Food and International Relations on digital discourse during #WorldFoodSafetyDay 2023

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Abstract. Food is intertwined with several facets of international relations, such as commerce, economics, security, diplomacy, culture, and the environment. Recognizing the importance of food in international relations facilitates greater mutual understanding and cooperation among nations. Researching food in international relations on social media, including Twitter, is critical, especially as the world commemorates World Food Safety Day. Therefore, this research examines the hashtag #WorldFoodSafetyDay 2023 amid diverse food crises worldwide. This study used computer-assisted qualitative data analysis software (CAQDAS), especially NVivo, to undertake a content analysis of the hashtags #WorldFoodSafetyDay, which was celebrated on June 7, 2023, to better understand the food safety social media conversation. This study discovers that the majority of #WorldFoodSafetyDay-related conversations have a positive tone. Intriguingly, even though the conversation involved accounts from all over the globe, including Indonesia, Indian Twitter accounts appeared to dominate the discussion. Researching #WorldFoodSafetyDay on Twitter will provide a new perspective on the discourse on food issues in international relations.

1 Introduction

Addressing the challenge of producing an adequate food supply to sustain the projected global population of 9.3 billion by 2050 is a formidable task. Hence, it becomes imperative to explore novel approaches to bolster future food production capacity [1]. Global hunger levels continue to be alarming. According to the Global Report on Food Crises (GRFC), 53 countries and territories, or around 193 million people, are suffering from extreme food insecurity and urgent aid is required. Compared to the last high, which was recorded in 2020, there has been an increase of almost 40 million individuals [2]. Food insecurity can be defined as the uncertainty surrounding access to sufficient nourishment due to financial constraints or limited resources [3]. While food insecurity is often linked to resource

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scarcity within households, it independently serves as a significant predictor of deteriorating physical and mental well-being [4]. Governments and experts remain committed to addressing the pressing issues of hunger and food insecurity, particularly in emerging nations [5]. There has been ongoing scrutiny regarding whether government-managed food assistance programs like the Supplemental Nutrition Assistance Program (SNAP) and the National School Lunch Program (NSLP), overseen by the U.S. Department of Agriculture (USDA), may alleviate food insecurity [6].

At the intersection of the right to nourishment and well-being in both emerging and affluent industrialized nations, food insecurity emerges as a pressing concern with multifaceted dimensions [7]. The worldwide spike in food costs between 2007 and 2008, which coincided with widespread social turmoil in different regions across the globe, served as a stark reminder to the international community. It underscored the deep-seated food crisis humanity was expected to face in the 21st century [8]. The current conflict between Russia and Ukraine poses substantial challenges to both regional and global food security. Russia's military action in Ukraine has not only led to the displacement of millions of individuals but has also caused disruptions in agricultural trade and production in a significant global food-exporting area [9]. The ongoing conflict has caused substantial harm to commodity markets, especially in the areas of food and energy. This has had repercussions on worldwide trade, production, and consumption trends, ultimately leading to sustained high price levels until the end of 2024. As a result, global food security has been negatively influenced [10]. Furthermore, the intricate challenges of food security have been exacerbated by the COVID-19 pandemic, which has wrought havoc on the global system. The spread of the virus since early 2020 has severely disrupted food systems, leading to the emergence of severe hunger [11]. Consequently, owing to the public health concerns intertwined with the economic and societal complexities brought about by the COVID-19 pandemic, the issue of food security has gained heightened relevance in various academic and policy domains [7].

2 Food Security Issue in International Relations

The idea of food security is illustrated by the various efforts made to define it in both research and policy contexts, highlighting its flexible character. The concept of food security first emerged during the early 1970s, a time characterized by global food crises [12]. The inception of the concept of food security can be traced back to its introduction at the 1974 World Food Summit. Consequently, initiatives in the form of food security insurance programs were instated as a response to address the challenges stemming from volatile global food supply and pricing. These programs were designed to ensure universal access to tangible food resources [13].

