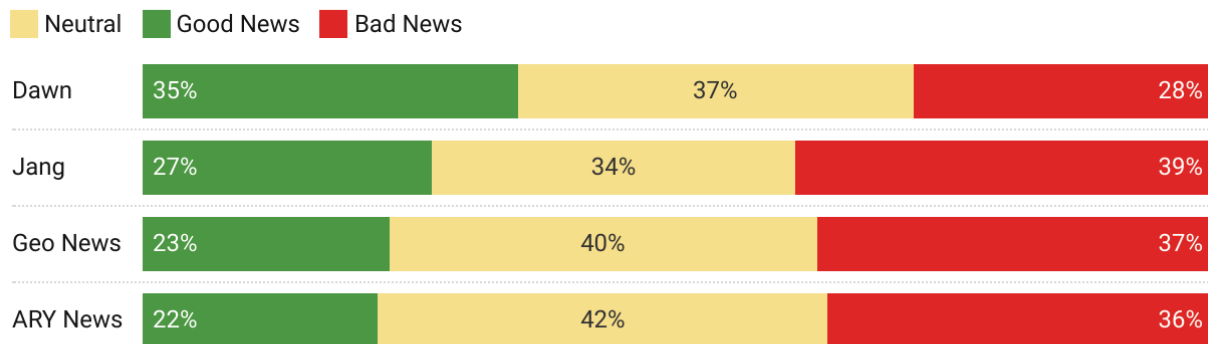
Good and bad news

The Covid-19 news stories were analysed using the “good news” and “bad news” values proposed by Harcup & O’Neill (2017) in light of journalism in the digital age. The good news value pertains to a story that overall relays positive developments and the bad news value deals with overall negative developments. In the context of Covid, positive developments included efficient medical or administrative responsiveness, acts of heroism, and recoveries, while negative developments included tragedy, disarray, inefficient medical or administrative response, and deaths etc.

For all news outlets except Jang, the greatest share of the Covid-19 news coverage was neutral overall. For Jang, bad news stories had the biggest piece of the pie with 39%. The “bad news” stories are understandable because these were mostly news reports about Covid cases, deaths and non-enforcement of lockdown measures or safety precautions. The broadcast news channels, Geo and ARY, had almost a similar breakup of good, neutral and bad news reports, indicating that their coverage might have relied on similar developments. Dawn, which had the largest share of positive stories with 35% of its 113 Covid-related reports, published articles about issues such as telemedicine and money allocated or released for Covid response, which helped improve its good news share.

Covid's good and bad coverage

Share of stories that reported overall positive, neutral and negative developments in the Covid-19 news coverage of each selected news outlet.



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News

Figure 8 Covid-19 coverage: Good news vs bad news

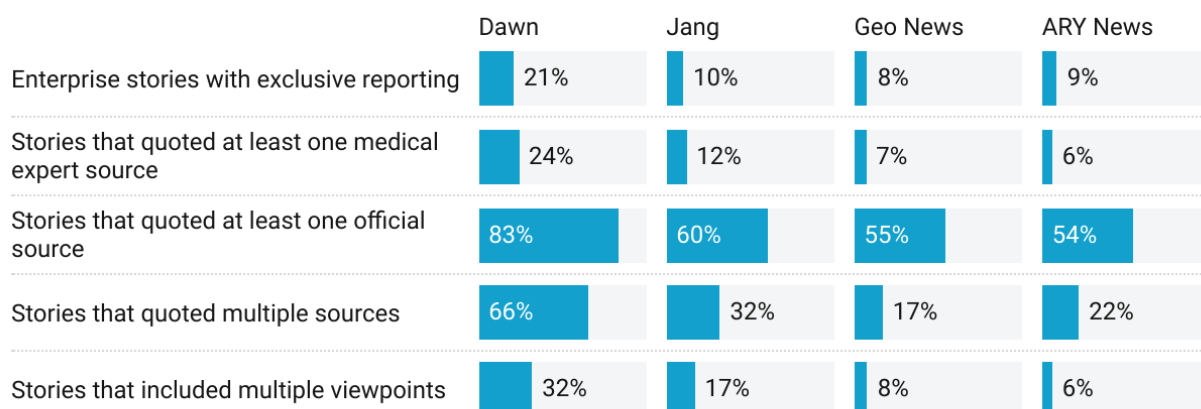
Quality of Covid-19 news coverage

The analysis looked at the existence of enterprise reporting (exclusive stories), authoritative sourcing (medical experts and official sources), and balance (multiple sources and points of view) to judge the quality of Covid-19 coverage.

Dawn outperformed the Urdu publications in terms of quality of Covid-19 coverage with more exclusive reporting, a greater share of stories that quoted medical experts about the coronavirus, more stories with quotes from official sources, more stories with multiple sources, and a greater share of stories that included multiple viewpoints for balance.

On the other hand, the Urdu press mostly reported stories for which all news outlets had access (for example, statements issued by prominent politicians, government decisions, and press conferences), They also barely included quotes from medical experts in their reporting on the coronavirus, the best being 12% of 421 stories in Jang or around one in every eight Covid stories. In comparison, a quarter of Dawn's Covid-19 coverage had included quotes from medical sources. The TV channels were worse.

Quality of Covid-19 news coverage



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News.

Figure 9 Quality of Covid-19 news coverage

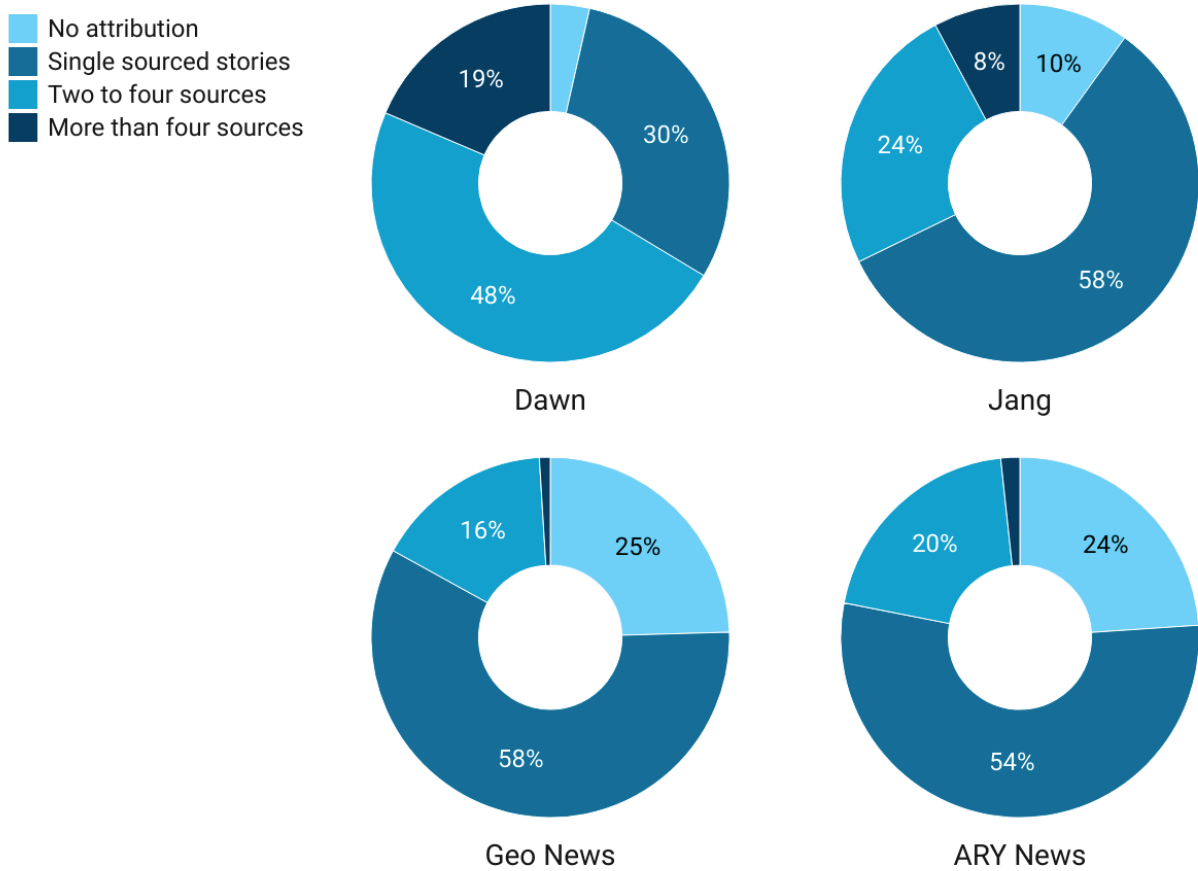
All news outlets relied heavily on official sources, which was also evident from the prominent news value analysis shared earlier. Official sources are necessary for accountability and balance, especially in instances of reporting on national issues such as the pandemic.

