

Reactive or Preventive Approach? An Agenda-Setting Analysis of Health News in Bangladeshi Bengali Newspaper

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The media's agenda-setting power profoundly influences public perceptions and health policies. Understanding the portrayal of health topics is critical in assessing their impact. This study investigates the health agendas promoted by mainstream newspapers in Bangladesh, specifically examining health news in Daily Prothom Alo from 2016 to 2021. A total of 1,387 Bengali-language articles were analyzed using Latent Dirichlet Allocation (LDA) for topic modeling. Results reveal a predominantly reactive stance in reporting, focusing on short-term health crises over preventive measures. Key themes included vector-borne diseases, COVID-19, and other health emergencies, with limited emphasis on long-term health awareness. The findings underscore the need for the media to adopt a proactive role in addressing systemic health issues and promoting preventive strategies. This research highlights opportunities for enhancing the media's role in fostering sustainable health awareness and influencing policy through agenda-setting.

Keywords: Health awareness; Agenda setting; Topic modeling; Newspaper; Bangladesh

Introduction

The media serves as a powerful tool for disseminating information, influencing public perceptions, and shaping behaviors across societal domains. In the health sector, popular press interpretations of medical jargon and complex terms are essential for making information accessible to the public (Seale, 2003). Health-related news, whether addressing crises or promoting preventive measures, impacts public awareness and health policies (De La Cruz, 2024). Considering the media's role in agenda-setting and framing, it is crucial to examine these processes within various contexts.

Bangladesh, a developing country in the Global South, offers a unique case for exploring the media's role in health communication. While Bangladesh has made significant socioeconomic and health progress, it still faces persistent challenges, including maternal and child health, noncommunicable diseases (NCDs), and

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vulnerability to the COVID-19 pandemic. These challenges are exacerbated by structural limitations in the healthcare system, including inadequate resources and weak governance. The study of media agenda-setting has focused extensively on health coverage in the Global North, but in the Global South, particularly Bangladesh, it remains unclear how such dynamics operate. To address this question, the study focuses on Bangladesh as a case study, highlighting its status as a developing nation in the Global South. This study addresses this gap by analyzing health news coverage in one of Bangladesh's leading newspapers, the Daily Prothom Alo, between 2016 and 2021.

The purpose of this study is to investigate the dominant topics in health reporting in Bangladesh through a topic modeling approach, examining whether the media adopts a reactive stance—responding to immediate health events—or a proactive stance—shaping public discourse on health issues in advance. Guided by this purpose, the research question asks: How do dominant topics in Bangladeshi health reporting reflect the media's role as reactive or proactive agenda-setters? In doing so, it contributes to decolonizing health communication scholarship by foregrounding a Global South perspective. It also offers methodological innovation by applying topic modeling to Bangla-language health news, providing a replicable framework for future studies. Ultimately, the findings aim to inform strategies for enhancing the media's role as a proactive agent in health promotion while maintaining its critical function as a responsive communicator during health crises.

Agenda Setting in Health Narratives: Global Insights

Media agenda theory pointed out that the media affects public perception by focusing on specific issues as important (Valenzuela & McCombs, 2020). How the agenda-setting process is reshaped by socio-political structures, digital transformation, and cultural contents, a lower-income country like Bangladesh, which has high disease burdens and complex media functions, offers solid insights (Langer & Gruber, 2020). This review synthesizes empirical findings, theoretical adaptations, and gaps in health-focused agenda-setting research in Bangladesh, contrasting it with Global North paradigms.

Scheufele & Tewksbury (2006) studied traditional agenda setting, and second-level framing dominates the global north studies. The media ecosystem in Bangladesh, however, introduces complexities. Government-aligned health narratives (e.g., COVID-19 success stories) are prioritized, marginalizing non-aligned voices (Rahman, 2021). Social media amplifies "horizontal" agenda-setting, where public discourse on platforms like Facebook blends local health concerns (maternal mortality) with global narratives (Lycarião & Sampaio, 2016).

Wallington et al. (2010) highlight the assistance in understanding agenda setting in health journalism, particularly its blending of community structure theory with empirical data from a national survey of U.S. health reporters and editors. By connecting individual characteristics and organizational factors to sourcing practices, story angles, and priority setting, it provides a nuanced understanding of how structural and personal variables leverage health news narratives. However,

while the study effectively pinpoints antecedents to agenda setting and framing, its U.S.-centric sample limits the generalizability of its findings to global health communication contexts. Additionally, dependence on self-reported survey data may introduce bias, as reported practices may not fully align with actual newsroom behaviors.

Reiter-Haas et al. (2024) offer a comparative study between mainstream and conspiracy media, where mainstream media employ preventive, evidence-based, and institutional frames, whereas conspiracy media favor emotionally charged, distrustful, and skeptical frames. Although their computational methodological approach is rigorous and well-established, it lacks depth in the cross-cultural sector. In a hybrid media system like South Asia, where health Journalism is engaged within complex Social, political, and economic dynamics, such a binary may not fully capture the nuance of media framing.

