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Original Article

A Narrative Synthesis of a Local HIV Outbreak in a Developing Country: A Qualitative Content Analysis Using Online News Media

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Abstract

Introduction: The media plays a crucial role in communicating health information, shaping public perceptions, and framing issues, especially regarding infectious disease transmission. In 2019, an outbreak of Human Immunodeficiency Virus (HIV) occurred in a village in Iran. This study analyzes media content to identify contextual challenges and actions taken by stakeholders in response to the outbreak.

Methods: A descriptive qualitative content analysis with an inductive approach was conducted to examine online news coverage of this HIV outbreak. National and foreign online news sources were searched using Persian keywords, including "specific name of the area," "specific name of respective county and province," "HIV outbreak," "HIV epidemic," and "AIDS" between October 2019 and August 2020. Conventional and summative content analysis were performed using MAXQDA version 10.

Results: Six sub-categories emerged from the three categories: health-oriented challenges, poor governance, and political consequences. News media content highlighted significant health challenges. Five specific categories of actions were identified: HIV care, prevention and treatment services, social support, monitoring and evaluation, information management, and legal actions. The majority of the focus was on HIV care, with the Ministry of Health (MoH) as the most prominent stakeholder.

Conclusion: The media largely emphasized health challenges during the HIV outbreak, with HIV care receiving the greatest attention. Policymakers are advised to establish specialized teams to address medical, social, cultural, and political aspects of HIV outbreaks comprehensively. Local media should be effectively utilized to disseminate information and promote public education, strengthening disease control efforts and supporting the response to HIV.

Keywords: HIV, Online news media, Disease outbreaks, Communicable disease, Iran

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Introduction

Media plays a crucial role in today's society, serving as a platform for public health communications, education, and guidance.[1] It remarkably influences public opinion, health behaviors, and the use of healthcare services, while also shaping public policies.[2] As a powerful tool, the media can promote equal access to healthcare, facilitate the dissemination of accurate health information and knowledge, and encourage attitude shaping and the adoption of healthier behaviors.[1]

In public health, the media is instrumental in identifying and addressing social issues and influencing policymaking. It can evoke actions and reactions from societal stakeholders and shift relationships, behaviors, and societal interactions. However, during health crises, misinformation spread through media can disrupt society, leading to shortages of healthcare resources and impeding service provision. It may also exacerbate the spread of emerging diseases.[3] News media, in particular, can amplify warning signals, heightening the public's perception of health risks and fears.[4] On the other hand, social media or user-generated content presents unique challenges, as it serves as a major

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channel for disseminating inaccurate information. For example, studies have shown that 20-30% of YouTube content regarding emerging diseases is misleading or false.[5] Understanding how differently the public uses media platforms is critical, especially during public health emergencies.

In Iran, the media landscape encompasses various platforms, each serving distinct roles in information dissemination. The primary media types include traditional news outlets, online news media, and social media platforms.[6] Traditional media, such as television, radio, and newspapers, have historically been Iranians' main information source. However, with the rise of digital technology, online news media has gained prominence, providing immediate access to a wide range of content and becoming increasingly favored for its speed and accessibility.[6]

Online news platforms in Iran frequently compete for audience attention alongside traditional media and social media channels. Research indicates that, unlike many other countries where political and local news is favored, Iranian audiences exhibit a stronger interest in news related to celebrities and personal privacy. In contrast, coverage of science and technology tends to receive less focus. Nevertheless, local news continues to enjoy popularity across various media formats, including online platforms. Health news, while moderately popular, follows trends similar to those observed in other nations.[7]

It is important to distinguish between mainstream media and user-generated content (social media), as they play different roles in public health communication. Mainstream media refers to professionally produced content disseminated through traditional channels such as television, radio, and newspapers. This media type follows strict editorial guidelines and aims to provide reliable information to a broad audience. Social media, on the other hand, includes platforms like Twitter, Facebook, and Instagram, where user-generated content spreads rapidly but lacks the same editorial oversight. While mainstream media is often perceived as more credible, social media's immediacy and interactivity can lead to the viral spread of both accurate and inaccurate health information.[8-10] In Iran, during the Human Immunodeficiency Virus (HIV) outbreak, both mainstream and social media were active. Traditional media provided formal reports, while online news media offered immediate updates and analyses. Social media amplified public concerns, misinformation, and protest demands.

Notable public health events covered by both media types include the H1N1 outbreak in 2009, the Ebola outbreak in 2014,[11] and the Coronavirus Disease 2019 (COVID-19) pandemic.[12] Similarly, the HIV outbreak in a rural area in central Iran in October 2019 received widespread media attention.[13] This outbreak was first detected during routine health monitoring as part of a diabetes screening project, which led to the discovery of multiple HIV infections. Subsequent media coverage heightened public concern and raised awareness of the crisis.

Comparable public health crises involving HIV have been documented in other settings. In 2015, an HIV outbreak in rural Indiana, USA, was linked to injection drug use and received intense media scrutiny, ultimately prompting a public health emergency declaration and a shift in state policy regarding needle exchange programs.[14] In Eastern Europe and Central Asia, HIV outbreaks among people who inject drugs have been widely reported, with media coverage playing a dual role in both raising awareness and perpetuating stigma.[15] More recently, in 2019, an unprecedented HIV outbreak in Sindh, Pakistan, predominantly affecting young children, was first highlighted by local media reports. This initial coverage alerted health authorities and catalyzed a large-scale public health response. The outbreak was ultimately attributed to unsafe healthcare practices, notably the reuse of contaminated needles, with more than three-quarters of cases occurring in children and adolescents.[16] These examples underscore the critical role of media in detecting, framing, and shaping the public and policy response to HIV outbreaks, while also highlighting the challenges of misinformation and stigma that frequently accompany such coverage.

HIV represents a major global public health challenge, affecting approximately 33 million people annually and causing numerous fatalities.[17] The majority of those affected are concentrated in low- and middle-income countries (LMICs), with around 68% residing in sub-Saharan Africa.[18-19] Despite the Sustainable Development Goals for 2030 focusing on universal health and well-being,[20] the HIV epidemic remains a major barrier to achieving these objectives, continuing to be a leading cause in LMICs.[21-22] Various factors, including education, income level, place of residence, gender of the household head, and exposure to comprehensive HIV information through media, are associated with HIV prevalence.[19] According to UNAIDS, approximately 59,000 (95%CI 33,000 to 130,000) people in Iran were living with HIV in 2019, with about 4,100 (95%CI 1,200 to 12,000) new infections and 2,500 (95%CI 1,200 to 5,600) AIDS-related deaths annually.[23]

The recent HIV outbreak in a village in central Iran involved multiple cases among women, men, and infants, promoting an investigation into the source and transmission of the infection. This situation caused significant psychological distress among the local population, leading to protests in the village and neighboring cities, as residents demanded a prompt investigation. News media content analysis provides valuable insights into social issues and events,[24] helping to form a clearer understanding of the various dimensions of the problem, identify potential solutions, and inform policy and intervention strategies. This study aimed to analyze online news media content to A) identify the challenges that emerged during the outbreak and B) examine the actions taken by stakeholders to address these challenges.