However, the style of Urdu news reporting where one development is often broken down in to separate small news stories perhaps prevented Jang, Geo and ARY from including multiple sources and viewpoints in a single story to create balance, as opposed to Dawn, which had fewer overall stories but had multiple sources in two-thirds and multiple viewpoints in a third of all its 113 Covid-related news reports. A breakup of the number of sources in Figure 10 shows that a majority of the Covid-19 stories in the Urdu press were single-sourced accounts. Moreover, the TV channels often did not even bother to attribute the information in their broadcasts. A quarter of the ARY and Geo news reports on Covid-19 simply did not quote a source. This may also be due to the style of the bulletins where headlines are presented separately first followed by reports for selected headlines.

The research also looked at the presence of ordinary human sources in the stories. These are sources that are not affiliated with any elite organisations, such as government departments or opposition political parties and health institutes. Rather the ordinary human sources are the public for which the news is being printed and, in the context of the pandemic, the people who are being affected by the coronavirus. Along with the ordinary sources, anonymous sources and data sources were also tracked. Figure 11 shows the details of this analysis.

Number of sources in Covid-19 news coverage

Percentage share of stories against each category of number of sources



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News

Figure 10 Number of sources in Covid-19 news coverage

Source categories

| | Dawn | Jang | Geo News | ARY News |
|---|-------|-------|----------|----------|
| Percentage of stories with ordinary human sources | 8.0% | 1.0% | 0.1% | 2.0% |
| Percentage of stories with anonymous sources | 25.0% | 21.0% | 9.0% | 15.0% |
| Percentage of stories with data sources for Covid information | 37.0% | 14.0% | 23.0% | 22.0% |

Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News.

Figure 11 Ordinary, anonymous and data sources in Covid coverage

As is clear from Figure 11, none of the news outlets prioritized ordinary human sources in the news they published on prominent pages or broadcast in prominent bulletins. The share of anonymous sources was greater in Dawn but as previously mentioned the Urdu press had a higher ratio of unattributed stories. The inclusion of data sources was lowest in Jang stories on Covid-19; the paper often published Covid-19 statistics from around the world without clearly attributing the source. The other news outlets often attributed Covid data to the NCOC.

Quality indicators for health news coverage

While the above analysis showed the quality of news coverage in terms of the general characteristics expected from news, the study also looked at quality characteristics specific to health news coverage. These included references to medical research while reporting on Covid-19, inclusion of supporting medical evidence for Covid-19 claims in the news article, and the provision of such medical evidence from reliable medical sources, such as health organisations, reputable medical journals, among others.

All publications monitored for the study showed a dismal performance with respect to health news coverage of Covid-19 during the monitoring period. Not a single news outlet had more than 5% stories where medical research on coronavirus was cited, with this proportion being less than 1% for the broadcast stations. This shows that during the monitoring period and among the sample, most Covid-19 news coverage did not deal with the health information aspects of the pandemic. In the very few instances that medical research was cited or medical information about Covid-19 was supplied, the information tended to be from reliable sources. However, overall such reliably sourced medical evidence for the coronavirus was a drop in the ocean of Covid-19 coverage published by the selected news outlets.

| Health news quality indicators | Dawn (n=113) | Jang (n=421) | Geo News (n=717) | ARY News (n=701) |
|--|-------------------------|-------------------------|-----------------------------|-----------------------------|
| Percentage of stories that referenced medical research on Covid-19 out of total Covid-19 stories published by the news outlet | 5 | 3 | 0.4 | 0.6 |
| Percentage of stories that provided medical evidence for Covid information out of total Covid-19 stories published by the news outlet | 4 | 2 | 0.3 | 0.3 |
| Percentage of stories with medical evidence about Covid-19 attributed to reliable medical sources out of total Covid-19 stories published by the news outlet | 3 | 1 | 0.3 | 0.3 |

Table 4 Health news quality of Covid-19 coverage

Quality indicators for science news coverage

Similar to health news coverage, science news also applies a check on quality of news coverage, which was used for analysis. This involves checking for a distinction in the story between facts and opinions through sourcing and attribution. For this research, the scientifically relevant or science-related facts about the coronavirus were considered as the benchmark for evaluation, that is to say that only if a story had such facts was the attribution test to distinguish between facts and opinion. Such facts did not include data on Covid cases and fatalities.

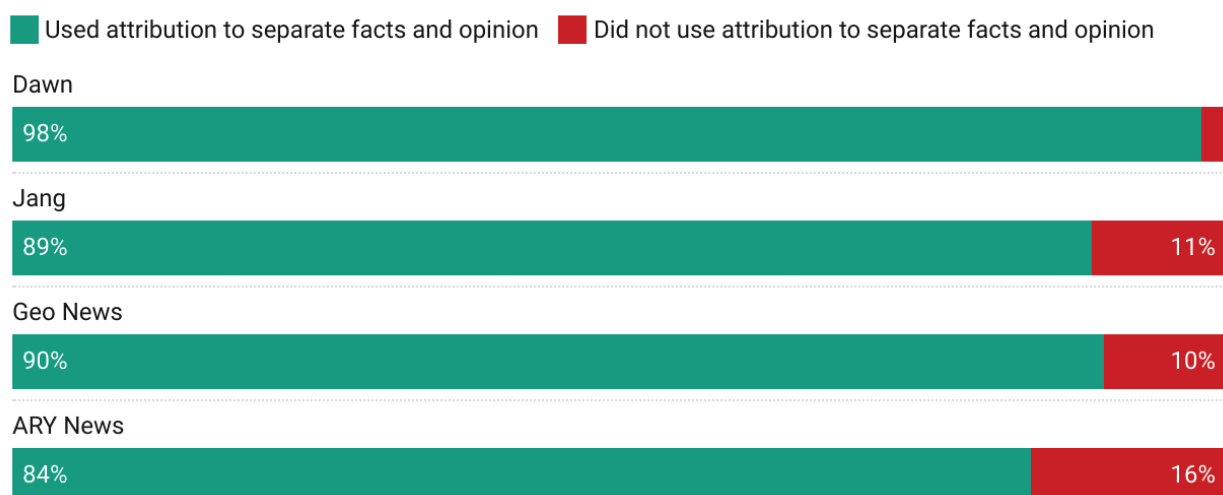
Even though most of the stories in the sample did not refer to medical research or evidence, some stories still supplied some science-related Covid information, such as its spread or treatment etc., for which the attribution test could be applied. For the selected publications, Dawn had 58% stories, Jang 24%, Geo 4%, and ARY 3% where some scientific information about Covid was shared. As is obvious, the broadcast channels reported more general news about the coronavirus than science information about Covid.