Teschendorf's (2024) analysis of German, US, and UK COVID-19 coverage reveals that framing differs across cultures. The German press (*Süddeutsche Zeitung*) emphasizes economic impacts, vaccination challenges, and social problems, with a moderate amount of blame placed on politicians. The US (*New York Times*) emphasized personal stories about social division, economic impact, and Omicron's health care burden, blaming political forces and the population as well. In its reporting, the UK's *Guardian* (The Guardian) balanced emotion and objectivity, heavily criticizing unvaccinated individuals and politicians. The researcher did select elite newspapers, however, which limits the generalizability for local or regional media, especially those in developing countries.

Complementing this, Figenschou et al. (2023) explore the use of human-interest narratives in health journalism across Norway, Spain, the U.K., and the U.S. Norway leads in their usage, often coupling personal stories with collective responsibility and political accountability. Conversely, U.S. media adopt a commercially driven and individualistic framing. However, such conclusions cannot be extrapolated to Global South countries where commercial pressures and political influence shape content more profoundly.

Health Narratives in the Global South: Lessons for Bangladesh

A wide range of health challenges, including communicable diseases, health crises, and broader public health priorities, have been addressed using agenda-setting theory in the Global South. According to Parashar et al. (2024), tuberculosis, malaria, diarrheal diseases, and dengue fever have different levels of priority within the global health community. A key part of their study focuses on the disparities in media coverage of these diseases in the Global South, emphasizing the need for an equitable agenda to address health inequalities. The agenda-setting role of mass media has been revisited by McCombs and Shaw, and their insights are still relevant for understanding media priorities in countries of the Global South (Mohammed et al., 2022). Based on their findings, media coverage can influence public health priorities in resource-limited settings by interacting with policymakers and public health campaigns. From 1981 to 1997, Pratt et al. (2002) studied how African

popular magazines, and medical journals shaped the public health agenda on major diseases. Their findings suggest that media influence both public awareness and policy actions in sub-Saharan Africa.

Using humor and satire, Wasserman and Joubert (2024) examined how COVID-19 was portrayed in South African editorial cartoons, criticizing government responses and societal behaviors. The COVID-19 pandemic was also studied by Misganaw et al. (2022), who identified themes of resilience, vulnerability, and systemic challenges in media coverage. A study by Adekunle and Adnan (2016) assessed media coverage of the Ebola outbreak in Nigeria, highlighting dominant frames of fear, hope, and government accountability. Their findings suggest that the media plays a crucial role in shaping public responses to health crises. Ogbodo et al (2020) conducted a content analysis of the global media framing of COVID-19, including perspectives from the Global South. It revealed disparities in how health crises are depicted, with countries from the Global South often portrayed as victims of systemic failures.

The interaction between journalists, public relations professionals, and health communicators in the Global South significantly influences the agenda and framing of health news. PR exercises a stimulus effect on the behavior of organizations (Tobler & Stummer, 2022)

Ajakaiye et al. (2024) examined how public relations efforts permeate science journalism, shaping health news agendas. To ensure balance in reporting, they emphasize the importance of critical engagement with sources. According to Wallington et al. (2010), resource limitations shape health coverage by setting agendas and framing them in health news. The insights are particularly relevant for media outlets in the Global South, where resource constraints often dictate what is covered in health reporting. LaPoe et al. (2024) conducted a comparative analysis of health news in Indigenous and mainstream media, highlighting the importance of culturally sensitive reporting practices.

Khasru et al. (2022) found that Bangladeshi health journalism lacks investigative depth, relies excessively on government and institutional sources, and neglects long-term public health trends. Health reporters are also lacking in training, and e-health initiatives are poorly integrated, hindering the adoption of a preventive narrative in health communication.

Materials and Methods

Data Collection

This study uses a purposive sampling technique to select a Bengali newspaper, *the Daily Prothom Alo*, as its sample. It was chosen because Bengali is Bangladesh's first language. Notably, the country's literacy rate (measured as the percentage of people who can read or write a letter) is around 74 per cent, according to the latest Bangladesh Household Income and Expenditure Survey 2020 (BBS, 2023). If there is a need to increase public awareness about any issue, let alone health issues, using media as a platform, the use of the mother tongue (Bengali) can be the most effective option. As per the Department of Film and Publication, the country has 583 daily

newspapers (including Bengali). Amongst the Bengali newspapers, the Daily Bangladesh Pratidin ranks at the top based on circulation, followed by the Daily Prothom Alo (Table 1). Despite having wide circulation, the study did not consider the Daily Bangladesh Pratidin due to a limited number of pages (only 5 pages). On the other hand, the Daily Prothom Alo, with the second highest circulation, contains 14 pages. However, it reaches a wider Bangladeshi community through its two online platforms (e-paper and news portal) (Quarmal & Islam, 2020). Consequently, it might have a natural advantage of publishing any health-related news, covering even more minor details. Given the circumstances, the current study took the Daily Prothom Alo into account to fulfil the research objective.

