https://doi.org/10.48047/AFJBS.6.13.2024.1069-1103



African Journal of Biological Sciences



ISSN: 2663-2187

Analysing the Role of Indian News Media in Orthopoxvirus Reporting: A Mixed Method Analysis on Monkeypox Online News Coverage

- 1. **Dr. Kriti Singh**, Associate Professor, Amity School of Communication, Amity University, Noida, UP, & Post Doctoral Scholar, Manipur International University, India
- 2. **Dr. Juhi P. Pathak**, Associate Professor, Amity School of Communication, Amity University, Noida, UP & Post Doctoral Scholar, Manipur International University, India
 - 3. **Mr. Swarnendu Roy**, PhD Research Scholar, School of Management, GD Goenka University, Haryana, India

ABSTRACT

The study analyses the representation of Monkeypox virus (MPXV), an Orthopoxvirus in the Indian online English news reports. The study employed mixed method analysis by employing a combination of qualitative and quantitative approaches. The study evaluates the role of Indian online English news in constructing media narratives for the general public's perception and how it documented this zoonotic illness. The study emphasises the crucial function of media in spreading information during health emergencies and emphasises the necessity for precise, impartial reporting to direct public understanding and policy choices in the convergence of human and animal health.

Keywords: Monkeypox, Media Analysis, Public Health Communication, Zoonotic Diseases, Orthopoxvirus, Indian News Media

Article History
Volume 6, Issue 13, 2024
Received: 18June 2024
Accepted: 02July 2024
doi:10.48047/AFJBS.6.13.2024. 1069-1103

INTRODUCTION

The global emergence of Monkeypox virus (MPXV), an Orthopoxvirus, has become a major public health issue and created a major health scare in India, in the backdrop of Covid 19. The simultaneous disease outbreak also turned into a major story for the media. The epidemics made clear how crucial it is for the media to accurately report on infectious diseases. Accurate and knowledgeable journalism is crucial in order to prevent the spread of false information and undue concern, and to encourage the adoption of acceptable health practices. Gaining insight into how the media represents these diseases aids veterinarians and public health experts in formulating efficient communication tactics, so guaranteeing that the concerns of both human and animal health are adequately acknowledged. This is especially

pertinent in the field of veterinary studies since veterinarians frequently play a leading role in handling outbreaks of zoonotic diseases and must be cognizant of the public discourse in order to effectively interact with general population and policymakers.

Prior to April 2022, instances of MPXV virus infection in people were infrequently documented in areas outside of Africa, where the virus is naturally occurring. Presently, instances are occurring on a global scale. The definitions of transmission, risk factors, symptoms, and results of an infection are lacking in clarity. Between April 27 and June 24, 2022, a total of 528 illnesses were diagnosed at 43 sites throughout 16 nations (Dimitrakoff et al., 2022)¹. On September 23, 2022, the World Health Organisation (WHO) identified the MPXV outbreak in India a Public Health Emergency of International Concern (PHEIC). At that time, there were 59 confirmed cases of MPXV reported in the country (Gupta et al., 2023)². Due to its rarity and potential for media misinterpretation, MPXV presents special issues in public health communication, while being a lesser threat than its relative smallpox (Hirani R et al., 2023).³ The way these diseases are portrayed in the media can have a big impact on how the public feels and behaves, especially in nations like India where the media has a huge influence. This study examines how Indian news organisations have handled the challenges of covering MPXV, a relatively recent issue affecting the nation's public health discourse.

The significance of the paper founded on the importance of media coverage in influencing public opinion and response to zoonotic illnesses such as Monkeypox. This research paper makes an attempt to investigate the role played by Indian news media in the context of Orthopoxvirus reporting, with a special reference to the MPXV online news reporting. The purpose of this study is to highlight the minor differences in how monkeypox is covered in a wide range of media outlets, offering important insights into the relationship between media practices and public health reporting. The research study has two main objectives: firstly, to evaluate the accuracy, attitude, and presentation of MPXV coverage in the Indian media; and secondly, to analyse the broader impact of this coverage on public health awareness and policy. The Indian case provides an essential viewpoint to understand the complex nature of health journalism within a fast-evolving global health context. The research study will endeavor to provide a valuable contribution to the academic discussion on health communication, media ethics, and the role of journalism in public health emergencies, by doing a detailed mixed method Analysis on MPXV coverage. The purpose of the studies is to provide beneficial information to journalists, health reporters, and policymakers, specifically in relation to new infectious illnesses.

LITERATURE REVIEW

Monkeypox virus (MPXV), which is an endemic in Central and West Africa, have been reported in both Spain and India. This signifies that MPXV had emerged in nonendemic countries in 2022 due to importation. World Health Organization declared MPXV as Public Health Emergency of International Concern. MPXV has two known clades: West African and Congo Basin. West African clade is the cause of the outbreaks in 2022. First two MPXV cases detected in travelers from UAE to India wherein the clinical symptoms include fever, rashes, and lymph node enlargement. Case 1: Male, developed fever and vesicular rashes, had contact with suspected cases. Case 2: Male, developed dysuria, fever, and vesicular rashes. Laboratory diagnosis confirmed MPXV infection which were diagnosed using real-time PCR. The closed contacts of the infected cases were screened for Monkeypox and SARS-CoV-2. Close contacts of Case 1 tested negative for MPXV. However, brother of Case 2 tested positive for SARS-CoV-2. The cases were referred to a WHO Collaborating Centre for diagnosis. Financial support had been provided by ICMR-National Institute of Virology, Pune. (Yadav, 2022)

The paper discusses the resurgence of MPXV and its spread. Monkey pox is recognized as a sexually transmitted infection (STI). Outbreak has atypical symptoms and limited rash on genitals. PCR test is gold standard for diagnosis. Mainstay of therapy is hydration, washing of hands regularly and avoiding

unnecessary touching of face. Transmission is mainly through direct contact with muco-cutaneous lesions of infected individuals. Transmission can also happen via respiratory droplets or sharing of food, beddings, utensils, also through sexual activity with infected people as a mode of transmission. Drugs like tecovirimat, cidofovir, and brincidofovir used for treatment. Vaccination recommended for high-risk individuals. Incubation period of 7-14 days following contact with infected patient. This paper too like Yadav (2022) mentions the two clades of MPXV: Central African Clade and West African Clade.⁵ (Wttal, 2022)

The paper states that monkeypox is an emerging and re-emerging zoonotic infection of public health significance which is serologically linked to smallpox in humans. The paper highlights the history of the disease stating that it was first observed in 1958 in research colonies of monkeys. The virus causes epithelial papular and vesicular lesions in monkeys and apes. However, it has the potential to spread from person to person. The paper highlights the treatment like Wattal (2022) that Smallpox vaccination can prevent monkeypox in humans. Further on the lines of Wattal (2022) the authors suggest that antiviral treatment with cidofovir or similar analogs is effective. Wattal (2022) also mentioned drugs like tecovirimat and brincidofovir used for treatment apart from the common drug cidofovir (Wattal, 2022 and Pal, 2022). The authors further added that animal trade restrictions were successful in delaying virus spread outside of Africa. The paper states that African rodents serve as the reservoir for the monkeypox virus. The authors suggest that common exposure routes for humans include contact with infected animals or bodily fluids. The other ways of transmission as cited by the authors are through respiratory droplets and contaminated objects including congenital monkeypox. The authors suggest an incubation period of 6 to 13 days close to that of Wattal, 2022 which stated a period of 7 to 14 days, with a prodromal illness before rash appears. Both Yadav et al 2022 and Wattal 2022 stated that diagnosis can be confirmed through laboratory techniques such as PCR. Prognosis is poor for immunocompromised patients however, preventive strategies include hygiene, hand washing, and personal protective equipment. (Pal, 2022)