| News outlet | % of stories with Covid health facts | % of stories without Covid health facts |
|-------------|--------------------------------------|---|
| Dawn | 58 | 42 |
| Jang | 24 | 76 |
| Geo News | 4 | 96 |
| ARY News | 3 | 97 |

Table 5 Proportion of stories applicable for scientific news quality test

At least of these, the news outlets used attribution in almost all cases to separate coronavirus facts from opinions about the virus as seen in Figure 12.

Test for scientific news quality



Total number of stories (n) = 66 for Dawn; 103 for Jang; 31 for Geo News; 19 for ARY News

Figure 12 Science news quality of Covid-19 news coverage

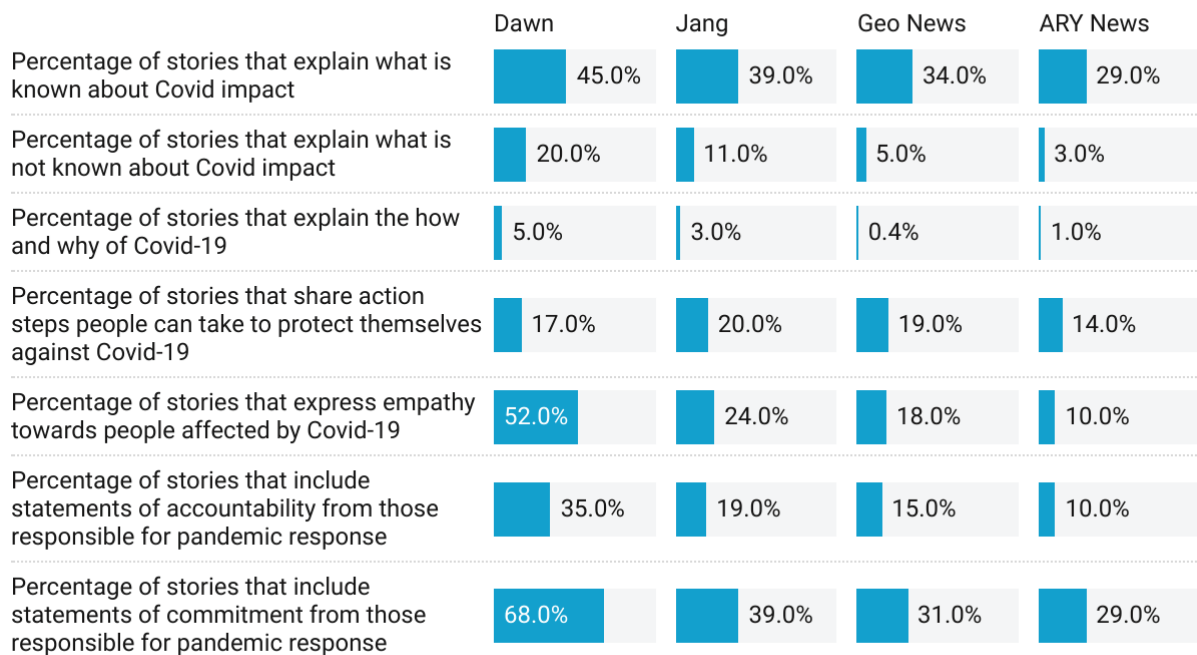
Indicators of crisis communication quality

The indicators of crisis communication (Parmer et al., 2016) provide best practices for news coverage of crisis and emergency situations. These indicators look at stories to determine whether or not the coverage is able to explain the impact, unknowns, causes and factors while also telling the audience how to protect themselves, showing empathy for their predicament and letting them know about responses of those officials in-charge of dealing with the crisis situation. In this way, these crisis communication indicators are appropriate for a global pandemic.

As seen in Figure 13, the four selected news outlets had a decent number of stories that explained to the public the impact of the Covid-19 in terms of cases of infections, fatalities, the specific health threat from Covid-19, and details of the lockdown measures. But not a single of these news outlets had a majority of their Covid-19 news items fulfilling this indicator, with the highest percentage being 45% for Dawn out of its 113 stories. For the Urdu news coverage, this share hovered under four in every 10 news items.

The performance of the Covid-19 news coverage was worse when it came to explaining how or why Covid-19 was spreading and what was not known about its impact. This kind of news coverage would have required reliance on medical research and health reporting of which it was previously shown by the analysis that there was not much in the sample. Dawn performed better than the representatives of the Urdu press in the sample and the Urdu TV channels performed worse than the Urdu newspaper.

Covid-19 coverage performance against crisis communication indicators



Total number of stories (n) = 113 for Dawn; 421 for Jang; 717 for Geo News; 701 for ARY News.

Figure 13 Covid-19 news coverage vs crisis comms indicators

The print publications were also better in including expressions of empathy for the people who were vulnerable to the specific health threat posed by Covid-19, including those who had been affected by it. Dawn included expressions of empathy in a majority of its Covid-19 coverage and Jang in a quarter of its coverage. For example, one Dawn news report included sympathetic language, including direct quotes and paraphrased text, about the Pakistani students stranded in Wuhan, China, after the city was sealed due to the spread of Covid-19 and in another news report that shared plans to lift lockdown restrictions, the paper included a quote from a doctors' association warning against lockdown relaxation.

All the news outlets in the sample were keen on including official sources as seen in the previous findings of the content analysis. However, the crisis communication indicators show that these sources were more likely to have issued some form of commitment about pandemic response, for example about the potential enforcement of lockdown measures, rather than them being held accountable for the status of the enforcement actions.

It is encouraging to note that some portion of each news outlet's coverage included information to promote action among the public to protect themselves from the coronavirus, for example by telling them to wear masks, maintain social distance, and wash hands regularly. But this was at most one in every five stories for Jang and lower for the other three news organisations.

Themes of Covid-19 coverage

The content analysis also looked at the themes reflected in the Covid-19 news coverage of the selected news organisations. At the first stage, primary themes were recorded in the “story theme(s)” field of the coding book. A story could have several primary themes, for example a news report that shared data on new Covid cases could also focus on the government response. Any secondary or related themes portrayed in the story were recorded in the “other codes” field of the coding book. In the second stage, the theme categories were reviewed and grouped by similarity to remove duplications and create overarching categories. Finally, the new groupings were reviewed a second time to further refine the categories. In the end, this process resulted in the identification of 14 themes in the sample, for each of which the number of stories from the selected news sources were enumerated. These themes are:

Covid incidence: These stories included information about new Covid-19 cases, deaths caused by the coronavirus, and other data, such as the positivity rate, which became the go-to Covid stat for the public and policymakers during the pandemic. Information about suspected Covid cases and suspected deaths, published during the early days of the pandemic, were also lumped under this category. The Covid incidence reports were a key feature of broadcast news bulletins, which usually gave a quick recap of daily statistics with a provincial and regional breakup.