Methods

Description of the context

A specific area located in central Iran has a population of 1,498 individuals, exclusively inhabited by a specific

ethnic group, who communicate in a special dialect. Their deep-rooted commitment to traditions, customs, and religious principles defines their way of life. The villagers are primarily engaged in agriculture, horticulture, and animal husbandry, reflecting their profound connection to these practices. To protect the privacy and dignity of the affected community and to minimize the risk of stigma and discrimination, specific geographical identifiers, including the name of the village, county, and province, have been intentionally omitted from this manuscript. This decision was made in accordance with ethical principles for research involving vulnerable populations and potentially stigmatizing health conditions.

In terms of news coverage, Iran operates a robust media system, with national outlets authorized by the Ministry of Culture and Islamic Guidance to publish a wide range of news on various topics. Additionally, foreign adversarial media platforms also play a significant role in disseminating news on various topics, ranging from economic and social issues to political and cultural matters. These platforms present views and positions that often diverge from domestic media narratives.

Study design

The present study employs media analysis to explore news coverage of the HIV outbreak in a specific area on October 2, 2019. Media analysis was chosen due to its flexibility in accommodating news sources with heterogeneous designs and samples.

Search strategy and inclusion criteria

News from national online news agencies, broadcast stations, and foreign outlets was reviewed. The Persian keywords "[specific name of the area and county/province]" (the actual names are intentionally omitted from this manuscript to protect community privacy), "HIV outbreak," "HIV epidemic," and "AIDS" were used to search for news from October 2019 to August 2020. The news items were examined based on variables such as publication date, title, source, and stance. Notably, all news results were from October to December 2019, with no coverage on the topic in 2020.

Inclusion criteria were defined as follows: (1) written news articles published in Persian, (2) content directly addressing the local HIV outbreak under investigation, and (3) publication date up to August 2020. Exclusion criteria included (1) news content shared solely via social media platforms such as WhatsApp, Telegram, or Twitter, (2) opinion pieces or purely analytical commentaries without factual reporting, and (3) duplicate articles with similar headlines and content, where only the earliest publication was retained.

Purposive sampling focused on news agencies and stations with the highest number of visits in 2019. These were categorized into two groups: domestic outlets licensed by the Ministry of Culture and Islamic Guidance, and foreign adversarial media outlets. This approach ensured comprehensive event coverage and diverse perspectives. Table 1 summarizes the key characteristics of these news agencies and stations (Table 1).

Screening and data selection

A systematic approach was employed for data selection. The selected news items were documented in Excel and analyzed using MAXQDA software version 10 (Release 10.2.0, VERBI GmbH, Berlin) for coding and content analysis. Figure 1 illustrates the data selection and screening.

Data Analysis

In this study, we employed both conventional and summative content analysis techniques to systematically evaluate the media coverage of the HIV outbreak. These methods were selected for their suitability in capturing the nuanced themes and patterns in the qualitative data.

Conventional content analysis involved several key stages tailored to examine media coverage of the HIV outbreak in the specific area. The process begins with data preparation, which includes collecting and organizing news articles from national and foreign outlets published between October 2019 and August 2020. In this study, we began by immersing ourselves in the collected news articles to gain a comprehensive understanding of the context and the range of issues presented. Researchers then familiarized themselves with the data by reading the articles multiple times to understand the content and context. Following this, we employed inductive coding, where initial codes were derived directly from the data rather than from preconceived categories. This approach enabled us to identify key categories related to the HIV outbreak, such as community responses, public health initiatives, and media portrayals of the epidemic. As we progressed, codes were refined and grouped into broader categories that reflect significant categories, such as community awareness and health interventions. After refining these categories, researchers engage in data interpretation, analyzing the categories in relation to the research questions and integrating them with existing literature. This comprehensive approach allows for a coherent narrative of how the outbreak was represented across different media outlets, facilitating a deeper understanding of the implications for health communication strategies and the importance of culturally sensitive reporting on health issues.

Summative content analysis, on the other hand, focuses on quantifying the presence of specific terms, phrases, or concepts within the text. This method complements the conventional approach by providing a quantitative perspective on qualitative data. For our analysis, we developed a set of predefined keywords and phrases related to the HIV outbreak, including terms associated with prevention, treatment, and legal responses. We then quantified the frequency of these keywords across the selected articles, allowing us to identify trends in media focus and attention. This quantitative aspect helped us to contextualize the qualitative findings, revealing not only

Table 1. Main characteristics of news stations and agencies

Type of media	Name of media	Nature of media (National/Foreign)	News scope of media	Languages covered	Year of Establishment
News agency	Tabnak (https://www.tabnak.ir/)	National	Political, economic, social, cultural, sports	Persian	2007
	Khabar online (https://www.khabaronline.ir/)	National	Economic, social, political, cultural, technology, sports, knowledge	Persian, Arabic, English	2008
	Fars News Agency (www.farsnews.com(	National	Social, economic, international, political, cultural, sports, and foreign policy	Persian, Afghanistan, Arabic, English, Turkish	2002
	Mehr News Agency (www.mehrnews.com	National	Art, cultural, political, economic, society, religion and thought, seminary and university, science and technology, sports	Persian, Afghanistan, Arabic, English, Turkish	2003
News station	Fararu (https://fararu.com/)	National	Political, economic, social, and cultural	Persian	2007
	Alef (www.alef.ir)	National	Economic, social, political, cultural, technology, health, sports	Persian	2006
	Farda news (https://www.fardanews.com/)	National	Economic, political, cultural, technology	Persian	2012
	Tasnim (https://www.tasnimnews.com/)	National	Political, cultural, economic, social, and sports	Persian	2012
	Iranian Students News Agency – ISNA)www.isna.ir(	National	Scientific and technological, social, economic, political, international, cultural, artistic, sports	Persian, English, Arabic, French	1999
	Simaye Azadi (https://www.iranntv.com/(	Foreign	Political and social	Persian	1987
	BBC Farsi (https://www.bbc.com/persian/media-49522521)	Foreign	Sports, Economy, Knowledge	Persian	1927
	Iran International (https://iranintl.com/)	Foreign	Economic, social, cultural, sports, lifestyle, environment, knowledge, and technology	Persian, Arabic, English	2017
	Local/Provincial University of Medical Sciences	National	Health	Persian, English	1988
	Salamat news	National		Persian	2005