The authors write that monkeypox is a zoonotic infection caused by the monkeypox virus. The virus is transmitted from animal reservoirs and through human-to-human contact. Human-to-human transmission is a concern for family members and caregivers. Monkeypox can be spread through intimate contact and close contact with infected individuals. Early diagnosis through immunoassays and PCR tests allows for early treatment. The virus affects multiple systems in the body. Symptomatic treatment is preferred, with antivirals and immunoglobulins used in clinical trials. Corneal scarring and loss of vision are significant complications of the infection. Presence of lymphadenopathy is a diagnostic feature. The disease has periodic outbreaks, highlighting the need for research and preparedness. Vaccination and increased surveillance are important prevention strategies for monkeypox. Disparities in healthcare provision need to be addressed for better prevention. Monkeypox prevention strategies include raising awareness and educating people. Increased surveillance and case identification are crucial for understanding monkeypox epidemiology. "Ring vaccination strategy" is used to prevent the spread of monkeypox. Elsevier has created a Monkeypox Information Center with free information. Monkeypox Information Center provides free information on the monkeypox virus. Elsevier grants permission for unrestricted research re-use and analyses. (Deshmukh, 2022)

The literature review collected, analyzed, and synthesized information on monkeypox virus and disease. The authors used credible and reliable sources such as WHO and CDC and recommendations and updates from scientific and government bodies were included. The authors agreed with Deshmukh (2022) and Pal (2022) that monkeypox is an infectious zoonotic disease caused by the monkeypox virus which belongs to the Orthopoxvirus genus and is similar to smallpox virus. The authors deduce from the literature review that monkeypox was first detected in monkeys in Denmark in 1958; and the first human case was identified in the Democratic Republic of the Congo in 1970. Monkeypox is endemic in 11 countries in Central and Western Africa. The natural host of the virus and how it is maintained in nature is still uncertain and hence, there is an urgent need for understanding virus and disease epidemiology as the disease causes severe outcome in children, pregnant women, and immunocompromised hosts. The authors

had written the paper when no cases were reported in India and called out for better preparedness to face the disease if it breaks out In India. The authors identified through their review that surveillance, identification, isolation, and case management are key to response. Disease surveillance, contact tracing, and ring vaccination are important strategies to better manage the outbreak. The outbreak should be used to strengthen public health surveillance and response. (Lahariya, 2022)

The authors highlight the fact that COVID-19 and monkeypox can coexist, increasing vulnerability and mortality. The authors state the historical background of the disease as a viral disease prevalent in Central and West Africa which has spread to Southeast Asia, with the first case reported in Singapore. The authors have looked at the possibility of outbreak in southeast Asia with spotlight on Bangladesh, Pakistan, and India. Herein. The authors apprehend that Pakistan's healthcare system will be at risk if monkeypox spreads as samples will have to be transferred overseas with lack of virus diagnostic facility in Pakistan. New infections reported in non-endemic countries with monkeypox already prevalent in 12 endemic countries. Bangladesh imposes restrictions on sailors due to global spread of monkeypox. The authors had published this paper when India reported its first suspected case of monkeypox with samples being submitted for testing. The paper discusses the current monkeypox virus epidemic and its impact on healthcare systems. The World Health Organization (WHO) is collaborating with affected countries to improve disease surveillance. (Khatri, 2022)

The paper proposes using Twitter and web news mining to predict monkeypox outbreaks. The FAMEC model shows potential in tracking and monitoring the disease. The authors reiterate Pal (2022), Deshmukh (2022) and Lahariya (2022) that monkeypox is a zoonotic disease caused by the monkeypox virus which was first detected in captive monkeys in 1958. Monkeypox has become endemic in African countries, especially in West and Central Africa which is corroborating with Yadav (2022) and Lahariya (2022). Human monkeypox cases were detected outside Africa in 2003. The analysis of social media data helps predict monkeypox morbidity rates and inform policymakers. Twitter is a popular social network with millions of daily active users. The study highlights the importance of tweets compatible with WHO guidelines. The study highlights the potential of the FAMEC model to track and monitor monkeypox. Social media data analysis revolutionizes infodemiology and aids in accurate investigation. Predicting monkeypox morbidity rates helps implement preventive programs in high-risk regions. However, the limitations of the paper include lack of tracking and monitoring monkeypox in areas with no access to social networks. Another limitation is that the language of posted tweets processing was English, which may influence results. ¹⁰ (Jahnabin, 2022)

The authors highlight the fact that monkeypox declared a public health emergency by WHO. Fake news on social media worsens the situation. The authors include a list of recommendations which include raising public awareness through engagement with civil society organizations, preventing stigma, need for cooperation between policymakers, medical community, mainstream media, and social media platforms. The authors emphasize on the need of providing accurate official news about MPX and debunking circulating myths and misinformation. The authors also stress on utilising public trusted figures to provide positive input and counter misinformation. Research gaps exist in public health messaging and health promotion. The authors also recommend that WHO-one health approach should be established and prioritized. WHO resources include guidance on countering misinformation through storytelling.¹¹ (Farahat, 2022)

The authors have revealed public sentiment and emotions through Twitter analysis of monkeypox tweets. The authors have found that misinformation, conspiracy theories, and discussions on rising case numbers were common. Some tweets provided information on vaccines, symptoms, and prevention methods. Negative emotions like fear and sadness were prevalent in tweets about monkeypox. Tweets provided vital public health information and tracked global case counts. Analysis of affected populations can provide better healthcare opportunities in the future. The authors had collected 981,725 tweets from 436,157 unique users during the study period. Analyzed 384,925 unique users who generated 858,581

English-language tweets. Tweets with media comprised 13% videos, 12% photos, and 33.4% URLs. 49.3% of tweets had at least 1 like, 28.6% received at least 1 reply, and 21% were retweeted at least once. Compared daily case counts of monkeypox cases with tweets and provided a timeline of events. English-language tweets with the keyword "monkeypox" were analyzed. Gender, ethnicity, and race of Twitter users were reported. Topic modeling using a latent Dirichlet allocation (LDA) model was performed. The authors have concluded that Twitter is effective for tracking sentiment on public healthcare issues and analysis of Twitter data can help provide better healthcare opportunities to affected populations. (Cooper, 2023)

The authors have highlighted the outbreak of monkeypox in multiple continents, with over 16,000 confirmed cases with special emphasis on the cases that have been reported in India and Southeast Asia region. The paper mentions that the disease burden is highest in Europe, affecting popular tourist destinations. The paper suggests that close cooperation is needed between veterinary and public health specialists as the high mutation rate of monkeypox virus poses a potential pandemic threat. The paper also suggests that early detection, contact tracing, and quarantine measures are crucial for containment. Increased resources and public health policies needed to address the impact. Collaboration between WHO and health authorities necessary for containment. The authors have highlighted the cases reported in India, with travel history from UAE and local transmission. The policy recommendations include the urgent need for modernization and improvement of healthcare infrastructure, implementation of appropriate restrictions on air travel and screening at international airports, cooperation between veterinary and public health specialists, implementation, and adherence to screening and quarantine policies, contact tracing, quarantine, and ring vaccination for close contacts, and an increase in resources directed towards public health policy. (Sah, 2022)