Covid science: This theme category is related to information about Covid-19 origins, research about the virus, its treatment, details about testing, and updates about Covid vaccine development, purchase, delivery, and deployment. This was one of the least frequent themes in the coverage for Dawn, Geo, and ARY, for all of which it was one of the five lowest ranking themes by number of stories. However, Jang, which relied heavily on monitoring of international news sources and dispatches from global news agencies, published over 50 stories related to this theme.

Government response: The government response theme catered for stories about the response of the federal and provincial governments to the pandemic, including efforts and policies to reduce the spread of the coronavirus. However, any specific mentions of lockdowns and related news were enumerated separately. Therefore, the government response theme mostly included statements by government officials, ministers, and the NCOC. This was one of the most common themes of the Covid-19 news coverage, and figured in the top three themes of each news outlet in the sample.

Lockdown measures and safety precautions: News reports that shared details of enforced lockdowns, including large-scale restrictions, smart lockdowns, and local administration’s actions to seal localized Covid hot spots, fell under this theme category along with information about efforts to ensure the safety of the public and raise public awareness about the threat from the coronavirus. Lockdown-related news remained a focus of Covid-19 news coverage throughout the monitoring period and often also included news about violations of enforced lockdowns or Covid standard operating procedures (SOPs) formulated by the government.

Critique of government response or demands for action: One recurring topic of coverage was critiques of government responses to the pandemic. This was usually based on statements by political leaders and were directed at the federal government, Balochistan’s provincial government, and Sindh’s provincial government throughout the monitoring period.

Pakistan's policy towards Covid management favoured economic activity over stringent lockdowns, and in this context, the critical reactions by rival politicians often took the form of demands for strict lockdowns. The critiques also took aim at the funds and support provided to the public healthcare system. However, sometimes the critiques of government response also came from the business sector which wanted lockdown to be lifted in Karachi and demands were also seen from the doctors which wanted more resources and effective enforcement of safety measures in successive waves of Covid-19.

Healthcare sector: This theme dealt with stories related to support for the healthcare sector as well as issues faced by the medical community, such as shortage of medical supplies or patient load on hospitals. It was, however, not a frequently found theme, especially ignored in the Urdu press.

Economy: The economic impact of Covid-19 and its associated lockdowns were covered in this theme category. Pakistan passed its annual budget in June, while Covid-19 was raging in the country and even though news attention got diverted to the budget proceedings, there were stories at the intersection of budget and the pandemic, for example, about allocation of funds for medical equipment and vaccine purchase. The Prime Minister Imran Khan also took interest in lobbying world countries to write-off the debt of developing countries, such as Pakistan, which was also part of the economy theme. The theme was one of the top 10 news themes seen in the Covid-19 coverage of each of the selected news outlets.

Politics: The political current affairs of the country intersected with the pandemic throughout the year, first in addition to critiques of government action where rival political parties offered suggestions for pandemic response and later in the second half of 2020 when a full-blown movement was launched against the federal government by an alliance of opposition political parties. In the latter case, the government and opposition parties sparred often as the government warned the opposition protest rallies of becoming a catalyst for Covid spread and this was reflected in the news coverage monitored and analysed for the study.

International situation: The coronavirus had already spread through parts of the world before cases started getting discovered in Pakistan, and the news media also routinely relayed information about the ravages of the virus around the globe. Jang, which relied heavily on international news dispatches for its Covid coverage as previously mentioned, focused significantly on the Covid situation in other countries, especially, India, China, the USA, and Saudi Arabia. These stories often shared Covid statistics from these countries along with mention of government responses. However, often these stories also included information about global cooperation and international conflicts.

Education: The education sector was severely affected by the pandemic and this category covered stories related to the impact of Covid-19 on education. It was not a widely reported theme in the selected media outlets during the monitoring period, often ending up among the bottom-most themes identified in the sample.

Overseas Pakistanis and border control: Overseas Pakistanis and the border control of Pakistan and other world countries received more attention in most of the selected publications during the monitoring period than health and education. This theme was seen in stories about Pakistanis stranded abroad due to airport closures and travel restrictions as well as Pakistan's own border management to keep out infected travellers from other countries. There were also reports about special flights to repatriate Pakistani migrant workers from Western and Gulf countries.

Politicisation of Covid and other misinformation-related news: This theme category is made up of both instances where forms of Covid-19 misinformation were reported by the press as well as instances where the news media published stories about countering Covid-19 misinformation. Information that politicised Covid-19 awareness, management, and response was a major variety of the Covid-19 misinformation available in news. This was mostly due to some fierce political rivalries that apparently moved politicians to level serious allegations about the number of Covid cases and the style of Covid management exercised by their opponents. Often this type of discourse veered towards statements that underplayed the severity of the virus and agitated sentiment against lockdowns. Some media outlets also published news reports that provided public awareness about the types of Covid-19 misinformation circulating on social media.

Novelty: News reports that fulfilled the novelty news value criterion were significant in numbers enough in the Urdu press to warrant their own news theme category. These stories mostly dealt with Covid-19 impact on the arts, celebrities, sports, and VIPs, such as world leaders. Sports disruptions were often in the news, especially due to the impact on the Pakistan Super League, a popular cricket tournament in Pakistan. ARY News, whose owners field a team in the tournament, broadcast several stories about the postponement of the event and its resumption later in the year.

Miscellaneous (other governance and social affairs): Covid-19 news coverage that included references to other governance issues, such as foreign relations, and topics such as, technology, religion, courts, and social impact of the pandemic, were lumped under the miscellaneous theme category as these were not significant in number individually. Since the English newspaper reported on Covid-19 from many different intersectional angles, the miscellaneous theme showed high up in its coverage themes, but the opposite was true for the three Urdu news organisations.

Top three themes for selected news outlets

| News Organisation | Theme | Rank |
|-------------------|--|------|
| Dawn | Government response | 1 |
| | Miscellaneous | 2 |
| | Lockdown measures and safety precautions | 3 |
| Jang | International situation | 1 |
| | Lockdown measures and safety precautions | 2 |
| | Government response | 3 |
| Geo News | Lockdown measures and safety precautions | 1 |
| | Government response | 2 |
| | Covid incidence | 3 |
| ARY News | Lockdown measures and safety precautions | 1 |
| | Government response | 2 |
| | Covid incidence | 3 |

Table 6 Top three news themes in Covid-19 coverage by news organisation

Table 6 shows the three most common themes for each of the four selected news organisations ranked in order of the most number of stories. It is clear from Table 6 that reporting on the lockdown measures and how the government was managing the pandemic dominated daily news coverage of Covid-19. It also shows that the English paper Dawn was more focused on the effect of the pandemic on other areas of life while the Urdu paper Jang published readily available international news often even without localising it. It is also interesting to note that the two broadcast news channels had the exact same ranking for the top themes. It was previously noted in the analysis that the overall good or bad developments reported by the TV channels were almost similar in volume and they both had low but similar shares of exclusive reporting. Here, with the themes, there is another indication that the TV news coverage might be quite homogenous across the two leading news networks. This raises concerns about the diversity of news especially in the face of a daunting and overwhelming global pandemic with wide-ranging effects on the public.

