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DIGITAL CULTURE AND FRAGMENTED PUBLIC DISCOURSE: A SOCIAL NETWORK ANALYSIS OF HEALTH POLICY DEBATE IN INDONESIA

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ABSTRACT

The rapid expansion of social media has transformed public policy discourse into a form of digital culture, where collective meaning, emotional expression, and power relations are constructed within networked environments. In Indonesia, the deactivation of beneficiaries of the Contribution Assistance Program (PBI) under BPJS Kesehatan has generated widespread public reactions, reflecting not only policy responses but also cultural dynamics within digital society. Despite growing attention to online public opinion, limited studies have examined how the structure of digital communication networks shapes cultural expressions and discourse fragmentation, particularly in developing countries. This study employs a Social Network Analysis (SNA) approach combined with big data analytics to investigate public discourse on platform X. Data were collected in February 2026, encompassing 3,048 accounts, 3,138 nodes, 11,293 interaction edges, and 36,383 posts. The analysis focuses on network structure, fragmentation, actor influence, and sentiment as forms of cultural expression within digital communication. The findings reveal a highly interactive yet fragmented digital communication network characterized by unequal distribution of influence and centralized patterns of information flow. Interaction is dominated by mentions and retweets, indicating a culture of amplification rather than deliberative dialogue. The network is divided into distinct discourse communities with different thematic orientations, reflecting both structural and cultural fragmentation. Influential actors, including media and high-reach individuals, function as cultural intermediaries shaping discourse, while collective user participation amplifies the circulation of narratives. Sentiment analysis shows a predominance of negative sentiment, accompanied by strong emotional expressions such as anger, fear, and sadness, highlighting the affective dimension of digital culture.

KEYWORDS: Networked Public Sphere, Social Network Analysis, Public Policy Discourse, Digital Fragmentation, And Health Policy.

1. INTRODUCTION

The development of social media has fundamentally transformed the way society participates in public policy discourse. Digital platforms such as X (formerly Twitter) not only function as communication channels but also as new public spaces (networked public sphere) where individuals, media, and institutions interact in shaping collective opinion (Sumartias et al., 2023; Terren & Borge, 2021). In this context, public policy is no longer debated exclusively within formal arenas but is increasingly exposed to spontaneous, emotional, and often fragmented responses from the broader public (Koc-Michalska et al., 2023). Numerous studies have demonstrated that social media plays a significant role in accelerating the dissemination of information, expanding the reach of discourse, and simultaneously creating new dynamics such as polarization, echo chambers, and the dominance of certain actors within digital communication networks (Alfardan, 2026; Alsharairi et al., 2025). Understanding how conversational structures are formed within these platforms is therefore crucial for assessing the quality of public deliberation surrounding a policy.

In the Indonesian context, the policy of deactivating beneficiaries of the Contribution Assistance Program (Penerima Bantuan Iuran/PBI) under the National Health Insurance (BPJS Kesehatan) represents a policy issue that has generated significant public response. This policy is directly related to access to healthcare services for vulnerable populations, thereby carrying high social sensitivity (Alhafez et al., 2023; Rustamaji et al., 2025). Public reactions to this policy have not only emerged in the form of criticism regarding its implementation but also through narratives of personal experiences, media coverage, and the digital mobilization of public opinion. Social media has become the primary arena where various actors, ranging from government institutions and mass media to individual users, interact in framing this issue (Cascini et al., 2022). However, there remains a limited number of studies that systematically explore how the structure of conversational networks on social media shapes the dynamics of policy discourse, particularly within the context of developing countries such as Indonesia (Duffy et al., 2021).

Although research on public opinion in social media has grown rapidly, most studies still focus primarily on content or sentiment analysis without considering the relational structure among actors within communication networks (Malandrino,

2024a; Törnberg et al., 2021). Such approaches tend to overlook how information actually flows, who holds influence in the dissemination of narratives, and how discourse communities are formed and interact. On the other hand, studies employing Social Network Analysis (SNA) have shown that network structures play a crucial role in shaping communication patterns, including the emergence of fragmentation and opinion polarization (Bust et al., 2023). Nevertheless, the application of SNA in the context of public policy discourse, particularly within the health sector in developing countries, remains relatively limited (Alhafez et al., 2023; Martens et al., 2022). Therefore, there is a need to integrate structural network analysis with a deeper understanding of public opinion dynamics within digital spaces (Atsilah Siregar & Nugroho, 2025; Lutkenhaus et al., 2025; Zhang, 2023).

Based on this background, this study aims to analyze how the structure of conversational networks on platform X shapes public discourse regarding the policy of deactivating PBI BPJS Kesehatan beneficiaries. Specifically, this study examines the level of network fragmentation, the role of key actors in information dissemination, and the dynamics of interaction among discourse communities (Pournaki & Willaert, 2025; Taha & Abdallah, 2025). By employing a Social Network Analysis approach, this research not only maps the structure of conversations but also interprets its implications for the quality of public deliberation within the networked public sphere. The contribution of this study lies in advancing empirical understanding of how public policy discourse is constructed within digital ecosystems, as well as providing new insights into the relationship between network structures and public opinion dynamics in developing countries.

The findings of this study are expected to provide both theoretical and practical implications. Theoretically, this research contributes to the literature on the networked public sphere by demonstrating how fragmentation and the dominance of certain actors influence the process of public opinion formation. Practically, the findings can serve as a basis for policymakers to better understand how policies are communicated and perceived in digital spaces, as well as how communication strategies can be designed to enhance the effectiveness of information dissemination and promote more inclusive and deliberative public discourse. In an increasingly complex digital era, understanding the structure and dynamics of public conversations becomes essential

in designing policies that are responsive to societal needs.