For collecting health-related news, a Python library named “*banglanews 0.0.2*” was used with the keyword “স্বাস্থ্য সচেতনতা” (health awareness). The term “স্বাস্থ্য” (health) was selected because it is usually used in most of the health-related news. For instance, the “Health News in Twitter” dataset from the University of California Irvine machine learning repository (UCI) also supports our choice of keyword (Karami, 2017). From this dataset, we counted the frequencies of the words that contain news titles from agencies such as BBC, CNN, and the New York Times. After removing the stop words, we have found that “Health” is the most frequent word. Figure 1 shows a word cloud based on the frequencies of the words. The word “Health” has a frequency of 5,494. The word “সচেতনতা” (Awareness) was also included as a keyword, as we wanted to cover the news that included mass awareness regarding health. After careful analysis, the health awareness-related news was collected for each day between the years January 2016 to December 2021. During this period, the world experienced significant health crises, including the Ebola outbreak (2014–2016), the Zika virus outbreak (2015–2016), and the COVID-19 pandemic (2019–2023). Bangladesh has experienced significant health issues, including the Nipah virus outbreak (2018), the COVID-19 pandemic (2020–2023), and the Dengue outbreak (2019–present) in these years (Bruno et al., 2022; Nahian, 2023).

Table 1. Top Five Bengali Newspapers based on Circulation

Sl.	Newspaper	Circulated Copies
1.	The Daily Bangladesh Pratidin	5,21,211
2.	The Daily Prothom Alo	3,21,841
3.	The Daily Jugantor	2,90,250
4.	The Daily Amader Somoy/ The Daily Ittefaq/The Daily Janakantha/The Daily Kalbela	2,90,200
5.	The Daily Kaler Kantha/The Daily Sanghbad	2,01,100

Source: DFP (2023).

[illegible]

This study employed topic modeling as a statistical method for analyzing the coverage of different health awareness-related news in the selected newspaper. The Latent Dirichlet Allocation (LDA), a widely used method, was applied to conduct the topic modeling (Jelodar et al., 2018). It is a generative model, which is unsupervised and can be compared to clustering methods. LDA considers the Dirichlet distribution for assigning topics to each document and for selecting the related words in each topic. The Dirichlet distribution means that any random variable vector drawn from this distribution must have its elements sum to one.

If we assume β_k is the probability distribution over words for a topic that also follows Dirichlet distribution. Now, the objective is learning the optimal θ and β probability distribution vectors given the documents. It can be represented mathematically as a maximum likelihood inference problem. The optimal θ and β vectors indicated with the hat are the ones that maximize the probability of all observed words in all the documents where W_{nd} is the n^{th} word in document d .

$$\hat{\beta}_{1:k}, \hat{\theta}_{1:D} = \underset{\beta_{1:k}, \theta_{1:D}}{\operatorname{argmax}} P(\{W_{nd}\}_{n=1, d=1}^{N,D} | \beta_{1:k}, \theta_{1:D}) \dots \dots \dots (1)$$

In the LDA approach, we can assume that each word is independent of the other, so the joint probability of all words can be written as products of probabilities of each separate word.

$$\hat{\beta}_{1:k}, \hat{\theta}_{1:D} = \underset{\beta_{1:k}, \theta_{1:D}}{\operatorname{argmax}} P \prod_{n=1}^N \prod_{d=1}^D P(W_{nd} | \beta_{1:k}, \theta_d) \dots \dots \dots (2)$$

Note that, the dependencies can be removed on all unrelated θ vectors for a specific word. We can introduce some latent variable ‘z’ which represents the topic index assigned to a word. Therefore, the probability of some word w given this topic z can be found exactly using β_z which is the distribution over all words for a topic.

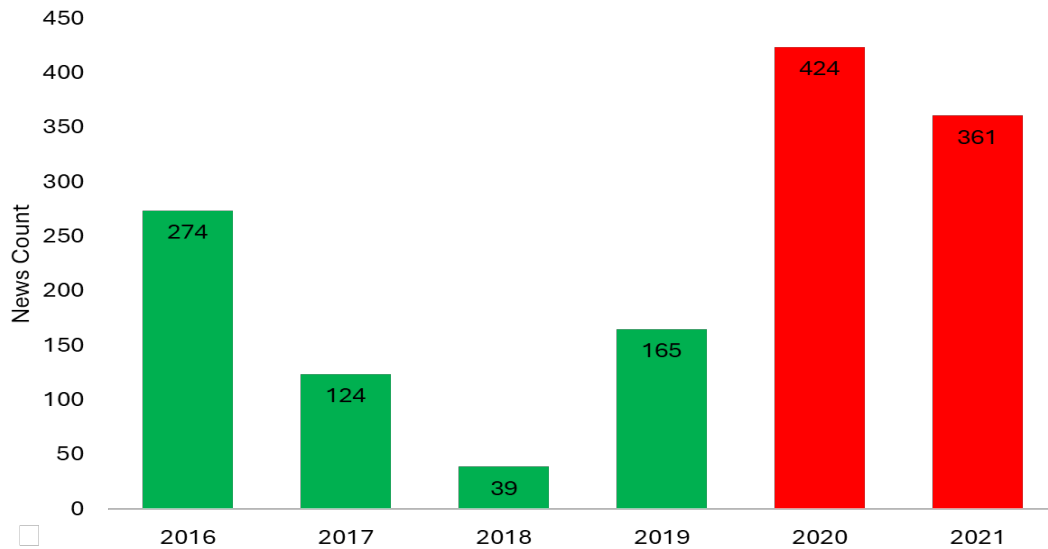
$$\hat{\beta}_{1:k}, \hat{\theta}_{1:D} = \underset{\beta_{1:k}, \theta_{1:D}}{\operatorname{argmax}} P \prod_{n=1}^N \prod_{d=1}^D \sum_{z=1}^K P(W_{nd} | z) P(z | \theta_d) \dots \dots \dots (3)$$