The authors, in their paper, have highlighted the global health emergency status of the monkeypox outbreak, immune responses to the virus, and clinical symptoms and consequences of infection. The study highlights the need for randomized clinical trials to assess medication efficacy, the necessity of assessing medication efficacy in both current outbreak and endemic regions, and the potential partial explanation of increased monkeypox prevalence by gradual loss of immunity to smallpox. The paper suggests the need for the availability of second-line medications, further research on monoclonal antibodies and chemical compounds as potential treatments, and in-depth understanding of vaccination and routine testing of dosage administration in next clinical vaccine trials. The policy recommendations in the paper include the availability of guidelines for diagnosis and treatment of monkeypox, strong recommendation for isolation in hospital settings, specific surveillance measures, targeted testing and education, and community involvement in structuring public health measures. (William, 2023)

METHODOLOGY

To gain a thorough understanding of how the Indian news media presents Monkeypox, the research study employed a mixed-methods approach. This involved analysing media reporting on Monkeypox using both qualitative and quantitative content analysis techniques. The sampling design was purposive sampling. The sample was selected from Indian English online media portals. The selected timeframe spans from July 2022, when the initial incidence of monkey pox was documented, until September 2022, when the reported cases reached zero (William, 2023)¹⁵. The data collection was conducted by collecting a dataset of news articles, online news clips, and online news reports that relate to Monkeypox from Google News. In order to gather a detailed collection of news articles pertaining to monkeypox, the Google News database was utilised from timeframe July 2022 to Sept 2022. The inclusion criteria involved only those news reports which were generated by Indian online news media only in English language and related to India only. Besides this other news stories were excluded. The first search key word "monkey pox" was used. It yielded 27 Google webpages on 02 Dec 2023 with approx. 267 news reports. After applying inclusion and exclusion criteria 32 news reports were identified. The second search key word "monkey

pox and India" was used. It yielded 19 Google webpages on 02 Dec 2023 with approx. 184 news reports. After applying inclusion and exclusion criteria 33 news reports were identified. In total 65 news reports were identified.

DATA ANALYSIS

Given that the study employed a mixed method approach, the data was examined using both quantitative and qualitative methods. The process involved classifying the various types of articles, such as news reports, editorials, and feature stories and evaluating the level of significance given to the coverage the sorties related to Monkeypox. While undertaking the qualitative analysis, the study identified key themes emerging from the collected datasets. Concurrently, while undertaking the quantitative analysis, the research study measured the frequency of the news report generated during the timeframe on Indian news portal, the news sources, trends, media framing, media tone and so on. The data underwent in-depth analysis, during which themes and patterns were identified. The analysis also included an assessment of the media reports' tone, taking into account factors such as 'neutrality, alarming, or reassurance, sensationalism was also examined. In addition, the analysis also included an examination of the framing of the news items, categorising them as either "medical, awareness, political, or social".

RESULTS

Qualitative Data Analysis of the Monkeypox Online News reports:

This section will discuss the qualitative data results, in terms of thematic analysis, major domination themes which emerged from the data.

Key Themes emerged front the data:

Monkeypox News: Key Themes							
S. No	Headline	New Source	Theme 1	Theme 2	Theme 3		
Report No 1	First Monkeypox case reported in Kolkata? Student admitted with RASH, other symptoms	Zee News	Suspected Monkeypox case	Focus on medical response and preventive measures	Rackground		
Report No 2	Kerala reports India's first confirmed monkeypox case	The Hindu	(Confirmed	Public Health Response	Nil		
Report No	Govt issues guidelines to manage monkeypox after India's first confirmed case	India Today	Government response	Public health guidelines	Prevention and control measures		
Report No 4	Monkeypox diet: Foods you must eat to make	Hindustan Times		Importance of nutrition	Hydration and healing		

Monkey	pox	News: Key Themes				
		quick recovery)				
Report 5	No	Monkeypox Diet: 5 Food Items That Will Help You Recover Well Instantly	IANS	Specific dietary recommendatio ns	Nutritional benefits	Role of diet in recovery
Report 6	No	All we know about the monkeypox virus outbreak so far	The Hindu	Virus origin and transmission	Global spread and impact	WHO's emergency declaration
Report 7	No	India to enhance lab capacities for monkeypox testing.	The Hindu Business Line		Surveillance and testing strategies	Nil
Report 8	No	Monkeypox symptoms, prevention, and everything you need to know about the rapidly spreading virus	Live Mint		Symptoms and healthcare advice	Nil
Report 9	No	Monkeypox virus isolated from clinical specimen of patient	Live Mint	Scientific achievement in virus isolation	Government guidelines for patients	Nil
Report 10	No	Monkeypox patients to isolate for 21 days, keep lesions covered: Govt issues guidelines	Live Mint	Government guidelines for isolation and care	Status of monkeypox cases in India	
Report 11	No	Rename Monkeypox clamour grows: Here's why experts call it racist	Live Mint	Renaming push to prevent stigma	Historical/social context	Past outbreaks' societal impact
Report 12	No	Monkeypox spreading among children; 80 kids infected so far	Live Mint	Spread among children	Historical context	Treatment options/challe nges
Report 13	No	Kerala: First monkeypox case detected in India discharged	The Hindu	Recovery of the first monkeypox patient in India	Effective	Continuation of preventive measures
Report 14	No	India's first monkeypox patient 'completely cured'	Live Mint	Full recovery of India's first monkeypox patient	Negative test results of contacts	Ongoing surveillance and prevention efforts

Monkey	Monkeypox News: Key Themes							
Report 15	No	What type of vaccine will work against monkeypox?	The Hindu	and	Global and Indian response to vaccine needs	•		
Report 16	No	Monkeypox vs Chickenpox: Know the key differences between symptoms by doctors	Live Mint	Comparison of Monkeypox and Chickenpox symptoms		Nil		
Report 17	No	Monkeypox Centre forms task force to monitor virus situation	The Hindu	task force for	Discussion on vaccination strategies	Nil		
Report 18	No	India reports 9 monkeypox cases, 1 death — List of states where infection has been found	CNBC	National tally of monkeypox cases	State-wise infection distribution	Nil		
Report 19	No	Monkeypox virus, disease outbreak: Centre holds meet with top health experts as cases rise to 9	Zee Business	Centre's management of the outbreak	Revisiting existing guidelines	Nil		
Report 20	No	Monkeypox: A.2 strain found in 2 cases in India. Know everything about the West African clade	Live Mint	of A.2 strain in	Differences in monkeypox virus strains			
Report 21	No	Monkeypox is overwhelmingly affecting gay and bisexual men. What do they need to know?	The Conversatio n	Monkeypox's impact on gay and bisexual men	Transmission methods and preventive measures	Vaccination and public health recommendati ons		
Report 22	No	Monkeypox vs Chickenpox: Here's how to differentiate between them, other rashes.	Hindustan Times	Monkeypox	Confusion in symptom identification	Doctor's insights on diagnosis		
Report 23	No	Monkeypox complications more	The Hindu	complications	Medical journal insights	Pediatric healthcare focus		