Food security is defined as having enough food available to all people at all times for an active, healthy life [14]. This involves, at the very least, the easy availability of foods that are safe and nutritionally enough as well as the assurance of being able to get appropriate meals in socially acceptable ways. In recent years, the definition of the term 'food security' is widely recognized following FAO's definition in the annual report of "The State of Food Insecurity in the World 2001." It is stated in the report that the food security is a condition in which everyone has constant physical, social, and economic access to enough food that is safe, nutritious, and fits their dietary requirements and food choices for an active and healthy life [12].

The contemporary food system, rooted in traditional, naturally occurring plant and animal-based foods, faces numerous challenges. These challenges encompass environmental factors like atmospheric and soil conditions, along with threats from parasites and diseases. The repercussions of these risks are projected to extend throughout

the entire food system due to unforeseen climate shifts, jeopardizing the accessibility, utilization, and reliability of food security. In fact, primary agricultural and aquaculture production, as well as the networks for food distribution, are presently experiencing adverse consequences due to the impacts of global warming. This situation has significant implications for the well-being and health of communities worldwide [15]. In recent years, there has been a lot of research regarding food and international relations. Another scholar for instance, examine the global food network, encompassing food production, distribution, and consumption, overseen by governments, businesses, and international entities [16]. They investigate the functions of these organizations within a worldwide structure of established standards, regulations, and customary procedures referred to as the food management system [17]. Besides, some Chinese scholars [18] explored the two critical aspects associated with China's involvement in global affairs. Firstly, it aims to gain insight into the reasons motivating China's strong emphasis on attaining self-reliance in grain production. Secondly, it aims to explore the factors contributing to the inadequate exchange of information between Chinese experts and their international counterparts regarding China's agricultural endeavours overseas. Additionally, the research offers possible approaches for integrating food security as a central component in conversations concerning China's security landscape and its interactions on the global stage [18]. Emmanuel O. Ojo1 and Peter F. Adebayo had undergone research on food security in Nigeria. The research's primary objective is to underscore the vital role of food as a means of shaping national power. It delves into an assessment of Nigeria's agricultural policy and stresses the imperative for substantial enhancements to avert a deepening crisis within the sector [19]. Specifically, the research recommends the formulation of a comprehensive food policy for Nigeria due to the existing agricultural policy's shortcomings in effectively translating intentions into action. The results highlight the essential need to harmonize public policy with the aim of advancing well-being in a democratic setting [19].

While recent years have seen a proliferation of studies examining various aspects of food in the context of international relations, there remains a notable research gap in the exploration of digital discourse regarding Food and International Relations. Much of the existing research has primarily focused on policy issues and food security within specific nations. Consequently, the present study seeks to address this research gap by specifically investigating the subject of #WorldFoodSafetyDay in 2023 through an examination of Twitter discourse.

3 Method

The authors employed a qualitative descriptive approach with content analysis in this research to discover messages on social media Twitter about #WorldFoodSafetyDay in 2023. The information was unearthed through a comprehensive examination of relevant theories, existing literature, and prior research findings pertaining to the topic under consideration. We employed secondary data sources to collect information from pertinent publications, books, academic journals, and online media for the purpose of this study. Content analysis is an approach to examining messages conveyed through written, spoken, or visual communication. Initially, it found its application in scrutinizing hymns, articles from newspapers and magazines, promotional materials, and speeches of a political nature during the 1800s [20]. Meanwhile, qualitative descriptive approach with content analysis is characterized as a research technique aimed at subjectively interpreting textual data by means of a structured coding and theme/pattern recognition process [21]. Moreover, Lambert and Lambert defined it as research approach employed to systematically examine text-based or visual information, with the goal of revealing concealed significance, recurrent motifs, structures, and valuable perspectives embedded within the content [22].

This method entails a subjective comprehension of the material and frequently finds application in the fields of social sciences, humanities, and qualitative research investigations [22] .