Key Informant Interviews

The findings of the content analysis were used to conduct key informant interviews with news producers and editors to determine the factors that might have led to the nature of the Covid-19 news coverage identified by the analysis. Four journalists, two TV news producers and two editors, were interviewed for the study and the key trends in their reflections are shared here while keeping their identities anonymous as confidentiality was a condition for the research interviews.

About human interest reporting: While the Covid-19 news coverage of selected media outlets was mostly in the public interest, it lacked human interest accounts of people affected by the coronavirus. A veteran news editor who manages an Urdu daily said human angle stories were not non-existent – a claim that is held up by the content analysis – but agreed that there was no extensive coverage of the pandemic from the human angle. The Urdu news editor said the news media style in Pakistan relies heavily on event-based coverage and the news content development is ignored because it is resource-intensive and expensive. On the other hand, the editor said, the live coverage of an event is inexpensive and convenient. This attitude leads to a de-prioritisation of human interest stories.

Another editor said social media information about the pandemic created a panic in society and this psychological pressure also affected journalists too. The editor said he expressly told his reporters not to go near any Covid quarantine centres so that they themselves could remain safe. He said Covid was similar to a “war situation” where journalists need to first ensure their safety and no story is bigger than their lives. This naturally resulted in a dearth of news features, the editor said, adding that reporting was definitely “compromised” but it was due to the collective panic in society and the extraordinary threat posed to human life by Covid-19.

One TV producer said they believed there was a governmental policy in the early days of the pandemic to ensure that media hype about the coronavirus was prevented, and this was coupled with a casual attitude among the authorities about the pandemic. But later during the year, the producer said there were instructions from official quarters to warn people about the severity of Covid-19. The producer said such media management by the officials could have influenced editorial decisions leading to a lack of human interest stories related to Covid impact. The producer also said that the safety precautions prevented reporters from reporting from the field, which meant that news outlets mostly relied on readily available official sources rather than trying to make the efforts to humanise the coverage. Another producer said people are reluctant in sharing their stories with news media and the journalists were also careful about their own health and safety due to Covid-19.

About medical research in Covid-19 coverage: The content analysis showed that Covid-19 news coverage lacked references to medical research and therefore its quality was low in terms of health-and-science information about the coronavirus. The Urdu news editor said broadcast media and digital platforms affect the practices of print news media in Pakistan and this has created a “copycat” effect in the country’s news industry in which news organisations get influenced by each other’s coverage and end up reproducing similar journalism rather than figuring out the news needs of the public and showing innovation in public interest news reporting. In the

case of Covid-19, the editor said TV coverage did include the voices of medical experts about coronavirus awareness, vaccine development and Covid variants, but it is true that similar research-based coverage of Covid-19 did not find enough space in the print publications.

The editor said “statement journalism” – in which journalists conveniently rely on statements issued by prominent personalities – dominates Pakistan’s news output and at the same time, investigative journalism and specialised beat reporting has declined. The health reporter is covering general assignment events, politics, and maybe even crime, the editor said, so there is no real dedicated health reporting. This is made worse by reporters being overburdened by the TV news shifts which probably does not even give them the time to conduct research or read books, the editor said, adding that these factors mean it is not surprising that Covid-19 news coverage lacked quality.

One TV producer said they did publish stories based on health science research and included medical experts but there was also the problem of verifying medical research before publishing information and news outlets looked toward NCOC for guidance, which resulted in news outlets foregoing independent medical expertise on Covid and its management. The other news producer interviewed for the study said it was difficult for journalists to chase medical information individually and they resorted to information that was centrally made available by health authorities. The producer said Pakistan does not have many virologists, a claim which is hard to believe because Pakistan has a thriving medical community and produces some of the world’s leading doctors.

One newspaper editor said health-oriented reporting on the Covid was limited to official health spokespeople of the government and district administration. The narrative of the government that a poor economy such as Pakistan could not afford a strict lockdown was not challenged by the media with the help of medical research or voices of medical experts, the editor said, who appeared to agree with the government stance.

About politicisation of Covid-19 and misinformation: A TV producer said political pressures prevented news outlets from ignoring or discouraging those political statements that either definitely amounted to or verged toward Covid-19 misinformation. The Urdu news editor said “editorial control no longer rests with journalists (in Pakistan)” and news outlets are forced to accommodate politically partisan views, for example if one political party is quoted, then the news organisation will be compelled to quote the other rival party as well even if one of the two is issuing factually incorrect statements. These statements create a superficial balance, the editor said, but it might not be the best policy for the quality of journalism and perhaps this is why political misinformation seeps into news because the editors might have no choice.

The print news editor said the print news media was careful about publishing misinformation but added that “coronavirus was given a political form in Pakistan” and this political involvement influenced media coverage and people’s attitude towards Covid-19. The Urdu news editor also agreed that Covid-19 was politicised because every issue is politicised in Pakistan and the news media also gets affected by this problem. The other TV producer also agreed that Covid-19 was politicised in the country but the producer also added that unfortunately this was an international practice with examples such as the statements of then-US president Donald Trump. The producer said US news organisations might have fact-checked their president because they have a free press but journalists in Pakistan do not have the same luxury.

Discussion

Before providing the answers to the research questions set by the study design, the following discussion is presented to encapsulate the content analysis findings and insights from the key informant interviews.

Covid-19 coverage displayed most traditional news values: Almost all Covid-19 news coverage by the selected media outlets was timely. A majority of the coverage was national in scope, neutral, avoided mentions of conflict, and focused on prominent and elite sources. A notable omission from the coverage was human interest accounts of ordinary people affected by the coronavirus.

Urdu news organisations skew towards bad news: While the news coverage was generally evenly distributed, the Urdu news organisations published more stories about Covid-19 that overall showed negative developments, such as tragedy, disarray, and inefficient administrative responses.

General news quality of Covid-19 coverage was low: A majority of the news stories about the coronavirus did not show signs of exclusive enterprise reporting, did not quote medical experts, did not interview ordinary people facing Covid-19 impact, did not interview multiple sources and did not offer multiple viewpoints.

Health-related news quality of Covid-19 coverage abysmally poor: Less than 1% of the broadcast news stories about Covid-19 referenced medical research or provided reliable medical evidence to explain the pandemic. For print, the share of such health news stories was 5% or less. A majority of the Covid-19 coverage produced by the Urdu news organisations did not even offer health or science facts about the coronavirus and instead focused on government responses, the status of lockdown restrictions, statistics, and other themes.

Crisis communication indicators missing from majority of coverage: Most of the Covid-19 coverage produced by the three Urdu news outlets failed to meet any of the seven crisis communication best practices. Only Dawn had a majority of stories that expressed empathy for people affected by Covid-19 and included expressions of commitment from authorities. The stories performed the worst in explaining the why and how of Covid-19.