We can apply reverse marginalization on the probability of each word to introduce the latent variables. Finding the maximum of equation (3) expression with respect to all the θ and β vectors will give us the desired result.

Results

Trends in Health Awareness-related News Publications

Figure 2. Frequency of Health-related News (2016 to 2021)

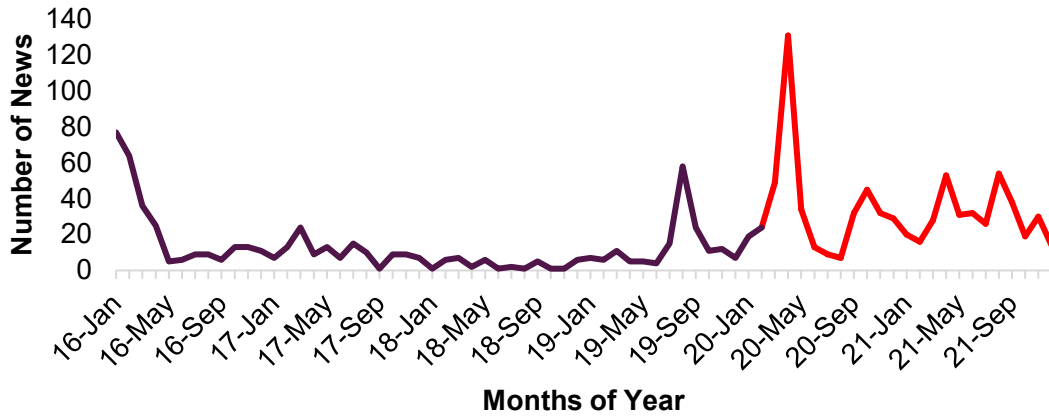


Note: The green bars represent news frequencies before COVID-19, and the red bars represent news frequencies during the outbreak of COVID-19.

During the years 2016–2021, a total of 1,387 news reports on health awareness were published in the Daily Prothom Alo. Figure 2 shows the year-wise frequency of news published in the specified timeframe. News coverage on health awareness followed a gradual decline: from 261 news in 2016 to 39 in 2018. However, the

pandemic has been marked as one of the most significant events that substantially shifted the trajectory of publishing awareness-related news. As a result, more than half of the news was published after the onset of the COVID-19 pandemic. While 424 news stories were published in 2020, the figure for 2021 was 361. This trend affirms the newspapers' commitment to keeping the public informed about and aware of multifaceted aspects of health and wellness. Figure 3 depicts the monthly distribution of the news articles.

Figure 3. Count of Health-related News on Monthly Basis



Note: This graph depicts the sharp rise in news quantity in the time of significant global health events.

An Aggregate Analysis of Topic Modeling

Table 2. Most Frequent Words covered under different news

Sl.	Topics	Most frequent words	Coherence
1.	Risk of infectious diseases	[‘ডেঙ্গু’, ‘আক্রান্ত’, ‘রোগী’, ‘জিকা’, ‘মৃত্যু’, ‘ঝুঁকি’, ‘জরুরি’, ‘নারী’] [Dengue, Affected, Patient, Zika, Death, Risk, Emergency, Female]	0.535
2.	Kidney issue during COVID-19	[‘করোনা’, ‘স্বাস্থ্য’, ‘কিডনি’, ‘রোগ’, ‘চিকিৎসা’] [Corona, Health, Kidney, Disease, Treatment]	0.523
3.	Mental issue during COVID-19	[‘স্বাস্থ্য’, ‘মানসিক’, ‘সমস্যা’, ‘ভিটামিন’, ‘আক্রান্ত’, ‘শিশু’, ‘করোনাভাইরাস’] [Health, Mental, Problem, Vitamin, Infected, Children, Coronavirus]	0.521
4.	Vaccine and COVID-19	[‘করোনা’, ‘শিশু’, ‘টিকা’, ‘করোনাভাইরাস’, ‘প্রতিরোধ’, ‘করণীয়’] [Corona, Children, vaccine, Coronavirus, prevention, Duties]	0.517
5.	Children and COVID-19	[‘চিকিৎসা’, ‘মানসিক’, ‘করোনা’, ‘শিশু’, ‘ক্যানসার’, ‘বিশ্ব’, ‘সচেতনতা’, ‘দিবস’, ‘স্বাস্থ্য’] [Treatment, Mental, Corona, Children, Cancer, World, Awareness, Day, Health]	0.515