Researchers used NVivo, a computer-assisted qualitative data analysis software (CAQDAS), to acquire datasets from Twitter. The authors used the Twitter Application Programming Interface (API) facility and a NVivo tool called NCapture to store datasets safely and subsequently analyse the data automatically during the data mining process. The author specifically excavated the Twitter dataset on 9 June 2023, 08.54 Western Indonesia Time (GMT+7). NVivo can perform the following operations after collecting the Twitter dataset: encode, classify, and display data. Graphs and statistical data are used to represent the results of data processing. The stages of the research can be summarised using the chart below.
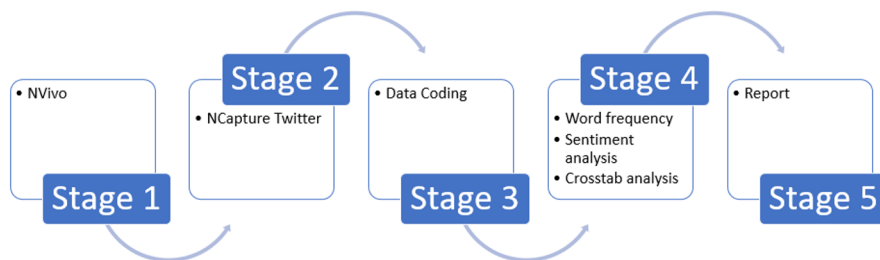

Fig. 1. Research process using NVivo.

4 Results and Discussion

Several interesting facts regarding the widespread of world food crises related issue were discovered through an analysis of the World Food Safety Day hashtags on Twitter. This study examines social media information for the #WorldFoodSafetyDay on Twitter, including sentiment analysis, influencers, top hashtags, and the most-mentioned users. The author codes the data using NVivo 12 Plus. We then present the findings in the following paragraphs. Figure 1 illustrates the sentiment analysis of #WorldFoodSafetyDay. From the figure below, the percentage of 'moderately positive' (42%) is significantly higher compared to the other elements such as 'very positive,' (11%) moderately negative,' (19%) and 'very negative' (28%). The 'moderately positive' proportion still has a huge gap compared to the other sentiments, even though the overall percentage does not even come close to half the whole amount. This clearly demonstrates that #WorldFoodSafetyDay on Twitter received a generous number of positive messages towards worldwide food crisis.

As for the most well-known accounts or influencers, the #WorldFoodSafetyDay research indicates an intriguing pattern. Following the analysis, the top five Twitter accounts for the food security related discussion were selected (Table 1). Some of these accounts were discovered to be personal accounts of the people who had affiliations with governments, non-governmental organizations, and international organizations. For instance, @RG_Yuva_Mitra twitter account owns by RG Yuva Mitra who is the Directorate of Economic and Statistics of the government of Rajasthan, India. Besides, SA News Channel (@SatlokChannel) own by media in India with the total followers of 241,817. Others Twitter accounts listed are belong to Indian politician and philanthropist. It should be noted that a Twitter account's popularity is not determined by the number of followers. The World Health Organization's (@WHO) Twitter account, which has more followers than the other accounts, serves as evidence, yet it is only the fourth of the five accounts listed in Table 1 in terms of popularity and influence. However, according to this #WorldFoodSafetyDay analysis, the most popular Twitter account is @RG_Yuva_Mitra,

which has just the least number of followers, 37,557 followers. India bears the greatest weight of chronic malnutrition. Between 2014 and 2016, it was projected to have 194.6 million individuals suffering from undernourishment, constituting a quarter of the global undernourished population [23]. Therefore, it can be seen that most of the influencers involved in this #WorldFoodSafetyDay analysis are from India.
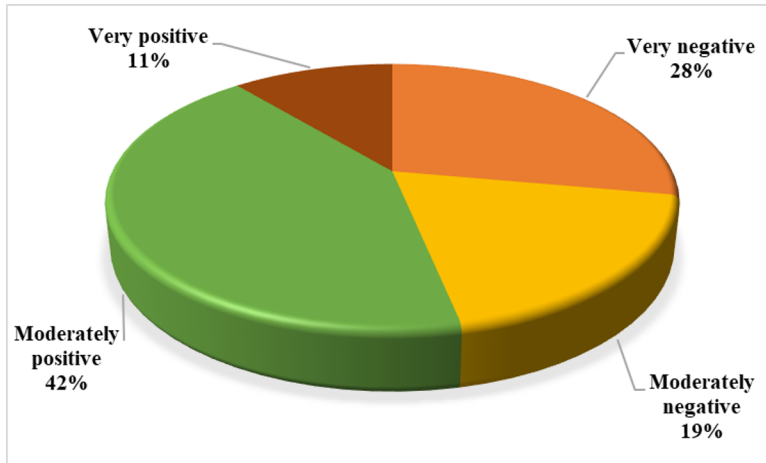