Newsroom managers admit shortcomings: News producers and editors interviewed for the research were honest about the failings of the Covid-19 news coverage in the country. While they said that some medical research and human interest stories were reported in the press, they agreed that it was not as extensive as it should have been and blamed physical safety risks, the state of professionalism in the news media, and the under-resourced newsrooms for the inadequacies. They also argued that the political influences on the editorial units are such that they could not have avoided giving space or airtime to narratives of politicisation of Covid-19, indicating that the situation of press freedom and independent reporting was further compromised in the country during the pandemic.

The above comments provide sufficient information to address the research questions drafted for the study:

RQ1. Did print and broadcast news media provide sufficient coverage to the Covid-19 pandemic?

The data shows that the level of coverage was sufficient in the early weeks of the Covid-19 pandemic, with three out of the four selected publications devoting half or more of their monitored print space and air time to news about the coronavirus. But with the passage of time, Covid-19 was relegated in the news cycle and lost its space to political current affairs and other national developments. The trend did not change even when Covid cases began to rise again in 2021. Overall, the Covid coverage had a news share of 35% distributed over the four selected news outlets and six weeks in time, which translates to one in every three stories and denotes significant attention.

RQ2. Was the news coverage of a high quality in terms of scientific evidence, reliable data, accuracy, attribution, and source diversity?

The news coverage did not show high quality in terms of scientific evidence, attribution and source diversity. The percentage of stories that included data sources varied across the four news outlets from 14% to 37%. However, since most of this data was sourced to the NCOC, its reliability was not brought into question. Also, since the news coverage heavily relied on official sources, there were no grave concerns about accuracy. Stories that included elements of misinformation represented a tiny share of the overall coverage. Therefore, the quality of coverage in terms of accuracy and reliable data was decent.

RQ3. What factors affected the media coverage of the Covid-19 pandemic?

According to key informant interviews, the entrenched style of news reporting in Pakistan that favours statement journalism and event coverage over investigative and enterprise reporting, the physical safety risks posed to journalists by Covid-19, the political pressure on editorial decisions, and the deterioration of dedicated health reporting resources may have all contributed to a degradation in the quality of Covid-19 news coverage in Pakistan during the pandemic.

Recommendations

The following are the study's recommendations:

Capacity building for reporters on health reporting: Dedicated and competent health reporters are likely to produce higher quality news coverage on public health emergencies, such as the Covid-19 pandemic. Therefore, news organisations should look to provide capacity building training for their health reporters on reporting in crisis, emergency and risk-oriented situations. In the absence of dedicated health reporters, newsrooms should at least get some reporting staff trained in these journalism competencies. Media development organisations can provide support to news organisations in this regard.

Crisis communication checklists: The crisis communication best practices identified by Parmer et al. (2016) provide a handy tool for newsrooms and journalists. These seven indicators can be converted into a brief checklist that reporters and editors can use alike before publishing stories in public health emergencies and disasters. These can also be used to review health news reports produced by the news outlet to identify gaps in coverage and use this identification to provide follow-up coverage.

Collaboration between health institutions and news organisations: Journalists will often find it difficult to access reliable sources on deadline but they can try to collaborate with medical experts, medical associations, medical universities, and health institutions over time to diversify their source portfolio. These connections can be useful in helping journalists understand difficult science or health concepts as well as create a channel for discovery of new medical research for health reporting.

Innovation for human interest storytelling: The inability to perform field reporting due to physical safety risks should not serve as an excuse for not producing human interest stories. Crowdsourcing information and opinions through social media is a popular technique used by reporters around the world to gather news and cultivate sources. Journalists in Pakistan are also active on communication apps, such as WhatsApp, and social networks, such as Facebook and Twitter, which they can use to collect human interest stories and tips. Moreover, the rise in use of video-calling apps, such as Zoom and Skype, lend themselves well to the broadcast medium and are already in use for talk shows on TV channels. The same can be used by reporters to gather ready-for-broadcast video interviews. The format of TV news bulletins in Pakistan appears to be giving up on news packages in favour of brief headline-style news presentation. The headline format does not always allow meaningful, well-attributed and evidence-based information to be shared. Broadcast newsrooms should reconsider this style of news delivery.

Allocate resources for fact-checking and content development: While the Covid-19 coverage analysed for this research fortunately did not show a significant amount of misinformation, it is likely that online misinformation and disinformation will continue to affect news operations for some time to come. News organisations should therefore invest in fact-checking capabilities through setting up units in their newsrooms or building capacity of journalists through training so that they can identify, stay clear of and counter disinformation in

future crises and emergencies. At the same time, news organisations should also consider content development strategies around extraordinary events. Dawn's website started a special live blog to curate Covid-19 news from Pakistan and abroad at the start of the pandemic. It is not difficult to replicate the same for print and broadcast media by allocating dedicated space in a newspaper or a special segment in each bulletin to extraordinary news events such as the Covid-19 pandemic.

Bibliography

- Ashoorkhani, M., Gholami, J., Maleki, K. et al. (2012). Quality of health news disseminated in the print media in developing countries: a case study in Iran. *BMC Public Health*, 12 (627). DOI: <https://doi.org/10.1186/1471-2458-12-627>
- Bartlett, C., Sterne, J., & Egger, M. (2002). What is newsworthy? Longitudinal study of the reporting of medical research in two British newspapers. *BMJ*, 325 (81). DOI: [doi:10.1136/bmj.325.7355.81](https://doi.org/10.1136/bmj.325.7355.81)
- Belt, T. L. & Just, M. R. (2008). The local news story: Is quality a choice? *Political Communication*, 25 (2), 194-215. DOI: [10.1080/10584600801985714](https://doi.org/10.1080/10584600801985714)
- Brysbaert, M. (2019). How many words do we read per minute? A review and meta-analysis of reading rate. *Journal of Memory and Language*, 109. DOI: <https://doi.org/10.1016/j.jml.2019.104047>
- Cassels, A., & Lexchin, J. (2008). How well do Canadian media outlets convey medical treatment information? Initial findings from a year and a half of media monitoring by Media Doctor Canada. *Open Medicine*, 2 (2), e45–e48. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3090174/>
- Cooper, C. P., & Roter, D. L. (2000). “If it bleeds it leads”? Attributes of TV health news stories that drive viewer attention. *Public health reports*, 115 (4), 331–338. DOI: <https://doi.org/10.1093/phr/115.4.331>
- Coulson, C. D., & Lacy, S. (1996). Journalists' perceptions of how newspapers and broadcast news competition affects newspaper content. *Journalism & Mass Communication Quarterly*. DOI: <https://doi.org/10.1177%2F107769909607300207>
- Entwistle, V. A., & Watt, I. S. (1999). Judging journalism: how should the quality of news reporting about clinical interventions be assessed and improved? *Quality in Health Care*, 8 (3), 172–176. DOI: <https://doi.org/10.1136/qshc.8.3.172>
- Frijters, P., & Velamuri, M. (2010). Is the Internet Bad News? The online news era and the market for high-quality news. *Review of Network Economics*, 9 (2), 2. DOI: [10.2202/1446-9022.1187](https://doi.org/10.2202/1446-9022.1187)
- Gholami, J., Hosseini, S. H., Ashoorkhani, M., & Majdzadeh, R. (2011). Lessons learned from H1N1 Epidemic: The role of mass media in informing physicians. *International Journal of Preventive Medicine*, 2 (1), 32–37. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3063464/>
- Glik D. C. (2007). Risk communication for public health emergencies. *Annual Review of Public Health*, 28, 33-54. DOI: <https://doi.org/10.1146/annurev.publhealth.28.021406.144123>