Monkeypox News: Key Themes							
		common in children: Lancet study					
Report 24	No	Monkeypox: Here's Everything We Know About the New A.2 Strain	NDTV	Distinct characteristics of A.2 strain	Symptomatology and transmission	Comparison with other strains	
Report 25	No	India's first indigenous monkeypox test kit launched	Live Mint	Development of test kit	Public health measures	Indian scientific advancements	
Report 26	No	Study shows monkeypox virus can stay on common household items: US govt	India Today	Virus longevity on surfaces	Household transmission risks	CDC research findings	
Report 27	No	Monkeypox in India: Heterosexual contact seen in 3 out of 5 cases in Delhi, says ICMR	Live Mint		Case studies in Delhi	ICMR study insights	
Report 28	No	15 virology labs designated for surveillance of the virus.	Hindustan Times		Government lab designation	Case monitoring efforts	
Report 29	No	World monkeypox outbreak tops 50,000 cases	The Hindu	WHO's alarm and global response	Case numbers and trends	International health emergency	
Report 30	No	Monkeypox vaccines: India puts emergency buying on hold for now - here's why	Live Mint	Vaccine procurement strategy	National case status	Serum Institute's role	
Report 31	No	Monkeypox: Sixth case reported in Delhi, patient in stable condition.	Live Mint	Case report in Delhi	Patient demographics and condition	Government guidelines	
Report 32	No	Monkeypox may cause neurological damage, including inflammation of the brain: study	The Hindu	Neurological and psychiatric complications	Research and study findings	Potential long-term impacts	

Monkey	pox	News: Key Themes				
Report 33	No	American actor Matt Ford confirms monkeypox diagnosis, first person ever with infection to go public	IANS	Personal impact	health system critique	Nil
Report 34	No	Monkeypox in India, what now?	India Today	Government response	Public misconceptions	global context
Report 35	No	Monkeypox in India: Here's all you need to know about the virus and the measures taken	Live Mint	Preventative Measures	Nil	Nil
Report 36	No	How to manage monkeypox symptoms in kids; expert offers tips	Hindustan Times	Child Health, Symptom Care	Nil	Nil
Report 37	No	Monkeypox case in India: Third confirmed case reported from Kerala's Mallapuram	Live Mint	Case Reporting	Nil	Nil
Report 38	No	Man with no history of foreign travel tests positive for monkeypox in Delhi	India Today	Case Reporting	Nil	Nil
Report 39	No	15 labs across country to start testing for monkeypox	The Indian Express	Government response	Testing expansion of Monkey Pox	Nil
Report 40	No	Monkey Pox: Monitoring, Awareness Keys to Control, Says Dr Satyajit Rath	NewsClick	Virus Spread, Awareness	Precautions from Monkey Pox	Nil
Report 41	No	Monkeypox: Symptoms, complications, and treatment explained in Pics	Zee Business	Symptoms, Transmission	Prevention from Monkey Pox	Nil
Report 42	No	Monkeypox Not a Threat to India Currently; Can Quickly Become One	NewsClick	Public Health Measures	Potential Threat from Monkey Pox	Nil

Monkey	pox	News: Key Themes				
Report 43	No	8 test negative for monkeypox in Maharashtra, results of 2 awaited	The Times of India	<i>U</i> ,	Public Health Response	Nil
Report 44	No	Monkeypox: Experts warn of 2 symptoms that were never heard before.	Live Mint	Numminume of	Global Spread of Monkey Pox	Nil
Report 45	No	Monkeypox: Vaccine demand rises, and just one small Danish company makes it	Live Mint,	Vaccination for Monkey pox	Global Demand for vaccination	Nil
Report 46	No	Monkeypox in India: 4 cases confirmed, 1 recovered; states prepare hospital beds for patients	Live Mint	Case Reports of Monkey Pox		Nil
Report 47	No	Monkeypox: Centre to form task force to monitor cases across India	Live Mint	Government Response	Task Force Formation	Nil
Report 48	No	Suspected monkeypox case detected in HP's Baddi	Hindustan Times	Case Reporting	Symptoms of Monkey Pox	Nil
Report 49	No	Are monkeypox scars permanent Know tips to lighten or erase them completely Monkeypox	India TV	Health Impacts	Scar Management	Nil
Report 50	No	Monkeypox: 8 cases in India so far, 1 death. 10 things to know	Live Mint	Case Numbers	Government Response	Nil
Report 51	No	Monkeypox cases driven 'underground' by anti-gay stigma in India	The Hindu Business	Stigma related to Monkey Pox	LGBTQ+ Issues	Nil
Report 52	No	Monkeys are getting killed in this country amid monkeypox scare; WHO alarmed	Live Mint	Misinformation related to Monkey Pox	Animal Welfare	Nil

Monkeypox News: Key Themes							
Report 53	No	WHO announces new names for monkeypox virus variants using Roman numerals	India Today	Scientific Approach	Naming Conventions	Nil	
Report 54	No	Monkeypox scare 5th case of infection reported in Delhi, India's total tally reaches	DNA India	Case Reporting of Monkey Pox	Health Measures	Nil	
Report 55	No	5th Monkeypox case detected in Delhi, 22-yr- old woman admitted in LNJP	The Economic Times	Case Reporting of Monkey Pox	Health Measures	Nil	
Report 56	No	Experts decode the link between monkeypox and inflammation of the heart muscles	The Indian Express	Complications	Treatment	Nil	
Report 57	No	40-year-old German man with severe monkeypox tests HIV positive, diagnosis after painful red spot-on nose	India Today	Co-infection and Monkey Pox	Severity of Monkey Pox	Nil	
Report 58	No	Monkeypox symptoms on skin: Man shows how rashes changed day by day	Live Mint	Symptom Progression of Monkey Pox	Nil	Nil	
Report 59	No	Monkeypox As Cases Rise in India, Here Are Some Commonly Asked Questions Answered (FAQs)	NDTV	Prevention from Monkey Pox	Symptoms of Monkey Pox	Nil	
Report 60	No	What is Tomato Flu and how is it different from Monkeypox?	Business Today	Disease Comparison	Nil	Nil	
Report 61	No	In a first, man tests positive for Covid, monkeypox and HIV	Live Mint	Co-infection Complexity	Nil	Nil	
Report 62	No	Monkeypox cases rise in male sex networks, can it spread further?	India Today	Spread in Specific Groups	Nil	Nil	
Report	No	New sub-lineages of	The Hindu	Virus	Nil	Nil	

Monkeypox News: Key Themes							
63	monkeypox virus emerge		Evolution				
Report No	Experts: Surveillance of monkeypox cases can be strengthened by screening at-risk groups	Express	Surveillance Strategies,	At-risk Groups	Nil		

Table: 1



Fig 1: Top three themes from the analysis of Monkeypox news reports



Fig 2: Top ten key themes from the Monkeypox news reports

Quantitative Data Analysis of the Monkeypox Online News reports

This section will discuss the quantitative data results, in terms of content analysis (including word cloud & word trends), evaluation of news coverage (on basis of accuracy, attitude and presentation), news sources, theme frequency, media framing and news tones.