Fig. 2. Sentiment analysis of #WorldFoodSafetyDay

Table 1. Top five Influencer

No.	Twitter account name	Account description	Followers	No. Reference
1	@RG_Yuva_Mitra	RG Yuva Mitra, Directorate of Economic and Statistics, Govt of Rajasthan, India	37,557	2508
2	@insan_honey	Honeypreet Insan, Indian Philanthropist	380,974	2449
3	@SatlokChannel	SA News Channel, Media in India	241,817	830
4	@WHO	World Health Organization	12,254,107	486
5	@achyuta_samanta	Achyuta Samanta, Indian Politician	270,169	368

An intriguing trend emerges when we examine the most popular accounts associated with #WorldFoodSafetyDay. Government and non-governmental organizations predominantly manage these accounts. The Twitter handle @FAO, representing the Food and Agriculture Organization of the United Nations, garners the highest number of mentions. Established as an intergovernmental organization in 1945, the FAO has consistently led global efforts to combat hunger [24]. Given its focus on food security, it is unsurprising that @FAO receives considerable attention [25]. As FAO subject's areas are related to food security, that is likely to be the reason why @FAO received more mentions. Additionally, the government of India's Twitter accounts earned the most mentions, as shown in the table below. The Twitter account of @diprjk, @ddnewsSrinagar, @PIBSrinagar, and @ddnews_jammu are all Indian government official accounts. Access

to an ample supply of safe and nutritious food is essential for meeting dietary requirements, food preferences, and sustaining a healthy, active lifestyle [26]. Despite ongoing endeavors to ensure an abundant food supply, food insecurity remains a persistent challenge in India [27]. Nevertheless, government organizations continue to dominate the list of most-mentioned accounts in the field of food security.

Table 2. Top five Top five most mentioned users

No.	Twitter account name	Account user	Account type	No. Reference
1	@FAO	Food and Agriculture Organization	Non-Governmental Organization	673
2	@diprjk	Department of Information, Public Relation of Jammu & Kashmir	Government	646
3	@ddnewsSrinagar	DD News Channel in Srinagar India	Government	637
4	@PIBSrinagar	Press Information Bureau, Jammu Kashmir & Ladakh	Government	600
5	@ddnews_jammu	DD News Channel in Jammu & Kashmir India	Government	450

Fig. 3. Word-cloud analysis of #WorldFoodSafetyDay

5 Conclusion

This study exposes certain findings from social media talks about food and international affairs using NVivo software. According to this study, the majority of #WorldFoodSafetyDay-related conversations had a positive tone. This clearly shows that #WorldFoodSafetyDay on Twitter received a large number of supportive remarks regarding the global food situation. Surprisingly, despite the fact that the message included accounts

from all across the world, including Indonesia, Indian Twitter accounts appeared to dominate the discourse. In terms of word frequency, this study found that "https" is the most common. The preponderance of 'https' indicates that information about the food issue and the hashtag #WorldFoodSafetyDay is widely disseminated through internet links that connect to pages with more detailed information. Indeed, studying #WorldFoodSafetyDay on Twitter will bring a fresh viewpoint on the international relations discourse on food issues. With the growing importance of digital communication, studies in this domain have the potential to propel technological progress in the realms of food production, distribution, and security. Such research endeavors may result in the creation of inventive solutions and advanced tools. An appreciation of the interplay between food matters and international relations can foster enhanced worldwide collaboration. Insight into how countries cooperate or contend within the sphere of food can enhance diplomatic effectiveness and conflict resolution.

Through this research, several future research avenues emerge at the intersection of food and international relations in the context of the evolving digital landscape. To begin, researchers can delve into the examination of how social media platforms such as Twitter, Facebook, and Instagram serve as vehicles for states, international organizations, and individuals to craft narratives pertaining to food security, trade, and international collaboration. The objective is to assess the influence of digital discourse on public sentiment and policymaking choices. Furthermore, there is potential for future research to investigate the impact of digital activism and online advocacy groups on shaping food-related policies, both on national and international scales. This research can explore the mechanisms through which digital discourse mobilizes support for causes related to food and instigates shifts in policy. Given the substantial role that social media platforms play in policy formulation, researchers can also explore the application of digital diplomacy by countries during negotiations concerning food trade agreements, tariffs, and regulatory frameworks. An examination of the effectiveness of digital tools in facilitating international food trade would shed light on this evolving dynamic.