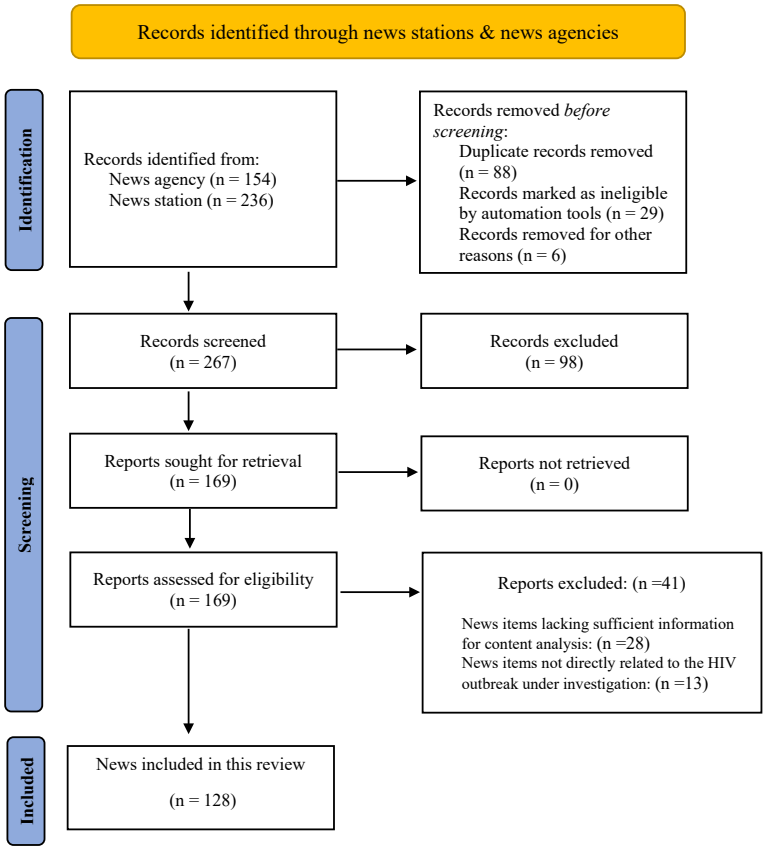


Figure 1. PRISMA flow diagram

what was reported but also how often particular themes were emphasized. Together, these analytical approaches provided a robust framework for understanding the media's representation of the HIV outbreak in the studied area. The details of categories, sub-categories, and their associated codes are presented in Table 2.

To create the map of actions related to the HIV outbreak, we conducted a content analysis of Persian-language online news reports from various agencies and stations. We systematically collected and reviewed these reports

Table 2. The categories and sub-categories related to the challenges arising during the HIV outbreak

Category	Sub-category	Code	Source code
Health-oriented challenges (87)	Prevention and behavior change (34)	Stigma and irrational behavior (10)	Fars news, ISNA, Iran International, Tasnim, Farda news
		Infodemic and rumors (12)	Fars news, ISNA, Iran International, Tasnim, Farda news, Salamat news
		Poor health literacy (4)	ISNA, Local/Provincial University of Medical Science, Salamat news
	Treatment, care, and, supports (16)	Inadequate HIV-related training and education (8)	Fars news, ISNA, Tabnak, Tasnim, Mehr news
		No access to specialists counseling (4)	Alef, Simaye Azadi, Fararu
		Inadequate access to healthcare centers, facilities, or mobile medical teams (4)	ISNA, Mehr news, Simaye Azadi
		Inadequate access to psychological and psychiatric counseling services (4)	Tabnak, Khabar Online, ISNA
		Limited insurance coverage (4)	Fars news, ISNA, Salamat news
	Psychosocial impact (37)	Fear and anxiety about the disease (5)	Tasnim, Mehr, Local/Provincial University of Medical science
		Disturbed general feeling (12)	Fars news, ISNA, Tabnak, Tasnim, Iran International, BBC farsi
		Societal tension and anxiety (9)	Fars news, ISNA, Tabnak, Tasnim, Mehr news
		Community health worker blaming (11)	Fars news, ISNA, Tabnak, Tasnim, Mehr news
Poor governance (56)	National policy, coordination, and program planning (32)	Nip the problem in the bud (2)	Tasnim, Tabnak
		Poor social capital and perceived mistrust (8)	Fars news, ISNA, Tabnak, Tasnim, Mehr news
		Intuitive and less evidence-based comments (18)	Fars news, ISNA, Iran International, Tasnim, Tabnak, Fararu
		Weakness of information confidentiality (4)	Mehr news, Tasnim, ISNA
	Monitoring and evaluation (24)	Inconsistent reports of the outbreak (11)	Fars news, Mehr news, Alef, ISNA
		Poor context-sensitive (4)	Tabnak, Khabar Online, Fars news
		Poor HIV surveillance system (9)	Salamt news, ISNA, Mehr news
Political consequences (71)	Internal Security (71)	Biased and exaggerated news by opposed media (27)	ISNA, Mehr news, Fars news, Alef, Tabnak
		Anarchical protests (22)	Iran International, BBC Farsi, Simaye Azadi, Farda
		Civil gatherings (22)	Iran International, BBC Farsi, Simaye Azadi, Farda

to extract relevant information about the actions taken in response to the outbreak, focusing on the nature of these actions and the stakeholders involved. The actions were categorized into categories such as HIV care, prevention, and legal actions, and analyzed quantitatively to highlight the roles of different stakeholders, particularly the MoH. The resulting map visually represents these actions and their associations with stakeholders, reflecting actual media-reported responses and providing a data-driven perspective on the management of the outbreak.

Trustworthiness

In this study, we employed four criteria from Lincoln and Guba to assess the validity, accuracy, and reliability of the data and results. These criteria encompass credibility, dependability, confirmability, and transferability.[25]

To enhance credibility, we employed both researcher triangulation and data source triangulation. Three experts from distinct but complementary fields—health policy, healthcare management, and media analysis—actively contributed to the design, analysis, and interpretation stages. Notably, one expert possessed extensive experience in HIV-related research and education. We also collected data from a wide range of Persian-language news outlets, ensuring diversity of viewpoints and minimizing potential bias. Long-term engagement further strengthened credibility; the research team was immersed in the subject for over six months, from data collection and coding to analysis and interpretation, gaining in-depth familiarity with the context and nuances of the event.

Dependability was ensured by thorough documentation of the research process and a detailed audit conducted by an external reviewer with expertise in qualitative methodology. All research stages were systematically described and made available for external scrutiny.