Topic modeling revealed a wide range of health awareness topics. The top five published topics were “Risk of Dengue”, “Kidney issues during COVID-19”, “Mental issues during COVID-19”, “Vaccines and COVID-19”, and “Children and COVID-19” (Table 2). Dengue is the first topic discussed, emphasizing terms like ‘ডেঙ্গু’ (Dengue), ‘আক্রান্ত’ (Affected), ‘রোগী’ (Patient), and ‘মৃত্যু’ (Death). While discussing the risk factors associated with dengue, females were given priority. Moreover, the inclusion of terms like ‘জিকা’ (Zika) suggests a broader context of vector-borne diseases. The second and third topics address kidney and mental health issues during the coronavirus, highlighting the importance of ‘কিডনি’ (Kidney) and ‘মানসিক’ (Mental) health, respectively. Within the context of the coronavirus pandemic, these topics highlight the importance of health, the kidney, psychological well-being, the impact on children, and the role of essential vitamins. The fourth topic deals with vaccines and coronavirus prevention, using terms like ‘টিকা’ (Vaccine) and ‘প্রতিরোধ’ (Prevention). Lastly, the fifth topic touches upon children’s health, incorporating relevant terms, i.e., ‘চিকিৎসা’ (Treatment), ‘ক্যানসার’ (Cancer), and ‘সচেতনতা’ (Awareness). This topic covers various aspects of children’s health during the coronavirus, including medical treatment, mental health considerations, awareness about diseases like cancer, and global health initiatives. Given the estimated overall average coherence score of 0.522, it can be said that the topics are moderately consistent.

Year-wise Analyses of Topic Modeling

Table 3. Most Frequent Words published/covered in different News Articles in 2016

Sl.	Topics	Most frequent Words	Coherence
1.	Zika awareness	Words: [‘জিকা’, ‘ভাইরাস’, ‘শনাক্ত’, ‘দেশে’, ‘সচেতনতা’, ‘আক্রান্ত’, ‘অসংক্রামক’, ‘স্বাস্থ্য’] [Zika, Virus, Country, Awareness, Infected, Non-infectious, Health]	0.626
2.	Bangladesh and Zika	[‘আক্রান্ত’, ‘বাংলাদেশ’, ‘শিশু’, ‘জিকা’, ‘শনাক্ত’, ‘সচেতনতা’, ‘ভাইরাস’, ‘ক্যানসার’] [Infected, Bangladesh, Children, Zika, Identified, Awareness, Virus]	0.612
3.	Cancer awareness	[‘দিবস’, ‘বিশ্ব’, ‘ক্যানসার’, ‘সচেতনতা’, ‘পালিত’, ‘রোগী’, ‘ওষুধ’, ‘স্বাস্থ্য’, ‘দেশ’] [Day, World, Cancer, Awareness, Observed, patient, Medicine, Health, Country]	0.601
4.	World cancer Day	[‘ওষুধ’, ‘বুঁকি’, ‘শিশুর’, ‘ক্যানসার’, ‘দেশে’, ‘দিবস’, ‘সেবা’, ‘বিশ্ব’, ‘রোগী’] [Medicine, Risk, Children, Cancer, Country, Day, Service, World, Patient]	0.590
5.	Autism awareness	[‘শিশু’, ‘অটিজম’, ‘মৃত্যু’, ‘দেশে’, ‘হার’, ‘শতাংশ’, ‘বিশ্ব’, ‘দিবস’, ‘পালিত’, ‘সচেতনতা’] [Children, Autism, Death, Country, Percentage, World, Day, Observed]	0.584

In 2016, the two most frequent topics were related to the Zika virus (Table 3). The remaining topics were related to cancer, risk factors of cancer, and autism, respectively. 273 health-related news articles were published, of which 83 news were focused on awareness perspectives. In comparison, the remaining 190 articles contained general health information. It is noted that the newspaper also published 25 articles about the Zika virus, 10 articles about cancer, 14 articles on autism, and 7 articles on diabetes. 2 out of 10 cancer-related articles were entirely connected with World Cancer Day. Likewise, one article on autism and one article on diabetes were published on World Autism Day and World Diabetes Day, respectively. Issues on health diseases were covered in only two articles. The estimated overall coherence score is 0.626, implying moderate consistency in the topics covered in 2016.