- Goldacre B. (2009). Media misinformation and health behaviours. *The Lancet. Oncology*, 10 (9), 848. DOI: [https://doi.org/10.1016/S1470-2045\(09\)70252-9](https://doi.org/10.1016/S1470-2045(09)70252-9)
- Gollust, S. E., Fowler, E. F., & Niederdeppe, J. (2019). Television news coverage of public health issues and implications for public health policy and practice. *Annual Review of Public Health*, 40, 167-185. DOI: <https://doi.org/10.1146/annurev-publhealth-040218-044017>
- Habel, M. A., Liddon, N., & Stryker, J. E. (2009). The HPV vaccine: a content analysis of online news stories. *Journal of Women's Health*, 18 (3), 401–407. DOI: <https://doi.org/10.1089/jwh.2008.0920>
- Harcup, T. & O'Neill, D. (2001). What is news? Galtung and Ruge revisited. *Journalism Studies*, 2 (1), 261-280. DOI: 10.1080/14616700118449
- Harcup, T. & O'Neill, D. (2017). What is news? *Journalism Studies*, 18 (12), 1470-1488. DOI: 10.1080/1461670X.2016.1150193
- Hochman, M., Hochman, S., Bor, D., & McCormick, D. (2008). News media coverage of medication research: reporting pharmaceutical company funding and use of generic medication names. *JAMA*, 300 (13), 1544–1550. DOI: <https://doi.org/10.1001/jama.300.13.1544>
- Hofstetter, R. C., & Dozier, D. M. (1986). Useful news, sensational news: Quality, sensationalism and local TV news. *Journalism & Mass Communication Quarterly*, 63 (4), 815-853. DOI: <https://doi.org/10.1177%2F107769908606300421>
- Huang, E., Rademakers, L., Fayemiwo, M. A., & Dunlap, L. (2004). Converged journalism and quality: A case study of The Tampa Tribune news stories. *Convergence*, 10 (4), 73–91. DOI: <https://doi.org/10.1177/135485650401000407>
- Kiran, F., & Mahmood, S. (2019). Assessing role of newspapers in creating awareness of HIV/AIDS in Pakistan. *Journal of Social Sciences and Humanities*, 58 (1), 215-226. DOI: <https://doi.org/10.46568/jssh.v58i1.140>
- Lacy, S., & Rosenstiel, T. (2015). Defining and measuring quality journalism. Rutgers. <https://www.issueab.org/resources/31212/31212.pdf>
- Lai, W. Y., & Lane, T. (2009). Characteristics of medical research news reported on front pages of newspapers. *PloS one*, 4 (7), e6103. DOI: <https://doi.org/10.1371/journal.pone.0006103>
- Larsson, A., Oxman, A. D., Carling, C., & Herrin, J. (2003). Medical messages in the media--barriers and solutions to improving medical journalism. *Health Expectations*, 6 (4), 323-331. DOI: <https://doi.org/10.1046/j.1369-7625.2003.00228.x>
- Lewis, J., & Cushion, S. (2009). The thirst to be first. *Journalism practice*, 3 (3), 304-318. DOI: 10.1080/17512780902798737
- McMillan, M. (2012). Quality collusion: News, if it ain't broke, why fix it? *Fordham Urb. L.J.* 1895. Available at: <https://ir.lawnet.fordham.edu/ulj/vol39/iss5/12>

- Meijer, I. C. (2001). The public quality of popular journalism: Developing a normative framework. *Journalism Studies*, 2 (2), 189-205. DOI: 10.1080/14616700120042079
- Meijer, I. C. (2003). What is quality television news? A plea for extending the professional repertoire of newsmakers. *Journalism Studies*, 4 (1), 15-29, DOI: 10.1080/14616700306496
- Meijer, I. C., & Bijleveld, P. V. (2016). Valuable journalism. *Journalism Studies*, 17 (7), 827-839. DOI: 10.1080/1461670X.2016.1175963
- Meijer, I. C. (2012). Valuable journalism: A search for quality from the vantage point of the user. *Journalism*, 14 (6), 754-770. DOI: 10.1177/1464884912455899
- Oxman, A. D., Guyatt, G. H., Cook, D. J., Jaeschke, R., Heddle, N., & Keller, J. (1993). An index of scientific quality for health reports in the lay press. *Journal of Clinical Epidemiology*, 46 (9), 987-1001. DOI: [https://doi.org/10.1016/0895-4356\(93\)90166-x](https://doi.org/10.1016/0895-4356(93)90166-x)
- Parmer, J., Baur, C., Eroglu, D., Lubell, K., Prue, C., Reynolds, B. & Weaver, J. (2016). Crisis and emergency risk messaging in mass media news stories: Is the public getting the information they need to protect their health? *Health Communication*, DOI: 10.1080/10410236.2015.1049728
- Pennycook, G., & Rand, D. G. (2019). Fighting misinformation on social media using crowdsourced judgments of news source quality. *Proceedings of the National Academy of Sciences*, 116 (7) 2521-2526. DOI: 10.1073/pnas.1806781116
- Porto, M. P. (2007). Frame diversity and citizen competence: Towards a critical approach to news quality. *Critical Studies in Media Communication*, 24 (4), 303-321. DOI: 10.1080/07393180701560864
- Pribble, J. M., Goldstein, K. M., Fowler, E. F., Greenberg, M. J., Noel, S. K., & Howell, J. D. (2006). Medical news for the public to use? What's on local TV news. *The American Journal of Managed Care*, 170-176. https://ajmc.s3.amazonaws.com/_media/_pdf/AJMC_06marPribble170to76.pdf
- Savoia, E., Lin, L., & Gamhewage, G. M. (2017). A conceptual framework for the evaluation of emergency risk communications. *American Journal of Public Health*, 107 (S2), S208-S214. DOI: <https://doi.org/10.2105/AJPH.2017.304040>
- Saxon, B., Bass, S. B., Wright, T., & Panick, J. (2018). Ebola and the rhetoric of US newspapers: Assessing quality risk communication in public health emergencies. *Journal of Risk Research*. DOI: 10.1080/13669877.2018.1473465
- Schefuele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication Association*, 49 (1), 103-122. DOI: <https://doi.org/10.1111/j.1460-2466.1999.tb02784.x>
- Schwitzer, G., Mudur, G., Henry, D., Wilson, A., & Goozner, M. et al. (2005) What are the roles and responsibilities of the media in disseminating health information? *PLOS Medicine*, 2 (8), e321. DOI: <https://doi.org/10.1371/journal.pmed.0020321>

Shah, M. H., Yaqoub, M., Kausar, S., & Kumar, A. (2016). Correlation between newspapers' agenda and public agenda on national issues during general elections 2013 in Pakistan. *International Journal of Journalism and Communication*, 1 (1), 1-10. DOI: 10.11648/j.ijjc.20160101.12

Shah, S., Ginossar, T., & Weiss, D. (2019). "This is a Pakhtun disease": Pakhtun health journalists' perceptions of the barriers and facilitators to polio vaccine acceptance among the high-risk Pakhtun community in Pakistan. *Vaccine*, 37 (28), 3694–3703. DOI: <https://doi.org/10.1016/j.vaccine.2019.05.029>