References

1. M. D. Mbaga, Cons. J. Sustain. Dev. **13**, 114 (2014).
2. F. S. I. Network, FAO (2022).
3. C. Gunders, B. Kreider, and J. V Pepper, RSF Russell Sage Found. J. Soc. Sci. **4**, 113 (2018).
4. V. Tarasuk, J. Cheng, C. de Oliveira, N. Dachner, C. Gundersen, and P. Kurdyak, Can. Med. Assoc. J. **187**, E429 (2015).
5. O. Oyakhilomen, A. I. Daniel, and R. G. Zibah, Cons. J. Sustain. Dev. **14**, 244 (2015).
6. C. Gundersen, B. Kreider, J. Pepper, and V. Tarasuk, Empir. Econ. **52**, 1065 (2017).
7. M. S. Righettini and E. Bordin, Qual. Quant. **57**, 2739 (2023).
8. P. Zhaochang, World Rev. Polit. Econ. **9**, 14 (2018).
9. K. A. Abay, C. Breisinger, J. Glauber, S. Kurdi, D. Laborde, and K. Siddig, Glob. Food Sec. **36**, 100675 (2023).
10. T. Ben Hassen and H. El Bilali, Foods **11**, 1 (2022).
11. J. Clapp and W. G. Moseley, J. Peasant Stud. **47**, 1393 (2020).
12. W. Peng and E. M. Berry, in *Encycl. Food Secur. Sustain.* (Elsevier, 2019), pp. 1–7.
13. E. Lestari and J. Sarana, J. Ekon. Pembang. **26**, 105 (2019).
14. M. Gibson, Foods (Basel, Switzerland) **1**, 18 (2012).

15. C. E. Richards, H. L. Gauch, and J. M. Allwood, Futures **150**, 103173 (2023).

16. J. Steenkamp, E. J. Cilliers, S. S. Cilliers, and L. Lategan, Sustainability **13**, 1267 (2021).

17. H. Ross and C. Baldwin, Australas. J. Environ. Manag. **29**, 305 (2022).

18. D. Zha and H. Zhang, Pacific Rev. **26**, 455 (2013).

19. P. F. Adebayo and E. O. Ojo, Eur. J. Sustain. Dev. **1**, 199 (2012).

20. S. Elo and H. Kyngäs, J. Adv. Nurs. **62**, 107 (2008).

21. H.-F. Hsieh and S. E. Shannon, Qual. Health Res. **15**, 1277 (2005).

22. V. Lambert and C. Lambert, Pacific Rim Int. J. Nurs. Res. **16**, 255 (2012).

23. C. Choithani, Geogr. Res. **55**, 192 (2017).

24. S. Guggisberg, Mar. Policy **136**, 104498 (2022).

25. C. Anthes and O. De Schutter, in *Hum. Rights Glob. Heal. Rights-Based Gov. a Glob. World*, edited by B. M. Meier and L. O. Gostin (Oxford University Press, Oxford, 2018), p. 12.

26. A. Ganpule, K. A. Brown, M. Dubey, N. Srinivasapura Venkateshmurthy, P. Jarhyan, A. P. Maddury, R. Khatkar, H. Pandey, D. Prabhakaran, and S. Mohan, Nutr. J. **22**, 1 (2023).

27. S. S. Jaswal, IOSR J. Humanit. Soc. Sci. **19**, 93 (2014).

28. K. Gligorić, A. Anderson, and R. West, Proc. Int. AAAI Conf. Web Soc. Media **12**, 1 (2018).

29. A. B. Boot, E. Tjong Kim Sang, K. Dijkstra, and R. A. Zwaan, Palgrave Commun. **5**, 76 (2019).

30. World Health Organization, Food Agric. Organ. (2023).