Table 4. Most Frequent Words published/covered in different News Articles in 2017

Sl.	Topic	Most frequent Words	Coherence
1.	Kidney patient	[‘আক্রান্ত’, ‘রোগী’, ‘কিডনি’, ‘শিশুর’, ‘চিকিৎসায়’, ‘মৃত্যু’] [Infected, Patient, Kidney, Children, Treatment, Death]	0.601
2.	Chikungunya prevention	[‘বিশ্ব’, ‘চিকুনগুনিয়া’, ‘মানুষ’, ‘হসপিটাল’, ‘দিবস’, ‘প্রতিরোধে’, ‘আক্রান্ত’, ‘চিকিৎসা’] [World, Chikunguniya, Human, Hospital, Day, Prevention, Infected, Treatment]	0.598
3.	Health Data	[‘স্বাস্থ্য’, ‘দরকার’, ‘কমিটি’, ‘যক্ষ্মা’, ‘উদ্যোগ’, ‘সর্বজনীন’, ‘উপাত্ত’] [Health, Center, Necessary, Committee, Tuberculosis, Initiative, Public, Data]	0.578
4.	Chikunguniya awareness	[‘শিশু’, ‘সচেতন’, ‘দেশে’, ‘বেড়েছে’, ‘চিকুনগুনিয়া’, ‘মস্তিষ্ক’, ‘রোগী’] [Children, Awareness, Country, Increased, Chikunguniya, Brain, Patient]	0.532
5.	Treatment of Kidney	[‘স্বাস্থ্য’, ‘রোগী’, ‘কিডনি’, ‘বিভাগ’, ‘ঠেকাতে’, ‘ব্যক্তিকে’, ‘তৎপর’, ‘চিকিৎসক’] [Health, Patient, Kidney, Department, Prevention, Person, Initiative, Doctor]	0.543

The top five (frequent) topics covered in 2017 are associated with kidneys, chikungunya, Tuberculosis, children affected by chikungunya, and kidney disease (Table 4). That is, the major focuses were on kidney diseases and Chikungunya. This is largely because 984 real-time PCR (polymerase chain reaction) cases of chikungunya were confirmed in the country’s 17 out of 64 districts since the outbreak began on 1 April 2017 (Kabir et al., 2017). Besides, a total of 13,176 clinical cases had been reported since 7 September 2017 (Kabir et al., 2017). Among 124 news articles published in 2017, 12 articles covered Chikungunya, followed by kidney issues (5 news, of which 2 were particularly related to the World Kidney Day), and tuberculosis (3 news, and all three news covered different perspectives of the World Tuberculosis Day). The overall coherence score is estimated as 0.601, which implies that articles published in 2017 were moderately consistent.

Table 5. Most Frequent Words published/covered in different News Articles in 2018

Sl.	Topic	Most frequent Words	Coherence
1.	Dengue problem	[‘স্বাস্থ্য’, ‘ডেঙ্গু’, ‘শীতে’, ‘শিশুদের’, ‘বাংলাদেশ’, ‘কান’, ‘এডিস’, ‘সমস্যা’, ‘লার্ভা’] [Health, Dengue, Winter, Children, Bangladesh, Ear, Aedes, Problem, Larva]	0.481
2.	Cancer and children	[‘ক্যানসার’, ‘শিশুর’, ‘উচ্চ’, ‘ছড়িয়ে’, ‘মা’] [Cancer, Children, High, Spread, Mother, Percentage]	0.479
3.	Heart disease of children	[‘হৃদ’, ‘মাতৃমৃত্যু’, ‘অর্জন’, ‘সচেতনতা’, ‘জন্মগত’, ‘ত্রুটি’, ‘কমানোর’] [Heart, Maternal Mortality, Achievement, Awareness, Inborn, Faulty, Lessen]	0.480
4.	Mental health	[‘ঝুঁকি’, ‘মানসিক’, ‘ব্যবস্থাপনা’, ‘মৃত্যু’, ‘প্রশিক্ষণ’, ‘প্রসব’] [Risk, Mental, Management, Death, Training, Delivery]	0.465
5.	Dengue issue	[‘ডেঙ্গু’, ‘উঠানে’, ‘শিশুর’, ‘এডিস’, ‘স্বাস্থ্য’][Dengue, Area, Children, Aedes, Health]	0.457

In 2018, published articles on health awareness were mainly focused on dengue, cancer, child health and mental health, and seasonal disease issues (Table 5). Out of a total of 39 published articles, 4 were on cancer, 4 were on mental health, 4 were on children’s health, and another 3 were on dengue. However, there was low consistency among the published topics, as confirmed by the estimated coherence score of 0.481.