Smith, D. E., Wilson, A. J., Henry, D. A., & Media Doctor Study Group (2005). Monitoring the quality of medical news reporting: Early experience with media doctor. *The Medical Journal of Australia*, 183 (4), 190–193. DOI: <https://doi.org/10.5694/j.1326-5377.2005.tb06992.x>

Tang, R., Ng, K., Strzalkowski, T. & Kantor, P. (2003). Automatically predicting information quality in news documents. *Companion Volume of the Proceedings of HLT-NACL 2003*, 2, 97-99. DOI: <https://doi.org/10.3115/1073483.1073516>

Wilson, A., Robertson, J., McElduff, P., Jones, A., & Henry, D. (2010). Does it matter who writes medical news stories? *PLoS Med*, 7 (9), e1000323. DOI: 10.1371/journal.pmed.1000323

Wilson, K., Code, C., Dornan, C., Ahmad, N., Hébert, P., & Graham, I. (2004). The reporting of theoretical health risks by the media: Canadian newspaper reporting of potential blood transmission of Creutzfeldt-Jakob disease. *BMC Public Health*, 4, 1. DOI: <https://doi.org/10.1186/1471-2458-4-1>

Annexure A Coding sheet

The following coding sheet was used for the content analysis for this research study.

| Code | Description |
|---|--|
| News publication | Name of the news organisation |
| Date | Date of story publication or broadcast |
| Placement | Page where story was published for print; Bulletin in which story was broadcast |
| Length/Duration | The word count or minutes of the story |
| Byline | Was the story written or produced by (a) health reporters (b) staff reporters (c) monitoring desk (d) national news agency (e) international news agency |
| Dateline | City where the story was reported or filed from |
| Traditional news values - Timeliness | Was the story related to developments in the recent past (last 24 hours)? (a) Yes (b) No |
| Traditional news values - Proximity | Did the story's events take place close to the intended audience? (a) Local (b) Provincial (c) National (d) International |
| Traditional news values - Interest 1 | Did the story have a human interest angle? (a) Yes (b) No |
| Traditional news values - Interest 2 | Was the story a (a) news report (b) feature article |
| Traditional news values - Conflict | Did the story include mention of conflict between different actors or controversy regarding the issue? (a) Yes (b) No |
| Traditional news values - Sensationalism | Was the story's headline (a) positive (b) negative (c) neutral |
| Traditional news values - Prominence | Was the story about the actions of power elites (including elite organisations and people)? (a) Yes (b) No |
| Traditional news values - Novelty | In addition to the novelty of Covid-19, did the story report on shocking, surprising or bizarre developments? (a) Yes (b) No |

| | |
|--|--|
| Harcup & O'Neill news values - Good News | Was the overall story about positive developments regarding Covid? Positive elements include efficient medical or administrative responsiveness, acts of heroism, recoveries etc. (a) Yes (b) No (c) Neutral |
| Code | Description |
| Harcup & O'Neill news values - Bad News | Was the overall story about negative developments regarding Covid? Negative elements include tragedy, disarray, inefficient medical or administrative response, deaths etc. (a) Yes (b) No (c) Neutral |
| Belt & Just quality – Enterprise | Was the story based on exclusive reporting or investigation by the news organisation? (a) Yes (b) No (c) Partially |
| Belt & Just quality - Authoritativeness – Experts | Did the story quote medical experts? (a) Yes (b) No |
| Belt & Just quality - Authoritativeness - Official sources | Did the story quote officials? (a) Yes (b) No |
| Belt & Just quality - Balance - Multiple sources | Did the story have multiple sources? (a) Yes (b) No |
| Belt & Just quality - Balance – Viewpoints | Did the story have multiple viewpoints, for example by including different types of human sources? (a) Yes (b) No |
| Ashoorkhani quality - Medical research | Did the story provide a reference to medical research for Covid-related information? (a) Yes (b) No |
| Ashoorkhani quality - Supporting evidence 1 | Did the story provide supporting medical evidence for Covid-related information? (a) Yes (b) No |
| Ashoorkhani quality - Supporting evidence 2 | Was the medical evidence for Covid-related information attributed to a reliable medical source? (a) Yes (b) No |
| Index of Scientific Quality – Facts | Was a distinction made in the story between facts and opinions through sourcing and attribution? (a) Yes (b) No |
| Sourcing – Total | What was the total number of sources quoted in the story? |
| Sourcing – Anonymous | Did the story use anonymous sources? (a) Yes (b) No |
| Sourcing – Ordinary | Did the story use people-on-the-street ordinary sources? (a) Yes (b) No |
| Sourcing – Data | Did the story provide any data related to Covid-19? (a) Yes (b) No |

| Code | Description |
|--|---|
| Sourcing - Counts | What was the number of named sources quoted in the story? (a) medical experts (b) officials/elite sources (c) ordinary people sources (d) Covid-19 data sources |
| Parmer Crisis Comms - Known explanation | Did the story explain what is known about injuries or illnesses, fatalities, property damage, search for survivor efforts or results, and a specific health threat from Covid-19 and related issues? (a) Yes (b) No |
| Parmer Crisis Comms - Unknown explanation | Did the story explain what is not known about the threat to human health from Covid-19 and related issues? (a) Yes (b) No |
| Parmer Crisis Comms - How why explanation | Did the story explain the how and why about Covid-19 and related issues? (a) Yes (b) No |
| Parmer Crisis Comms - Promote action | Did the story include action steps the reader or viewer can take to reduce their personal threat from Covid and Covid-related issues? (a) Yes (b) No (c) Partially |
| Parmer Crisis Comms - Express empathy | Did the story include an expression of empathy about the threat to human health from Covid and Covid-related issues? (a) Yes (b) No |
| Parmer Crisis Comms - Express accountability | Did the story include statements of accountability from a responsible or responding entity regarding Covid-19 measures? (a) Yes (b) No |
| Parmer Crisis Comms - Express commitment | Did the story include statements of commitment from a responsible or responding entity regarding Covid-19 measures? (a) Yes (b) No |
| Story theme | To be determine through qualitative analysis. Potential themes could be (a) political (b) economic (c) emergency response etc. |
| Other codes | If analysis indicates the need for other codes to assess quality, those codes can be added here |
| Total stories for comparison | What was the total number of stories on the page or bulletin where this story was published or broadcast? |

Annexure B Interview questions

The following questions were used for the key informant interviews.

Q1 [Sourcing/Human Interest] Our research findings show that most Covid-related stories on TV and print relied on official sources and largely ignored the voices of ordinary people. Also, while most coverage provided factual details of the number of cases and lockdown measures, it did not feature human interest stories of how people thought they were actually affected by the pandemic and lockdown. What do you think are the factors behind this?

Q2 [Health reporting] Very few stories used independent medical experts as sources and even fewer referred to credible medical research on Covid-19 origin and treatment. Why do you think there was so little well-sourced health reporting during the pandemic in Pakistan?

Q3 [Politics] Much of the Covid-19 coverage reflected statements and decisions made by government officials and politicians. It's understandable that this was newsworthy. But many of these stories only offered single-sourced accounts attributed to high-ranking officials rather than including opposing points of view and sharing credible medical opinion. In some cases, medical misinformation offered by politicians was also published without any factual counter-arguments. Why do you think this style of reporting is so common in our national media?

Q4 Is there anything else you would like to add?