Quantitative content analysis: Word cloud and Word Trends

S. No	Headline	New Source	Word Cloud	Word Trends
1.	First Monkey pox case reported in Kolkata? Student admitted with RASH, other symptoms		student Sample admitted POX suspected kelkata testing monkey	

2.	Kerala reports India's first confirmed monkeypox case	The Hindu	close kollam kerata days fever state monkeypox eerson health time cantact isolated contacts case disease		
3.	Govt issues guidelines to manage monkeypox after India's first confirmed case	India Today	patients confirmed wrus skin disease patient lesions materials infected CASE purson korals health CASE purson tollams contact guidelines monkeypox		
4.	Monkeypox diet: Foods you must eat to make quick recovery)	Hindust an Times	diet minerals health intake foods important protein vitamins water monkeypox	5 10 mm 1	
5.	Monkeypox Diet: 5 Food Items That Will Help You Recover Well Instantly	IANS	diet health vitamin fresh digestive monkeypox helps hasil hay food recover		Librage Bel Shatter Facilities (Say Sub-out Sections)
6.	All we know about the monkeypox virus outbreak so far	The Hindu	disease contact atrica humans public monkeypox international health outbreak virus cases	Section 1	

7.	India to enhance lab capacities for monkeypox testing.	The Hindu Busines s Line	country labs reported health Cases testing ministry surveillance monkeypox		
8.	Monkeypox symptoms, prevention, and everything you need to know about the rapidly spreading virus	Live Mint	disease cases virus health infected monkeypox spread world strain reported symptoms	111111	
9.	Monkeypox virus isolated from clinical specimen of patient	Live Mint	contacts medical health monkeypox isolated delhi icmr virus patient	11,111	
10.	Monkeypox patients to isolate for 21 days, keep lesions covered: Govt issues guidelines	Live Mint	monkeypox virus contact days patients cases		
11.	Rename Monkeypox clamour grows: Here's why experts call it racist	Live Mint	virus communities monkeypox public health vaccine	111111111111111111111111111111111111111	
12.	Monkeypox spreading among children; 80 kids infected so far	Live Mint	children kids cases monkeypox outbrook Virus		

13.	Kerala: First monkeypox case detected in India discharged	The Hindu	surveillance health tested district close monkeypox		
14.	India's first monkeypox patient 'completely cured'	Live Mint	kerala cases monkeypox health disease government	1,11	
15.	What type of vaccine will work against monkeypox?	The Hindu	monkeypox virus disease vaccine effectiveness smallpox	900 1990 1990 1990 1990 1990 1990 1990	
16.	Monkeypox vs Chickenpox: Know the key differences between symptoms by doctors	Live Mint	chickenpox smallpox lesions monkeypox symptoms doctors		
17.	Monkeypox Centre forms task force to monitor virus situation	The Hindu	monkeypox virus force cases		

18.	India reports 9 monkeypox cases, 1 death — List of states where infection has been found	CNBC	positive man tested monkeypox contact disease cases sources	
19.	Monkeypox virus, disease outbreak: Centre holds meet with top health experts as cases rise to 9	Zee Busines s	contact retries to lesies cases authread person lesies cases approx disease health monkeypox days centre guidelines wirus management wirus meeting	
20	Monkeypox: A.2 strain found in 2 cases in India. Know everything about the West African clade	Live Mint	strain monkeypox Virus developed Cases severe infected african	
21	Monkeypox is overwhelmingly affecting gay and bisexual men. What do they need to know?	The Conver sation	spread outbreak people disease study symptoms virus monkeypox hisexual intected health given person access Contact	
22	Monkeypox vs Chickenpox: Here's how to differentiate between them, other rashes.	Hindust an Times	chickenpox lesions virus symptoms spread caused rash batra nonkeypox body differentiate days person contact bentth typical skin rashes	
23	Monkeypox complications more common in children: Lancet study	The Hindu	complications health infection disease monkeypox children increased	

24	Monkeypox: Here's Everything We Know About the New A.2 Strain		medical different cases symptoms measures research. monkeypox preventive strain	Section 1	A Section of the Control of the Cont
25	India's first indigenous monkeypox test kit launched	Live Mint	health transasia contact kit symptoms monkeypox developed disease centre		
26	Study shows monkeypox virus can stay on common household items: US govt	India Today	contaminated household contact monkeypox home cdc body common study	9 94 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	
27	Monkeypox in India: Heterosexual contact seen in 3 out of 5 cases in Delhi, says ICMR	Live Mint	monkeypox urine Cases contact report symptoms history infections		
28	15 virology labs designated for surveillance of the virus.	Hindust an Times	monkeypox medical surveillance institute cases research cases community college yovernment	- Tomor	

29	World monkeypox outbreak tops 50,000 cases	The Hindu	public health slowing monkeypox cases infections outbreak		
30	Monkeypox vaccines: India puts emergency buying on hold for now - here's why	Live Mint	vaccine cases poonawalla outbreak monkeypox emergency government	I III	
31	Monkeypox: Sixth case reported in Delhi, patient in stable condition.	Live Mint	cases african health monkeypox delhi woman condition study	111111111111111111111111111111111111111	
32	Monkeypox may cause neurological damage, including inflammation of the brain: study	The Hindu	problems studies infection monkeypox neurological research current symptoms people	-	
33	American actor Matt Ford confirms monkeypox diagnosis, first person ever with infection to go public	IANS	monkeypox currently sleep painful night ford people matt ford get actor government infection	-	
34	Monkeypox in India, what now?	India Today			

			pandemic Spread intection monkeypox contact covid-19 disease		
35	Monkeypox in India: Here's all you need to know about the virus and the measures taken	Live Mint	guidelines health animals body state kerala monkeypox world people ministry symptoms contact	11:11:1	
36	How to manage monkeypox symptoms in kids; expert offers tips	Hindust an Times	children lesions infection fover tips contact monkeypox rash child affected experts symptoms	111111111111111111111111111111111111111	
37	Monkeypox case in India: Third confirmed case reported from Kerala's Mallapuram	Live Mint	symptoms release medical lever contact confirmed added monkeypox kerala minister government health	1,1111	
38	Man with no history of foreign travel tests positive for monkeypox in Delhi	India Today	patient positive health skin fever cases monkeypox ward hospital contact days delhi	li 1211	St. Size of the state of the st

39	15 labs across country to start testing for monkeypox	The Indian Express	testing include labs history monkeypox test infection sample covid-19 tested institute	1111	
40	Monkey Pox: Monitoring, Awareness Keys to Control, Says Dr Satyajit Rath	NewsC lick	people spread contact disease pox monkey transmission		Si Selata ha di managa mananana laga da hangi hai di manalan
41	Monkeypox: Symptoms, complications, and treatment explained in Pics	Zee Busines s	analysts pic picks complications monkeypox twitter handle pics symptoms	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
42	Monkeypox Not a Threat to India Currently; Can Quickly Become One	NewsC lick	use testing world time public cases community monkeypox threat cities complacent covid-19 quickly health	Lant.	At the second of
43	8 test negative for monkeypox in Maharashtra, results of 2 awaited	The Times of India	suspects surveillance officials days maharashtra state travei monkeypox himc countries results patients negative tested health	11111	

44	Monkeypox: Experts warn of 2 symptoms that were never heard before.	Live Mint	identified rectal sex pain discrimination chief presentations symptoms		
45	Monkeypox: Vaccine demand rises, and just one small Danish company makes it	Live Mint	danish organization vaccines world health days global smallpox monkeypox billion vaccines vaccines varid health days global smallpox monkeypox billion vaccines		
46	Monkeypox in India: 4 cases confirmed, 1 recovered; states prepare hospital beds for patients	Live Mint	suspected government confirmed pradesh CASES state countries monkey nox patients hespital nadu vaccine	- Tanas	
47	Monkeypox: Centre to form task force to monitor cases across India	Live Mint	africa disease cauntry monkeypox death health cases		
48	Suspected monkeypox case detected in HP's Baddi	Hindust an Times	contracted disease viral Symptoms monkeypox smallpox similar haddl scales pox suspected patient health		
49	Are monkeypox scars permanent Know tips to lighten or erase them completely Monkeypox	India TV	permanent scarring monkeypox scar animals lesions durker scars		