To establish confirmability, two researchers (ZZ, NR) independently conducted the coding process. Discrepancies were resolved by a third team member (VYF) who reviewed and determined the final coding decision. Throughout the analysis, we maintained a transparent account of the procedures and retained raw data, memos, coding files, and original reports to allow for potential future review. Importantly, findings were reported comprehensively without omitting or filtering news sources that may have adopted biased or politically motivated narratives; all content was included in the analysis regardless of its origin or framing.

Transferability was addressed by offering a rich and thick description of the study context, including social, political, and cultural factors relevant to the outbreak. We also used maximum variation sampling, ensuring representation across different types of media outlets and perspectives.

These measures enable readers to assess the applicability of the findings to other contexts with similar features.

Results

Out of a total of 128 screened news articles among the reviewed websites, the highest volume of news was published in the first week following the outbreak, particularly on October 2, 5, 6, and 7, 2019 (Figure 2).

Among the analyzed news stations, ISNA published the highest percentage of articles at 25%, followed by Fars News at 23% and Mehr News Agency at 10%, respectively. Other news sources, including Khabar Online, BBC, Local/Provincial University of Medical Sciences, Fararu, Salamat News, and Farda News, collectively accounted for 3% or less of the published news, which is represented as 'Other' in the chart (Figure 3).

The findings from the investigations indicate that 58.59% of the news focused on descriptive information regarding the HIV outbreak among rural populations and the corresponding response methods. In addition, 27.34% of the coverage addressed criticisms and protests, while 14.06% involved confirmations and denials of the news.

Content analysis of the news highlighted prevailing challenges in managing the HIV outbreak, resulting in six sub-categories derived from three core categories: health-oriented challenges, poor governance, and political consequences. A total of 22 final codes were identified, with health-oriented challenges being the most frequently mentioned in the news texts (Table 2). Furthermore, after a thorough review of the news content, the actions taken by stakeholders were also examined.

Health-oriented challenges

This category explores the various challenges related to individual health that emerged during the HIV outbreak in the village. Three key sub-categories were identified: prevention and behavior change, treatment, care and support, and the psychosocial impact. These sub-categories comprehensively examine the gaps and obstacles in preventive measures, therapeutic care, and psychosocial dimensions that significantly influenced the health, identity, and interpersonal relationships within the affected community.

Prevention and behavior change

This category highlighted the crucial role of prevention and behavior modification in controlling HIV infection. It underscored several cultural challenges and gaps that hindered effective prevention strategies. Notably, stigma and irrational behavior, characterized by social discrimination and inappropriate attitudes toward individuals diagnosed with HIV, served as substantial barriers to behavior change. The spread of misinformation (infodemic) and rumors worsened the situation by distorting facts and creating confusion among the public. Additionally, poor health literacy further complicated efforts to educate the community about HIV prevention and management. The lack of adequate HIV-related training and education for both healthcare providers and the general public perpetuated these challenges. In this context, the following quotes are illustrative:

"Stigma and discrimination, along with an AIDS diagnosis, have disrupted prevention and treatment efforts. Many people with AIDS are innocent; they're simply carrying the burden of this unjust perception. Instead of just dealing with the disease, they also have to suffer from being labeled by society. We've said time and time again that stigmatizing AIDS is dangerous because it only makes things worse." (ISNA, October 9)

Addressing these challenges through targeted education and training programs was critical to fostering a more informed and supportive environment that encouraged

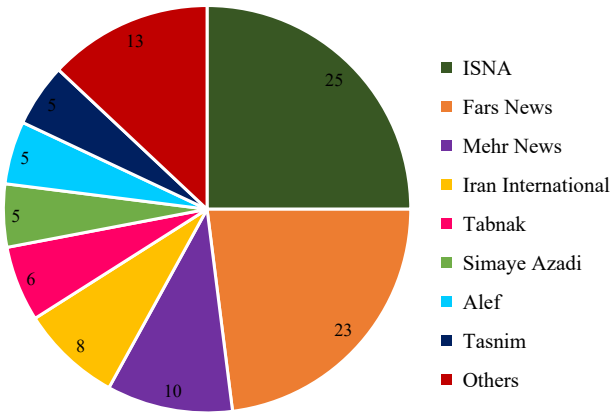


Figure 3. Proportion of News retrieved and analyzed per news agencies and stations

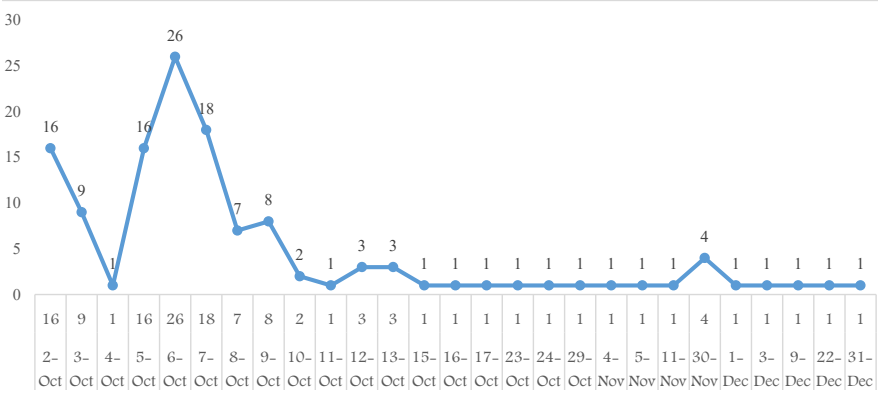


Figure 2. Frequency of the News based on the publication date

effective prevention and behavioral change.

«Talking about the AIDS control programs, the President's Advisor said, 'If we had done a better job of raising awareness, nobody would have believed that people caught HIV from a healthcare worker's procedure or diabetes testing. With proper public awareness, people would have laughed when this rumor first came up." (Fars News, November 30)

In response, stakeholders such as the MoH and associated institutions, including Provincial University of Medical Sciences and the Community Health Center, provided educational services to healthcare providers and households. Additionally, the governor instructed the implementation of stigma-reduction strategies for people living with HIV to reduce social isolation. Furthermore, disseminating relevant news through news agencies and official channels contributed to reducing the spread of rumors.

«In response to the absence of some students from schools, the governor called it unlawful and said, 'I've spoken with the General Director of Education at the provincial level and the Director of Education for the county. If anyone, whether a teacher or principal, uses this issue as an excuse to stop your children from attending school anywhere, I've made sure there's a coordinated plan to hold them accountable, and together, we will take action." (Mehr News, October 6)

In line with these efforts, various stakeholders emphasized both protecting the rights of affected families and addressing misinformation through targeted training and communication initiatives.

"The MoH emphasized its efforts in organizing innovative workshops to train 200 managers, experts, and members of counseling teams. Training sessions were also provided to the families living in the village." (Salamat News, October 6)

Treatment, care, and supports

This category explores the key healthcare and treatment-related challenges and the corresponding actions undertaken during the HIV outbreak. Four main challenges were identified: Limited availability of specialized counseling, inadequate access to healthcare and mobile services, insufficient mental health support, and restricted insurance coverage. These issues contributed to delayed diagnosis and treatment, poor care quality, and deteriorating mental health among those affected.