Table 6. Most Frequent Words published/covered in different News Articles in 2019

Sl	Topic	Most frequent Words	Coherence
1.	Dengue treatment	[‘ডেঙ্গু’, ‘দেশে’, ‘মৃত্যু’, ‘স্বাস্থ্যসেবা’, ‘শিশুর’, ‘রোগের’] [Dengue, Country, Death, Health service, Children, Diseases]	0.594
2.	Dengue in Dhaka city	[‘ডেঙ্গু’, ‘রোগী’, ‘প্রতিরোধে’, ‘ঢাকা’, ‘বাড়ছে’, ‘মশা’] [Dengue, Patient, Prevention, Dhaka, Increasing, Mosquito]	0.590
3.	Death rate of Dengue	[‘ডেঙ্গু’, ‘মৃত্যু’, ‘ঝুঁকি’, ‘সমস্যা’, ‘চিকিৎসা’, ‘রোগী’] [Dengue, Death, Risk, Problem, Treatment, Patient]	0.584
4.	Dengue awareness	[‘সচেতনতা’, ‘ডেঙ্গুবিরোধী’, ‘কুড়িগ্রামসভা’, ‘অভিয়ানে’, ‘বাড়ছে’, ‘কার্যক্রম’] [Awareness, Dengue prevention, Kurigram Assembly, March, Increasing, Activities]	0.580
5.	Dengue Prevention	[‘ডেঙ্গু’, ‘নির্মূলে’, ‘মশা’, ‘ওষুধ’, ‘ঢাকায়’, ‘ভুগছে’] [Dengue, Prevention, Mosquito, Medicine, Dhaka, Suffer]	0.574

Table 6 shows that dengue was found to be the most frequently published topic in 2019. Specific areas covered under the umbrella of dengue were dengue prevention, the mortality rate of dengue, awareness of dengue, and dengue in Dhaka.

According to the Directorate General of Health Services (DGHS), 100,201 confirmed dengue cases (including 51,179 cases in Dhaka city alone) were reported by hospitals between January and December 2019 (Hossain et al., 2020). This implies a 10-fold increase in hospitalized cases compared to the number of cases during the largest outbreak before 2019. Among 165 articles published in 2019, 75 articles covered various dengue-related issues, followed by heart disease (8 articles), cancer (3 articles), and diabetes (3 articles). Moderate consistency is observed among the articles published in 2019, as indicated by the coherence score of 0.594.

Table 7. Most Frequent Words published/covered in different News Articles in 2020

Sl.	Topic	Most Frequent Words	Coherence
1.	Corona prevention	[‘প্রতিরোধ’, ‘করোনা’, ‘শিশু’, ‘রোগ’, ‘ব্যথা’, ‘ক্যানসার’, ‘প্রতিরোধ’, ‘চিকিৎসা’] [Prevention, Corona, Children, Diseases, pain, Cancer, prevention, Doctors]	0.601
2.	Corona emergency	[‘করোনাভাইরাস’, ‘জরুরি’, ‘চিকিৎসা’, ‘ঝুঁকি’, ‘স্বাস্থ্য’, ‘ভ্যাকসিন’, ‘রোগ’] [Coronavirus, Emergency, Treatment, Risk, Health, Vaccine, Diseases]	0.581
3.	Corona and lockdown	[‘স্বাস্থ্য’, ‘করোনা’, ‘সুস্থ’, ‘করোনা’, ‘উপায়’, ‘লকডাউন’, ‘করোনাভাইরাস’] [Health, Corona, Healthy, Corona, Measures, Lockdown, Coronavirus]	0.575
4.	Corona virus treatment	[‘করোনাভাইরাস’, ‘আক্রান্ত’, ‘করোনা’, ‘বিশ্ব’, ‘করোনাভাইরাসের’, ‘চিকিৎসা’] [Coronavirus, Infected, Corona, World, Treatment]	0.543
5.	Corona and Vaccine	[‘করোনা’, ‘করোনাভাইরাস’, ‘ব্যথা’, ‘সংক্রমণ’, ‘ভ্যাকসিন’] [Corona, Coronavirus, Pain, Infected, Vaccine]	0.512

Like many other countries, coronavirus was the most important focus of Bangladeshi media in 2020. As presented in Table 7, the top five most frequent topics were coronavirus and cancer, coronavirus treatment, coronavirus and lockdown, coronavirus infection rate, and the last one was coronavirus and vaccine. The newspaper published 424 articles in 2020. An increase in the number of published articles can be attributed to one of the most severe public health emergencies induced by COVID-19. Out of all the total health-related news, 118 news articles covered issues connected to COVID-19, and 15 news articles covered mental health issues during COVID-19. Little attention was given to other health issues like coronary heart disease (8 news), kidney disease (6 news), diabetes (6 news), strokes (5 news), and autism (2 news). There was moderate consistency among the articles published in 2020, as suggested by the estimated coherence value of 0.601.

Table 8. Most Frequent Words published/covered in different News Articles in 2021

Sl.	Topic	Most Frequent Words	Coherence
1.	Corona treatment	['করোনা', 'প্রতিরোধে', 'চিকিৎসা', 'শিশুর', 'মাদকাসক্তি', 'মস্তিষ্কের'] [Corona, Prevention, Treatment, Children, Drug Addicted, Brain]	0.623
2.	Cancer and diabetics	['ক্যানসার', 'টিকা', 'করগীয়', 'রোগীর', 'মুখ', 'ডায়াবেটিস', 'যত্ন', 'মৃত্যু'] [Cancer, Vaccine, Duties, Patient, Mouth, Diabetes, Care, Death]	0.612
3.	Diabetics patient during corona	['রোগী', 'টিকা', 'করোনা', 'স্বাস্থ্য', 'মৃত্যু', 'স্বাস্থ্যবিধি', 'ডায়াবেটিস', 'রোগী'] [Patient, Vaccine, Corona, Health, Death, Hygiene, Diabetes, Patient]	0.601
4.	Corona and children	['করোনা', 'শিশুর', 'ক্যানসার', 'জ্বর', 'প্রতিকার'] [Corona, Children, Cancer, fever, Prevention]	0.565
5.	Diabetics and children	['ডায়াবেটিস', 'শিশু', 'সমস্যা', 'ক্যানসার', 'মৃত্যু', 'স্বাস্থ্য', 'রোগী', 'করোনা'] [Diabetes, Children, Problem, Cancer, Death, Health, Patient, Corona]	0.560