50	Monkeypox: 8 cases in India so far, 1 death. 10 things to know	Live Mint	delhi man health country MONKEYPOX cases kerala smallpox		
51	Monkeypox cases driven 'underground' by anti-gay stigma in India -	The Hindu Busines s	health director homosoxuality discrimination gay sexual hy disease monkeypox cases contact contacts outbroak stigma identifying	11111	
52	Monkeys are getting killed in this country amid monkeypox scare; WHO alarmed	Live Mint	health cases emergency monkeys declared disease spread	Towns	
53	WHO announces new names for monkeypox virus variants using Roman numerals	India Today	agreed health experts names current variants group roman claties maning numerals monkeypox		
54	Monkeypox scare 5th case of infection reported in Delhi, India's total tally reaches		delhi stay sample monkeypox health positive tested		

55	5th Monkeypox case detected in Delhi, 22-yr-old woman admitted in LNJP	The Econo mic Times	monkeypox economic patients tested Injp patient health admitted sample delhi positive		
56	Experts decode the link between monkeypox and inflammation of the heart muscles		inflammation disease symptoms skin viral monkeypox energy current cause muscle patient heart study myocarditis		
57	40-year-old German man with severe monkeypox tests HIV positive, diagnosis after painful red spot-on nose	India Today	thisters daily nose positive nose positive monkeypox spot severe diagnosed hiv tests infection		
58	Monkeypox symptoms on skin: Man shows how rashes changed day by day	Live Mint	lesions world cases spread skin monkeypox medical symptoms disease		
59	Monkeypox As Cases Rise in India, Here Are Some Commonly Asked Questions Answered (FAQs)	NDTV	contact frequently help centracting person animass fever monkeypox avoid cases infected information spread	111111111111111111111111111111111111111	

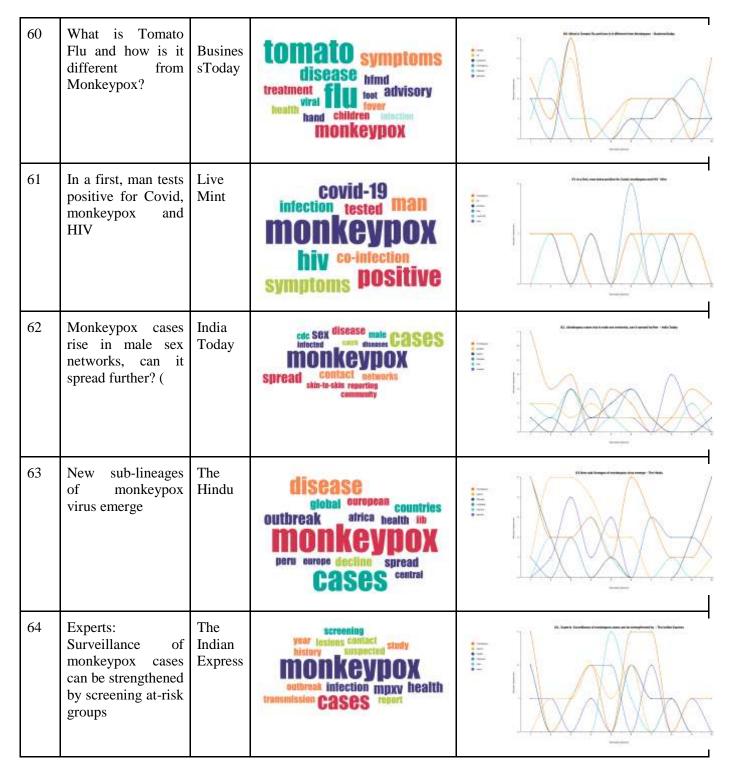


Table: 02

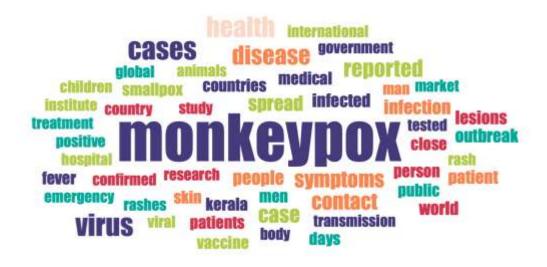


Fig 3: Word Cloud based on most frequently used words in the Monkey Pox news reports

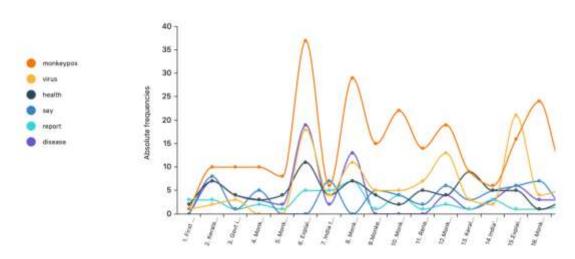


Fig 4: Word Trends in the Monkey Pox news reports Evaluation of news coverage (on basis of accuracy, attitude, and presentation)

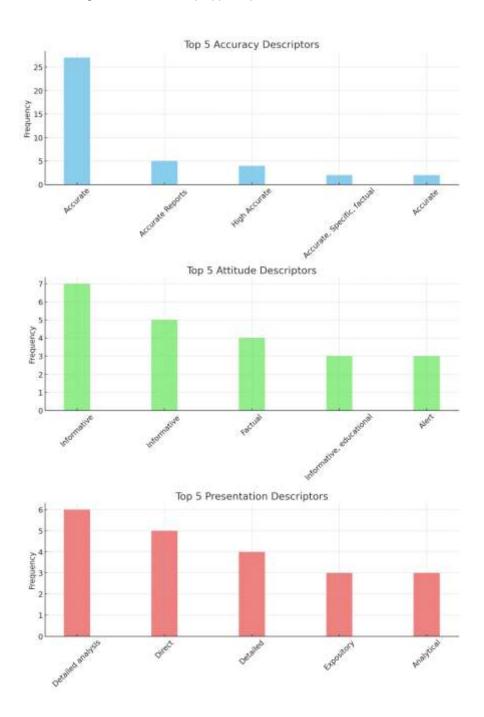


Fig 5: Top 5 Accuracy, Attitude & Presentation Descriptors in Monkeypox News Reports

Evaluation of Monkey Pox News Sources

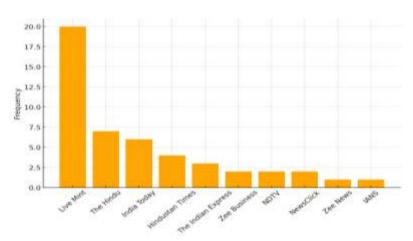


Fig 6: Top 10 News Sources by Frequency in Monkeypox Reports

Media Framing Analysis

Following is the media framing analysis extracted from 64 news report related to monkey pox:

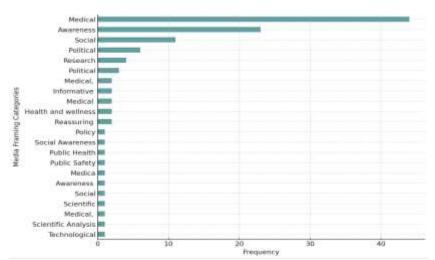


Fig 7: Frequency of media frames in the Monkey Pox news reports

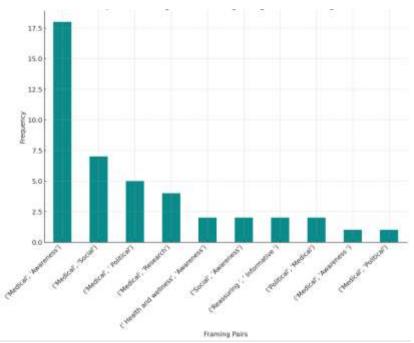


Fig 8: Top Co-occurring media frames in the Monkey Pox news reports

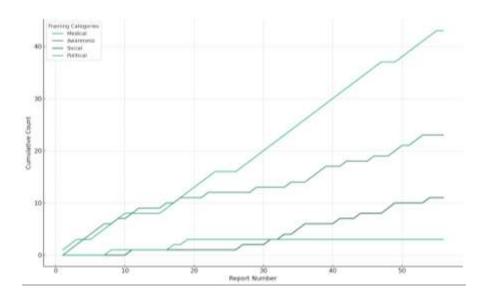


Fig 9: Cumulative Trends of Media Framing from the Monkey Pox news reports

Following is the summary of the media framing analysis:

Dominant Framing Categories: 16

- **Medical:** This frame is the most common, highlighting a significant focus on the medical elements of monkeypox in the news accounts.
- **Awareness:** This is the subsequent most common approach, emphasising the need of increasing public knowledge of the disease.

Additional noteworthy representations:

 Social and Political: Although less common, these perspectives are nevertheless noteworthy, indicating that certain accounts also discuss the societal and political ramifications of monkeypox.

Co-occurrence of Framings:

- The prevailing co-occurrence of framing is "Medical" and "Awareness", which signifies a collective emphasis on medical knowledge and public consciousness in numerous reports.
- Additional co-occurrence, such as "Medical" and "Social" or "Medical" and "Political," signify the merging of medical knowledge with wider societal and political dialogues.

Trends Over Time:

- The trend assessment reveals a persistent upward trajectory in the utilisation of the "Medical" framework, highlighting its escalating significance in the narrative as time progresses.
- The term "Awareness" exhibits a rising pattern, although less prominent than "Medical," suggesting its continued significance.
- The "Social" and "Political" framings exhibit a slow rise, underscoring their secondary yet enduring significance in media framing.

News Tone Analysis:

The stacked bar chart illustrates a combined frequency of the tones employed in reports regarding monkeypox. Following is a concise overview of the observations derived from the chart:

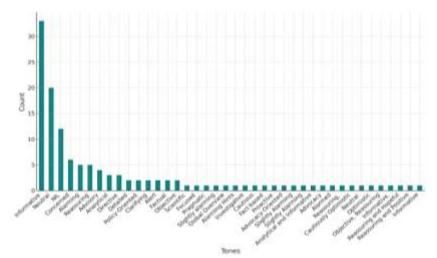


Fig10: Combined Frequency of News Tone in the Monkey Pox news reports

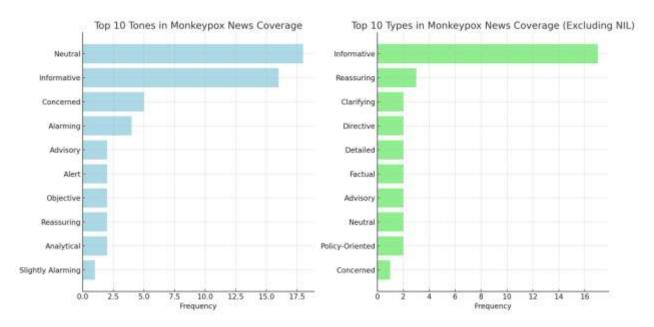


Fig 11: Top ten Tones & Types of Monkey pox news reporting

The summary of the data on "Monkeypox News: News Tone" highlights the predominant tones and categories as follows:

Tones.

- **Neutral:** It was most frequently mentioned tone, which reflects a fair and unbiased attitude in the news reporting.
- **Informative**: It was the second most common tone, which indicates that emphasis on delivering factual and informative information.
- **Concerned:** This tone demonstrated the concern or sensitivity for the topic at hand.
- Alarming: It was employed in certain reports to convey a sense of immediate concern or peril.
- Advisory, Alert, Objective, Reassuring, Analytical: These tones are less common but nonetheless significant, and they each add to the variety in news reporting style.

Types:

- **Informative**: This was the most common type of tone, as it focuses on the distribution of information.
- **Reassuring:** Demonstrates a consoling or motivating approach in the reports.
- Clarifying, directive, detailed, factual, advisory, neutral, and policy-oriented are all distinct characteristics of news reporting. They encompass the provision of clarity, direction, details, facts, advice, neutrality, and an emphasis on policy.

DISCUSSION:

Monkeypox Characteristics:

There is a consistent description of monkeypox as a zoonotic infection with origins in African rodents. The papers highlight its potential for human-to-human transmission and its spread beyond endemic regions, posing a public health threat. Lahariya (2022) discusses monkeypox as an infectious zoonotic disease caused by the monkeypox virus, originating from African rodents. It emphasizes the uncertain natural host and transmission routes, highlighting the urgency in understanding the virus and its epidemiology. William (2023) also acknowledges monkeypox as a zoonotic infection from African rodents. It emphasizes the need for randomized clinical trials, medication efficacy assessments, and the potential implications of decreased immunity to smallpox in the increased prevalence of monkeypox. Lahariya (2022) and William (2023) contribute to the understanding of monkeypox as a zoonotic infection stemming from African rodents, emphasizing the importance of further research and measures for disease control and prevention.

Clinical symptoms and Diagnosis:

The following papers discuss common clinical symptoms, including fever, rashes, lymph node enlargement, and atypical genital rash in some cases. They emphasize the importance of PCR as the gold standard for diagnosis.

Yadav (2022) describes the clinical symptoms of monkeypox, mentioning fever, vesicular rashes, lymph node enlargement, and the cases' contact history with suspected individuals. Pal (2022) also discusses the clinical symptoms of monkeypox, mentioning fever, rashes, and lymph node enlargement. It touches upon the atypical rash presentation on the genitals observed in some cases. Deshmukh (2022), similarly highlights the clinical symptoms of monkeypox, including epithelial popular and vesicular lesions, and emphasizes the potential spread from person to person. Yadav (2022), Pal (2022) and Deshmukh (2022) provide insights into the clinical manifestations of monkeypox, stressing the importance of recognizing these symptoms for accurate diagnosis and timely intervention.

Yadav (2022) discusses the diagnostic techniques for monkeypox, highlighting the use of real-time PCR as a confirmed method for diagnosis. Wattal (2022) also mentions diagnostic methods for monkeypox, emphasizing the significance of laboratory techniques like PCR for confirming the diagnosis. Deshmukh (2022) touches upon the importance of immunoassays and PCR tests for early diagnosis, allowing for prompt treatment and management. Yadav (2022), Wattal (2022) and Deshmukh (2022) emphasize the role of laboratory techniques, especially PCR, in confirming the diagnosis of monkeypox, underscoring the importance of early and accurate detection for effective intervention.

Treatment:

There is a consensus on the lack of specific treatments for monkeypox, although some antiviral drugs like cidofovir, tecovirimat, and brincidofovir are mentioned. Symptomatic treatment, hydration, hygiene practices, and isolation are highlighted as crucial. Wattal (2022) discusses various treatment options for monkeypox, mentioning drugs like tecovirimat, cidofovir, and brincidofovir as potential therapeutic agents. Pal (2022) also touches upon the treatment of monkeypox, mentioning drugs like cidofovir, tecovirimat, and brincidofovir, emphasizing their use in managing the infection. William (2023) highlights the need for specific guidelines for the treatment of monkeypox, recommending isolation in hospital settings, surveillance measures, and community involvement in structuring public health measures. Wattal (2022), Pal (2022) and William (2023) discuss different therapeutic options available

for managing monkeypox and underscore the need for specific guidelines and community involvement in combating the disease effectively.