In response, the MoH and national organizations—including the Provincial Government (PG), the Islamic Consultative Assembly (ICA), the State Welfare Organization (SWO), and the Forensic Medicine Organization (FMO)—implemented various supportive measures. These included expanding screening and testing services, providing medications and psychological care, and establishing dedicated facilities in the affected area.

"The Chancellor of Provincial University of Medical Sciences, while discussing the village outbreak response, emphasized that the university prioritized infrastructure development. He noted that they successfully opened a behavioral consultation center in the County within the first week of the incident. This center, fully equipped with facilities and experienced staff, played a critical role. A specialized team of HIV experts, treating physicians, and coordinators was deployed to the area, providing counseling and treatment services for all identified patients. Every affected individual received diagnostic and mobile care services, with a particular focus on CD4 testing. (Provincial University of Medical Science, December 3)

In addition to rapid deployment of treatment teams, stakeholders also focused on developing sustainable, long-term healthcare infrastructure. These efforts aimed not only to provide immediate relief but also to build capacity for ongoing care and community support.

"In this context, he also outlined ongoing efforts, such as obtaining licenses and setting up a comprehensive health service center. These efforts included securing the necessary personnel, establishing a mobile dental clinic at the comprehensive health center, setting up a specialized lab for CD4 testing, and implementing an electronic care system for the patients." (ISNA, December 9)

Alongside infrastructural development, comprehensive care services were delivered through multi-disciplinary teams, including infectious disease specialists, general practitioners, psychologists, and support staff.

"The head of the Provincial Health Center also explained the care and treatment services provided. This included visits by infectious disease specialists for HIV treatment (765 individuals), sub-specialist visits (250 individuals) to initiate HIV treatment (126 individuals), treating opportunistic and fungal infections (24 individuals), offering psychological counseling services (882 individuals), and general practitioner visits (765 individuals). The medical team conducted 1,950 rapid tests and Western Blot assays, along with comprehensive HIV testing and 120 CD4 tests for initial diagnosis. Additionally, 250 people received vaccinations for influenza, hepatitis, and other diseases, and 100 Purified Protein Derivative (PPD) tests were conducted as part of supplemental treatment measures." (Fars News, 4 November)

Psychosocial impact

Given that HIV is a social phenomenon, its social and psychological impacts lead to numerous adverse effects on various aspects of residents' lives in rural areas, highlighting their psychological and social needs. Intense fear and anxiety surrounding the disease's name were among the most distressing initial experiences for individuals. Additionally, misleading reasons provided by authorities for disease transmission posed another challenge, inflicting emotional wounds on the community. The unjust blame placed on the local health center was also a significant social and psychological burden during the outbreak. The combination of these factors led to heightened tension, severe anxiety within the community, and complicated

management efforts.

"A local villager expressed frustration: "The people here are rational, reasonable, and deeply religious. It's really upsetting that someone in a position of power would sit somewhere and hurt the pure emotions of our people by saying that this disease comes from needles and sexual relations. Our people are virtuous, and there are no unhealthy sexual relations among the ethnicity. Please pass this complaint to the minister, and we hope for an apology to the people." (Iran International, October 8)

During this period, the Provincial Government (PG) and representatives from the Islamic Consultative Assembly (ICA) offered apologies and expressed empathy to aid in healing emotional wounds. They committed to investigating the incident while upholding human dignity and rights. Similarly, the Provincial Representative of Jurist and the student Basij (Islamic student organization) showed solidarity with the community. Meanwhile, the MoH took steps to improve the performance of community health workers while attributing the incident to other factors. Additionally, by clarifying the information regarding the disease's causes, they aimed to reduce societal tension and anxiety.

"Responding to the concerns raised by the villagers, the governor said, 'We apologize to every one of you; your pain is our pain, and we feel your suffering deeply. We're all working together to ease this hardship, but success depends on the cooperation of the community.'" (ISNA, November 30)

Poor governance

The central category of "Poor governance" highlights weak governance and inadequate management in addressing the HIV outbreak in the village. Two sub-categories, National policy, coordination, and program planning" and "Monitoring and evaluation", arise from this category. These sub-categories illustrate the problems stemming from poor management and demonstrate how neglecting these aspects negatively impacts governance responsiveness and causes harm.

National policy, coordination, and program planning

The concept of "Nip the Problem in the Bud" was identified as a challenge within national policies, coordination, and planning efforts. In this context, authorities initially tackled the issue by concealing its true nature rather than addressing it directly. This strategy further complicated and intensified the situation.

"The media landscape is better now than in the past. There was a time when even TV news wouldn't mention the HIV/AIDS virus, but this disease still brings stigma and shame to our nation. Villagers and authorities alike see acknowledging multiple cases of disease in one area as an admission of environments filled with addiction, indecency, and risky behavior. They either gloss over it or flat-out deny it." (Fars News, October 7)

Moreover, the analyzed news content indicated that "Intuitive and less evidence-based comments" reflected careless statements by authorities regarding the cause, which undermined crisis management efforts. Intuitive and less evidence-based comments" refers to statements made by officials that lack empirical support and are based more on personal opinions or generalizations rather than on verifiable data or research. Such statements can undermine crisis management by spreading misinformation or confusion among the public.

"One big issue is that when Iranian officials speak on matters beyond their authority, it stirs up tensions. People see the government as a unified whole, with no clear difference between the judiciary, executive, or legislative branches. So, if any official endorses something by mistake, it's accepted as fact. Officials need to communicate only within their areas of responsibility, with accuracy and accountability." (Tasnim, October 7)

The next challenge identified was "Poor social capital and perceived mistrust," referring to a lack of public trust in the government and limited governmental efforts to build or maintain social capital—defined here as networks of trust, shared values, and relationships that enable cooperation and collective action. Additionally, the "Weakness of information confidentiality" surfaced as a critical issue in government planning and coordination efforts.

"Because of the lack of widespread awareness and, more importantly, the absence of trust in the government, people not only believed the rumor but also doubted our official statements. The erosion of social trust in society is like a form of social AIDS. The only defense for a community is its social capital—the trust people have in governmental institutions. We must realize that our problem isn't just individual-level issues, much like AIDS itself. It's also about losing social capital and the society's ability to resist rumors, damaging news, and growing distrust." (Tabnak, October 9)

Monitoring and evaluation

This sub-category highlights criticisms of the supervision and evaluation process during the crisis. The analysis revealed that inaccurate and flawed reports highlighted ambiguities in authorities' statements about the number of patients and the disease's cause, posing significant challenges in this domain. Additionally, poor context sensitivity emerged as a significant issue in assessment and monitoring discussions. This refers to the authorities' focus on clinical aspects of the disease while overlooking key local factors, such as socio-economic conditions, cultural practices, and regional healthcare capacities.