The five most frequently discussed topics in 2021 were coronavirus prevention, coronavirus vaccine, coronavirus, diabetes, coronavirus, and cancer, as well as coronavirus and children (Table 8). Amongst a total of 361 published articles, COVID-19, vaccine, cancer, diabetes, mental health, heart disease, autism, and strokes were covered in 85, 22, 17, 14, 7, 7, and 2 articles, respectively. The estimated coherence value is 0.623, suggesting moderate consistency among the published topics.

Discussion

This study investigates the agendas set by the prominent Bangladeshi newspaper, *Daily Prothom Alo*, in raising health awareness from 2016 to 2021, with a focus on its approach to covering health crises and routine health concerns. Results show a largely reactive approach to health coverage, aligned with global trends, but with critical gaps in proactive efforts to address non-communicable diseases (NCDs) and long-term health issues.

According to agenda-setting theory (McCombs & Shaw, 1972), this reactive approach indicates that *Daily Prothom Alo* primarily engaged in first-level agenda setting, where the health issues were elevated only when events like outbreaks demanded immediate attention. This is consistent with Southwell et al. (2023), who argue that media often adopt reactive strategies to satisfy immediate public concerns during health crises. While this approach can quickly shape public priorities in urgent contexts, it limits the second-level agenda-setting function framing issues in ways that encourage deeper understanding and preventive action. The coverage of the Zika and COVID-19 outbreaks exemplifies this pattern: emphasis was placed

on immediate developments and responses, rather than preemptive education or advocacy for policy change.

In contrast, the study highlights limited efforts to set proactive agendas around NCDs, despite their growing prevalence in Bangladesh. As Smith et al. (2024) and Deng et al. (2021) note, equitable health agenda-setting is essential for addressing systemic inequities in NCD coverage. *Daily Prothom Alo* lacks consistent reporting patterns or dedicated coverage of NCDs, suggesting that the media can take a more deliberate approach to covering these pressing health issues.

In addition, the newspaper's coverage of health fluctuated according to context, such as elections and health crises. Despite resource constraints and competing priorities, Dorfman and Wallack (2013) noted that health disparities are often reported reactively rather than systemically due to limited resources. It is interesting to note that health news has declined during election years (2017-2018), illustrating how sociopolitical events can obscure essential health narratives and further limit the public's awareness of these issues.

Based on topic modeling results, crises and COVID-19 account for the majority of health coverage from 2020 onwards. This finding aligns with global trends observed in studies like Ogbodo et al. (2020), which found that pandemic coverage often monopolizes media attention. However, the reliance on reactive agendas during COVID-19 reflects a missed opportunity for the press to proactively guide public understanding of preventive measures, as suggested by McCombs and Shaw (2014). The limited presence of preventive and educational narratives in *Daily Prothom Alo* highlights the broader challenge of balancing sensationalism and responsibility in health journalism. Without consistent and proactive reporting, the newspaper risks contributing to suboptimal health outcomes by failing to prepare the public adequately for potential health crises as noted by Reiter-Haas et al. (2024).

Conclusion

This study discloses that, ignoring routine and preventive health concerns, the *Daily Prothom Alo* embraces a predominantly reactive approach to health reporting, centering heavily on crisis-driven coverage. This reactive posture, through coping with immediate needs, curtails the newspaper's potential to pitch in long-term public health awareness and policy advocacy.

To manage these gaps, the study recommends a proactive media strategy that accentuates routine health issues, particularly NCDs, and anticipates future health crises. Key recommendations include Training program should be demonstrated to prepare health journalists with the knowledge and adeptness needed to report all-inclusive on diverse health issues. To cover the NCDs and preventive health measures, the newspapers should develop dedicated health sections of their newspapers. Collaboration among journalists, health professionals, and policymakers can help identify priority health issues and ensure balanced reporting. Future strategies should integrate digital and social media platforms to complement traditional reporting and expand audience reach. The findings emphasize the critical role of the media in

acclimating public health awareness and influencing policy. By adopting a more proactive agenda-setting approach, *Daily Prothom Alo* and similar media outlets can significantly enhance public preparedness and health outcomes in Bangladesh. Future research should explore broader media landscapes, incorporate diverse keywords, and examine the evolving role of digital platforms to provide more comprehensive insights into health communication strategies.

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