Preventive Strategies:

The literature uniformly stresses the significance of preventive measures, including hand hygiene, personal protective equipment, vaccination for high-risk individuals, and the importance of surveillance, contact tracing, and ring vaccination during outbreaks.

Lahariya (2022) emphasizes preventive measures for monkeypox, highlighting the significance of hygiene practices, hand washing, personal protective equipment, vaccination for high-risk individuals, and the importance of surveillance and contact tracing during outbreaks. Sah (2022) focuses on policy recommendations, suggesting urgent modernization of healthcare infrastructure, appropriate restrictions on air travel, screening at international airports, collaboration between veterinary and public health specialists, contact tracing, quarantine, and ring vaccination as preventive measures. William (2023) discusses the need for guidelines for diagnosis and treatment, strong recommendations for isolation in hospital settings, targeted testing, education, community involvement, and specific surveillance measures as preventive strategies. Lahariya (2022), Sah (2022) and William (2023) underline the various preventive strategies including hygiene practices, vaccination, surveillance, contact tracing, and community involvement as crucial elements in controlling and preventing the spread of monkeypox.

Global Concern and Collaboration:

The papers emphasize the need for global cooperation between health organizations, countries, and specialists. They highlight the risks posed by the spread of monkeypox to non-endemic regions and stress the importance of collaboration between veterinary and public health sectors.

Sah (2022) emphasizes the need for collaboration between WHO and health authorities, highlighting the impact of monkeypox outbreaks in various regions. It stresses the importance of increased resources and public health policies to address the global impact. Khatri (2022) discusses the collaboration between affected countries and the World Health Organization (WHO) to improve disease surveillance, indicating the global concern and efforts to manage monkeypox epidemics. Sah (2022) and Khatri (2022) shed light on the global concern surrounding monkeypox outbreaks and the collaborations between health authorities and international organizations like the WHO to manage and mitigate the impact of the disease on a global scale.

Research Needs:

There's a clear call for further research on various aspects, including treatment options like antivirals and monoclonal antibodies, vaccine efficacy, disease epidemiology, and strategies for early detection and containment. William (2023) discusses the need for further research on medication efficacy, vaccination, surveillance measures, targeted testing, and community involvement. It emphasizes the importance of guidelines for diagnosis and treatment, along with specific surveillance measures and community engagement in structuring public health measures. Lahariya (2022) stresses the need for research on disease epidemiology, vaccination efficacy, and strategies for early detection and containment. It also highlights the importance of surveillance, contact tracing, and ring vaccination during outbreaks. Sah (2022) also discusses the research needs for detection and mitigation. These papers emphasize the necessity for continuous research on various aspects of monkeypox, such as medication efficacy, disease epidemiology, surveillance, and community engagement, to improve prevention, diagnosis, and management strategies.

CONCLUSION:

To conclude, the paper provides a comprehensive analysis of the Indian news media's coverage of the Monkeypox virus. The analysis emphasises on the accuracy, attitude, and presentation of this reporting and its influence on public health understanding and policy formulation. The study incorporates a combination of qualitative and quantitative research methodologies, such as topic and content analysis, along with an assessment of news tones and sources. The primary findings emphasise a significant emphasis on the medical aspects of Monkeypox, the effect of media on public perception, and the significance of ethical journalism in times of health crises. The paper underlines the media's pivotal role in disseminating information to the public and shaping policy responses during medical crises.

References:

_

¹ Dimitrakoff, J., & McCollum, A. M. et al.(2022). Monkeypox Virus Infection in Humans across 16 Countries — April–June 2022. *New England Journal of Medicine*, 387(25), e69. doi:10.1056/NEJMoa2213969

² Gupta, A., Choudhuri, S., & Singh, A. (2023). Monkeypox outbreak in India: A review study. Journal of Clinical and Translational Research, 27(1), 6-11. doi:10.1016/j.jctt.2022.11.007

³ Hirani R, Noruzi K, Iqbal A, Hussaini AS, Khan RA, Harutyunyan A, Etienne M, Tiwari RK (2023). A Review of the Past, Present, and Future of the Monkeypox Virus: Challenges, Opportunities, and Lessons from COVID-19 for Global Health Security. *Microorganisms*. 2023; 11(11):2713. https://doi.org/10.3390/microorganisms11112713

⁴ Yadav, P. D., Reghukumar, A., Sahay, R. R., Sudeep, K., Shete, A. M., Raman, A., ... & Shaj, M. K. (2022). First two cases of Monkeypox virus infection in travellers returned from UAE to India, July 2022. *Journal of Infection*, 85(5), e145-e148.

⁵ Wattal, C., & Datta, S. (2022). Monkey pox arrives in India. *Indian Journal of Medical Microbiology*.

⁶ Pal, M., Singh, R., Gutama, K. P., Savalia, C. V., & Thakur, R. (2022). Human monkeypox: an emerging and reemerging infectious viral disease. *Acta Scientific Microbiology (ISSN: 2581-3226)*, *5*(4).

⁷ Deshmukh, P., Vora, A., Tiwaskar, M., & Joshi, S. (2022). Monkeypox: What do we know so far? A short narrative review of literature. *J Assoc Physicians India*, 70(7), 11-12.

⁸ Lahariya, C., Thakur, A., & Dudeja, N. (2022). Monkeypox disease outbreak (2022): Epidemiology, challenges, and the way forward. *Indian pediatrics*, *59*(8), 636-642.

⁹ Khatri, G., Mir, S. L., & Hasan, M. M. (2022). Outbreak of monkeypox in southeast asia; spotlight on Bangladesh, Pakistan and India. *Annals of Medicine and Surgery*, 82, 104361.

¹⁰ Jahanbin, K., Jokar, M., & Rahmanian, V. (2022). Using twitter and web news mining to predict the monkeypox outbreak. *Asian Pacific Journal of Tropical Medicine*, *15*(5), 236-238.

¹¹ Farahat, R. A., Head, M. G., Tharwat, S., Alabdallat, Y., Essar, M. Y., Abdelazeem, B., & Ould Setti, M. (2022). Infodemic and the fear of monkeypox: call for action. *Tropical medicine and health*, *50*(1), 63.

¹² Cooper, L. N., Radunsky, A. P., Hanna, J. J., Most, Z. M., Perl, T. M., Lehmann, C. U., & Medford, R. J. (2023, April). Analyzing an emerging pandemic on Twitter: monkeypox. In *Open Forum Infectious Diseases* (Vol. 10, No. 4, p. ofad142). US: Oxford University Press.

¹³ Sah, R., Mohanty, A., Siddiq, A., Singh, P., Abdelaal, A., Alshahrani, N. Z., & Dhama, K. (2022). Monkeypox reported in India–Southeast Asia region: health and economic challenges. *The Lancet Regional Health-Southeast Asia*, 4.

¹⁴ William, A., & Madan, M. (2023). Monkeypox scenario in India: a review study. *Medical Review*, . Medical review (Berlin, Germany), 3(3), 270–276. https://doi.org/10.1515/mr-2023-0004

¹⁵ William, A., & Madan, M. (2023). Monkeypox scenario in India: a review study. Medical review (Berlin, Germany), 3(3), 270–276. https://doi.org/10.1515/mr-2023-0004