"There were conflicting figures reported by different officials regarding the actual number of people living with HIV. Some claimed it was under control, while others warned of rapid spread. These inconsistencies made it difficult for local health workers to act decisively." (Alef, October 3)

In addition to these discrepancies in reporting, a key gap emerged in the authorities' understanding of the socio-cultural context. This oversight hindered the timely implementation of strategies that could have mitigated the

spread of the disease. Furthermore, the limitations in the national HIV surveillance system delayed early detection and the execution of critical health interventions.

"The President's advisor highlighted that research indicates many undiagnosed patients remain. This calls for more effective programs, and efforts to diagnose and treat these patients should be expanded." (Fararu, October 7)

To address the challenges arising from governance issues, institutions such as the ICA, the MoH, the Ministry of Interior (MoI), and affiliated units sought to investigate the issue and improve their accountability collaboratively. They oversaw disease detection efforts. Furthermore, they recognized the health center, its staff, and other dedicated authorities for their voluntary efforts in crisis management.

"The Acting Director of the Health Division at the Local/Provincial University of Medical Sciences mentioned that they organized four provincial meetings, bringing together 26 local institutions and representatives from national agencies like the Welfare Organization, Ministry of Interior, and Ministry of Health. These meetings, held at the governorate's office, included the head of the AIDS and HIV Department from the Disease Management Center. He emphasized that they formed five technical committees and scheduled relevant sessions to address the incident in the village." (Alef, October 6)

They established a Truth-Finding Committee and a Specialized Technical Committee to conduct field investigations and assess the actions taken.

"A member of the parliamentary presiding board shared that the board has approved the formation of a Fact-Finding Committee. This committee will investigate the recent incident and assess the possibility of a widespread HIV/AIDS outbreak in the village. Along with several colleagues, I invoked Article 45 of the parliament's internal regulations to push for this committee. Its goal is to uncover any potential misconduct or mismanagement related to the incident and reveal the full truth." (ISNA, October 6)

Political consequences

This category addresses the security challenges that emerged during the HIV outbreak in the village. In essence, political consequence refers to the fact that media agendas are often shaped by institutional media policies, which do not necessarily align with the interests of the public or the community. A key issue highlighted in the news was the amplification by foreign adversarial media and the dissemination of provocative content, which fueled public anxiety and social tension. However, this was not the sole factor; the lack of effective crisis management also contributed to the emergence of civil gatherings, which evolved into a significant security and political challenge. In some instances, these gatherings escalated into anarchic protests marked by disruption and violence, ultimately altering the political dynamics of the region. As a result, the HIV outbreak transcended its nature as a public health issue and turned into a politicized event, a shift that was clearly reflected in the media discourse.

"Earlier today, a group of protestors gathered outside the county governorate building, briefly disrupting its operations. Law enforcement quickly intervened, helping to de-escalate the situation and disperse the crowd. Unfortunately, during the protest, some individuals resorted to actions that disturbed public order, such as breaking windows, throwing stones, setting fires, and damaging vehicles. The swift response of law enforcement eventually brought the situation under control." (Farda, October 3)

This incident not only illustrated the intensity of public anger but also revealed gaps in crisis communication and the preparedness of local authorities to manage social unrest.

"The Health Minister commented, 'This incident was the result of external entities pursuing their own agendas. Foreign and antagonistic news outlets quickly picked up on it, and certain anti-revolutionary elements abroad took advantage of the situation to criticize the system, portraying it as a deliberate attempt to undermine public services. This manipulation distorted public perception, suggesting that HIV-contaminated syringes were somehow connected to our healthcare system." (ISNA, October 12)

In this regard, the Provincial Justice (PJ), PG, and the Police Force (PF) prioritized enhancing public security and welfare. The PJ initiated legal proceedings to address the issue, investigate potential shortcomings, and examine the falsified letter falsely attributed to the Minister, which contained erroneous statements regarding the disease's cause. The ICA requested that the Minister investigate the origins of this issue and the actions taken by the MoH. Moreover, legal actions were pursued against rioters and individuals who compromised public security.

"The Governor of the province reassured that the situation is calm and stable. Both law enforcement and the local community are remaining vigilant to ensure the continued safety and security of the region." (ISNA, October 8)

"Following the circulation of a forged letter bearing the Ministry of Health's letterhead and falsely attributed to the Minister, the provincial judiciary launched an official investigation. The document, which incorrectly claimed that HIV infections in the village were caused by intentional distribution of contaminated syringes, quickly spread across social media and messaging platforms, intensifying public outrage. Authorities confirmed that the letter was fabricated and emphasized the need for legal accountability for spreading misinformation." (Mehr News, October 6)

"The Ministry of Justice addressed the issue of individuals contracting HIV from contaminated syringes, stating, 'A legal case has been opened, and the judicial authorities have already started investigating the matter.'" (Fars News, October 2)

To provide a comprehensive overview of the crisis control efforts and stakeholders' engagement, an

institutional mapping was developed, summarizing the involved actions and stakeholders. This approach is detailed in Table 3, which categorizes actions into six main groups: Legal actions, social supports, information backup, monitoring and evaluation, HIV care, prevention and treatment services, and facilities (Table 3). As highlighted in the table, "HIV Care, Prevention and Treatment Services, and Facilities" stands out with the highest concentration of actions taken to address the HIV outbreak. Stakeholders can be categorized into two groups: a) the MoH and its affiliated institutions (internal) and b) other responsible institutions and organizations (external). The MoH and its affiliated institutions provided one-third of the actions.

Discussion

The content analysis of online news media coverage of the

Table 3. Actions and Stakeholders in the HIV Outbreak Management

Category	Actions	Stakeholders								
		Ministry of Health	State Welfare Organization	Forensic Medicine Organization	Islamic Consultative Assembly	Provincial Government	Police Force	Provincial Justice	Provincial representative of Jurist	The student Basij*
HIV care, prevention, and treatment services	Specialized tests	■		■		■				
	Psychological and psychiatric services	■	■			■				
	Medical services	■			■	■				
	Vaccination of patients	■								
	Medicine procurement	■			■					
	Establishing a comprehensive health service center	■			■					
	Deployment of CD4 machines	■								
	Extending insurance coverage for non-free services	■								
HIV care, prevention, and treatment facilities	Launching a mobile clinic	■								
	Establishing a behavioral consultation center	■								
	Launching mobile dental clinics	■								
	Establishing a comprehensive social services center		■							
	Establishing a positive HIV club		■							
	Provision of educational services to providers and households	■	■							
Social supports	Dealing with stigmatizing behaviors					■				
	Apology and empathy with the people	■			■		■		■	■
	Appreciation for the voluntary efforts					■				
Information back up	Launching a comprehensive electronic system	■								
	HIV infection tracing	■								
Monitoring and evaluation	Formation of truth-finding committees				■	■				
	Provided services following up	■			■	■				
	Formation of technical and specialized committees	■		■	■	■		■		
	Enhancing security and public welfare					■	■	■		
	Legal pursuit							■		
Legal actions	Parliamentary questioning of the minister				■					
	Investigating cases of negligence and malpractice				■			■		
	Dealing with rioters						■	■		

2019 HIV outbreak in a village in central Iran revealed three overarching thematic categories: health-oriented challenges, poor governance, and political consequences, each encompassing distinct sub-categories and challenges. Health-oriented challenges, the most frequently reported category, were characterized by prevention and behavior change barriers (notably stigma, infodemic, and poor health literacy), inadequate treatment and care services, and profound psychosocial impacts including fear, anxiety, and community health worker blaming. Poor governance emerged as a critical theme encompassing weak national policy coordination, intuitive rather than evidence-based decision-making, diminished social capital and public trust, and a deficient HIV surveillance system that delayed timely diagnosis. Political consequences, predominantly reported by foreign adversarial media, included civil gatherings and anarchic protests that escalated the outbreak from a public health issue into a securitized political event.

In response to these challenges, stakeholders, led primarily by the Ministry of Health, implemented actions across six categories: HIV care, prevention and treatment services, social support, monitoring and evaluation, information management, and legal actions, with the majority of reported actions focusing on clinical service provision. These findings underscore the multidimensional nature of HIV outbreak management and highlight critical gaps in addressing the sociocultural and governance dimensions of public health crises. Media analysis has emerged as a crucial research domain in the health field, offering insights, raising awareness, and disseminating diverse societal perspectives on health events. News media serve as significant sources for analyzing content related to laws, policies, challenges, and actions implemented during health crises, as demonstrated in this study.

This study explored the significant impact of HIV-related stigma and inappropriate behaviors toward affected individuals in the context of health challenges. In the village, social stigma towards people living with HIV arises from unfounded beliefs rooted in misconceptions about disease transmission, and potential disruptions caused by the illness. Such discrimination profoundly contributes to the social isolation of these individuals. Prior research in Africa has shown that stigma and discrimination related to HIV disease transmission are widespread, with a notable impact on women.[26]

Our findings resonate with media analyses of other notable HIV outbreaks, revealing both common patterns and context-specific variations. The 2015 HIV outbreak in Scott County, Indiana, USA, the largest HIV outbreak in Indiana's history, received intense media scrutiny that ultimately prompted a public health emergency declaration and a shift in state policy regarding needle exchange programs. A media analysis of this outbreak revealed that news article tone changed significantly during the crisis, allowing new approaches to health related to people who inject drugs to be considered.[27-28] Similar to our findings, the Indiana case highlighted how media coverage amplified public concern while also criticizing the government's slow response, reflecting the governance challenges observed in Iran. However, key differences emerged: in Indiana, media tone towards people who inject drugs was significantly more negative in the decade preceding the outbreak, with most articles being crime-related, whereas during the crisis, article types varied and reframed this population. In contrast, our Iranian case was characterized by stigma rooted in cultural and religious misconceptions about disease transmission, rather than drug use, and media coverage was more heavily influenced by political tensions between domestic and foreign adversarial outlets.

Similarly, the 2019 HIV outbreak in Ratodero, Pakistan, which predominantly affected young children, with 82% of confirmed cases being persons younger than 16 years, was first highlighted by a local journalist, after which it rapidly caught the attention of national and international media. Like our Iranian case, the Pakistani outbreak was ultimately attributed to unsafe healthcare practices, notably the reuse of contaminated needles, and media coverage played a dual role in both raising awareness and perpetuating stigma.[29-30] A study analyzing Pakistani newspaper coverage found that the majority of articles used a "disaster" frame, and newspapers severely underestimated the severity of HIV/AIDS. This framing contrasts with our findings, where Iranian media coverage more prominently featured political consequences and adversarial narratives, reflecting the different media policy environments and geopolitical contexts in which these outbreaks occurred.

These comparative insights underscore that while HIV outbreaks share common challenges, including stigma, misinformation, and governance failures, media coverage is profoundly shaped by local cultural, political, and media policy contexts. The Iranian case was uniquely characterized by the securitization of a public health issue, where foreign adversarial media amplified political narratives and domestic authorities initially attempted to downplay the outbreak, reflecting the specific geopolitical tensions surrounding Iran. This comparison highlights the need for context-sensitive media strategies in outbreak communication and the importance of understanding how media policy frameworks shape the production, dissemination, and framing of health-related news.

The World Health Organization (WHO) defines "infodemic" as the spread of false news, whether with malicious intent or not. Given that such news can adversely affect public health, it is essential to address both types.[31] This phenomenon is particularly consequential in the context of HIV outbreaks, where misinformation can amplify stigma, undermine public trust, and hinder effective health responses. Infodemics and rumors significantly contribute to amplifying stigma. Individuals face stigmatization due to misinformation from unofficial sources and baseless rumors. Anwar et al. emphasize the importance of publishing information from reliable sources, such as the WHO or CDC, during pandemics like COVID-19.[12] Furthermore, research indicates that engaging with positively framed HIV-related news on social media can help foster state empathy among readers, which in turn

helps reduce public stigma towards people living with HIV/AIDS.[32] Also, another study showed that misinformation about HIV prevention and treatment decreases public trust in health interventions and increases stigma, thereby reducing the likelihood of individuals seeking HIV-related services.[33]

Additionally, inadequate health literacy and community education intensified stigma and social isolation. Several studies indicate that HIV stigma correlates with worse mental health,[34] reduced social support.[35] and inferior health outcomes.[36] Countries with higher levels of development generally experience lower HIV prevalence rates, primarily due to adequate community education and support.[37] Furthermore, research has shown that improvements in human capital and governance are closely linked to lower HIV prevalence rates and enhanced sustainability in health outcomes, particularly in regions such as Sub-Saharan Africa. Effective governance and investment in human capital, including education and healthcare systems, can reduce stigma and promote better public health responses to HIV/AIDS.[38] Additionally, a study highlights that individuals with higher levels of social support and education are more likely to engage with HIV-related services and disclose their HIV status, further demonstrating the critical role of community support and education in mitigating stigma.[39]

Villagers also emphasized significant healthcare challenges, including a shortage of specialized and general healthcare providers, limited health centers, and inadequate health insurance coverage. A study conducted in the USA highlighted that most individuals with HIV rely on public health centers and medical insurance programs like Medicaid.[40] A compelling example comes from Zimbabwe, where deficiencies in health infrastructure and denial of disease prevalence led to a crisis.[41] Another observed challenge was the lack of psychological and psychiatric counseling services. This gap stemmed from intense local fear of the disease, which was exacerbated by media reports and other factors. Authorities accused residents of nonmarital sexual behavior, causing emotional distress and heightened anxiety. A study has shown that negative media portrayals during the COVID-19 pandemic significantly impacted people's mental health, with 51% of news published in English being negative. This negativity contributed to increased tension and anxiety among the population.[42]

The study by Sorokowski et al. in 2020 indicated that disease outbreaks, like COVID-19, can lead to severe social problems and increased psychological distance in heavily affected nations.[43] The WHO recommended using accurate information to describe diseases to reduce anxiety stemming from offensive language and media-spread rumors.[44]

The findings of news media analysis revealed that, initially, authorities attempted to suppress and downplay the outbreak instead of managing it accurately. Irresponsible statements regarding the disease's cause further worsened the situation, undermining public trust in the government. This neglect resulted in weak public collaboration in crisis control, highlighting authorities' disregard for social capital. The study by Holtgrave and Crosby in 2003 demonstrated a significant connection between low social capital levels and high rates of sexually transmitted infections, including HIV.[45] Additionally, a notable issue was the lack of confidentiality in disease-related information, revealing weaknesses in monitoring and evaluation efforts. Contradictory reports and unclear information about the number of patients and disease causes created confusion, amplifying community tension and anxiety. Authorities failed to adequately consider local culture, customs, and religious beliefs when reporting the disease's causes, leading to further misunderstandings. The findings also indicated a frail HIV surveillance system, resulting in delays in timely patient diagnosis. A study in Africa about HIV/AIDS highlighted key management challenges, including insufficient clinical expertise, deficient tracking systems, limited laboratory resources, and delayed diagnosis.[46]

During the HIV outbreak, a combination of internal vulnerabilities and external media influences contributed to heightened societal tension and unrest. While some foreign media outlets amplified public anxiety through adversarial narratives, deeper underlying issues—such as low social capital, diminished trust in local authorities, and the perceived lack of transparent and accountable governance—played a more central role. The public's limited health and media literacy further exacerbated the confusion, making communities more susceptible to misinformation and emotional responses. Inadequate crisis communication, weak participatory mechanisms, and fragmented risk messaging from local officials also hindered effective management. Consequently, peaceful protests in the affected village occasionally escalated into unrest, reflecting the broader sociopolitical fragility. This context underscores the need to examine how media policy frameworks, literacy levels, and public engagement strategies interact to shape societal responses during health crises. In this context, Yas et al. in 2021 highlighted the need for governments and healthcare institutions to prioritize developing capabilities to address sensationalized and inaccurate news reports.[47]

Various stakeholders have taken action to address the diverse challenges arising from the HIV outbreak, with the MoH leading efforts in HIV care, prevention, treatment services, and facilities. However, cultural and social dimensions of HIV have received relatively less attention. Ignoring these aspects can hinder community awareness about prevention methods and transmission, ultimately affecting informed health decisions. For example, a study showed that stigma and discrimination significantly impede access to healthcare services for marginalized populations, and systemic inequities have been identified as major barriers to effective HIV management.[48] Therefore, addressing cultural and social factors is crucial for improving community participation in HIV prevention and treatment efforts. Neglecting these dimensions may

not only perpetuate stigma but also deprive individuals with HIV of essential social support, leading to increased social exclusion. This highlights the need for a more comprehensive approach that integrates cultural sensitivity into health strategies to ensure better health outcomes for affected communities.

Study limitations and strengths

While this study provides valuable insights into the challenges and actions taken during the HIV outbreak through media analysis, several limitations must be acknowledged. A primary limitation of this study is its exclusive focus on analyzing online news, which excludes print media such as newspapers and magazines, as well as other news formats like videos. This narrow scope may impact the overall comprehensiveness of the analysis. To mitigate this limitation, we employed a diverse range of media sources, including various online outlets with differing editorial stances, to ensure a more balanced representation of the narratives surrounding the HIV outbreak.

Another limitation of this study is that, although it provides an in-depth analysis of the content of news reports related to the HIV outbreak in a specific region of Iran, it does not address the broader influence of media policies on the production, dissemination, and framing of such content. Media policy frameworks can significantly shape how news is selected, formatted, and circulated, which in turn affects public perception. Exploring this dimension, although relevant, requires further in-depth investigations beyond the scope of the present study.

Additionally, data from media analysis represent secondary information, potentially lacking depth. It is important to recognize that news may not fully depict events due to psychological and political influences on Iranian society, which may introduce biases. Moreover, this study only examined reported actions and challenges, possibly missing unstated stakeholder actions. While we focused on reported actions, we encourage future research to explore unreported stakeholder perspectives to enhance the depth of understanding regarding the crisis management efforts.

Despite these limitations, using diverse media sources with differing opinions enhanced our understanding of media influence, offering insights into various perspectives, challenges, and actions. Future research should include examining print media sources and the influence of media policy to facilitate a comprehensive evaluation of the media landscape related to HIV.

Conclusion

This study highlights the significance of media content analysis in healthcare, particularly regarding HIV prevalence and the media's role in reflecting events and disseminating pertinent information. Addressing the multidimensional nature of HIV/AIDS, encompassing health, social, political, economic, and cultural dimensions, is vital for effective crisis management. However, the findings overemphasize clinical aspects while neglecting crucial areas such as surveillance, evaluation, planning, policy-making, and cultural and psychological facets. Therefore, policymakers are recommended to establish interdisciplinary teams and specialized committees to approach the issue comprehensively. Community awareness campaigns that foster understanding about HIV/AIDS and promote inclusive attitudes towards patients are essential. Furthermore, training the media to accurately disseminate information using local platforms will enhance disease management. Establishing social partnerships between the healthcare sector and the media will also be critical, as strong collaborations can transform the media into a powerful ally for promoting accurate health messages, thereby improving public understanding and fostering trust and cooperation among stakeholders. This study underscores the need for collaboration between media and healthcare sectors to effectively address the complexities of public health events.

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Competing Interests

The authors declare that they have no conflict of interest.

Consent for Publication

Not applicable.

Consent to Participate

Not applicable.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethical Approval

This study was reviewed by the Ethics Committee of Kerman University of Medical Sciences (Ethical Code: IR.KMU.REC.1403.243). The Ethics Committee confirmed that no formal ethics approval or informed consent was required because the study did not involve human participants, human data, or human biological materials. This decision is in accordance with national ethical guidelines for research in Iran.

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