Beyond its function as a communication space, social media can also be understood as a domain of digital culture, where meanings, values, and collective identities are continuously constructed and negotiated. Public discourse in digital environments is not merely an exchange of information, but a form of cultural expression shaped by emotional responses, symbolic narratives, and patterns of interaction among users. In this sense, fragmentation within digital communication networks does not only reflect structural divisions, but also indicates the emergence of multiple cultural spheres in which different interpretations and experiences of policy are articulated. Understanding public policy discourse through the lens of digital culture therefore provides a deeper perspective on how societies interpret, respond to, and give meaning to policy issues in the digital era.

2. RESEARCH METHOD

2.1. Research Design

This study employs a quantitative approach using a Social Network Analysis (SNA) design combined with big data analytics to examine the structure and dynamics of public discourse on social media (Atsilah Siregar & Nugroho, 2025; Creswell, 2013). This approach enables the identification of relational patterns among actors, mechanisms of information diffusion, and the formation of communities within digital communication networks (Kianpour et al., 2025; Malandrino, 2024b). In addition, this study incorporates qualitative interpretation to understand the social meaning embedded within the observed network structures. Accordingly, the research adopts a network-based quantitative approach enriched with interpretative analysis to provide a more comprehensive understanding of public policy discourse in digital environments.

2.2. Data Source and Data Collection

The data for this study were obtained from the social media platform X using a big data-based tool, Advanced Network Analytics, which allows real-time crawling of large-scale data. Data collection was conducted during February 2026, when the policy of deactivating PBI BPJS Kesehatan beneficiaries in Indonesia became a major public concern. The dataset was collected using a combination of relevant keywords and hashtags, including "BPJS," "PBI BPJS," and "BPJS deactivated." The resulting dataset consists of 3,048 user accounts, 3,138 nodes, 11,293 interaction edges, and 36,383 unique posts,

representing a broad spectrum of public discourse dynamics.

2.3. Unit Of Analysis and Network Construction

The unit of analysis in this study consists of user accounts as nodes and interactions among accounts as edges within the network. The network is constructed as a directed network, where the direction of ties represents the flow of information between actors. Retweets are treated as indicators of information diffusion, mentions as forms of direct connectivity, and replies as representations of discursive interaction. The network construction process involves data cleaning procedures, including the removal of duplicates, spam, and noise. This approach ensures that the resulting network accurately represents the structure of digital communication within the policy discourse under investigation.

2.4. Network Analysis Technique

Network analysis in this study is conducted using the Advanced Network Analytics platform, which enables integrated processing and visualization of large-scale digital communication networks. The analysis focuses on identifying network structure, interaction patterns, and the distribution of influence among actors within public discourse. Key metrics employed include network density to measure the level of connectivity among actors, modularity to identify community or cluster formation, and network centralization to assess the concentration of influence within the network. Additionally, degree centrality, betweenness centrality, and eigenvector centrality are used to identify key actors and their roles in information diffusion. This multi-level approach enables a comprehensive analysis of network fragmentation, community formation, and communication dynamics within the digital public sphere.

2.5. Sentiment Analysis and Interpretation

In addition to structural analysis, this study incorporates sentiment analysis to identify public opinion tendencies regarding the policy under study. Sentiment is classified into positive, negative, and neutral categories, and is further complemented by emotional analysis, including expressions of anger and sadness. The results of the quantitative analysis are then interpreted qualitatively to understand the narratives that emerge within each discourse community. This approach allows for the integration of quantitative and qualitative analysis, providing a

more comprehensive understanding of the dynamics of public discourse.

2.6. Validity And Reliability

Data validity is ensured through the use of relevant keywords and hashtags, as well as data cleaning procedures to remove duplicates and noise. The reliability of the analysis is strengthened by the use of the Advanced Network Analytics platform, which is capable of processing large-scale data consistently and systematically. Furthermore, the use of well-established Social Network Analysis metrics enhances the robustness of the analytical results. The research procedure is designed to be replicable, thereby ensuring transparency and credibility in digital data-based research.

2.7. Methodological Justification

This study employs a census-based data approach, thereby eliminating the need for sampling techniques commonly used in conventional survey research. All publicly available conversations relevant to the research topic within a specified time frame are collected and analyzed comprehensively. This approach aligns with developments in computational social science, which emphasize the importance of large-scale data analysis in understanding digital social phenomena. Consequently, this study is able to capture the dynamics of public discourse more representatively while minimizing potential biases associated with sampling methods.

3. RESULT

3.1. Structure Of Digital Discourse Networks

Public discourse regarding the deactivation policy of PBI BPJS Kesehatan on platform X exhibits the characteristics of a large-scale digital communication network with a high intensity of interaction. The analysis reveals that the network consists of 6,163 user accounts forming 6,263 nodes and 19,497 interaction edges, with a total of 151,068 unique posts and the use of 100 hashtags. The substantial volume of interactions indicates that the issue has evolved into a widespread public discourse involving diverse actors from various backgrounds. This network structure reflects a dynamic digital public sphere, where communication does not occur linearly but through interconnected relationships among actors within a complex network.

To better understand how connections among actors are formed within this conversational network, the network structure visualization is presented in Figure 1. This visualization illustrates the position of each actor based on interaction intensity and shows relationships among accounts through various interaction types such as mentions, retweets, and replies. Different colors represent the formation of discourse communities, while the density of connections reflects the level of interaction among actors. Thus, this figure provides a comprehensive overview of how digital communication structures are formed within the context of public policy discourse.

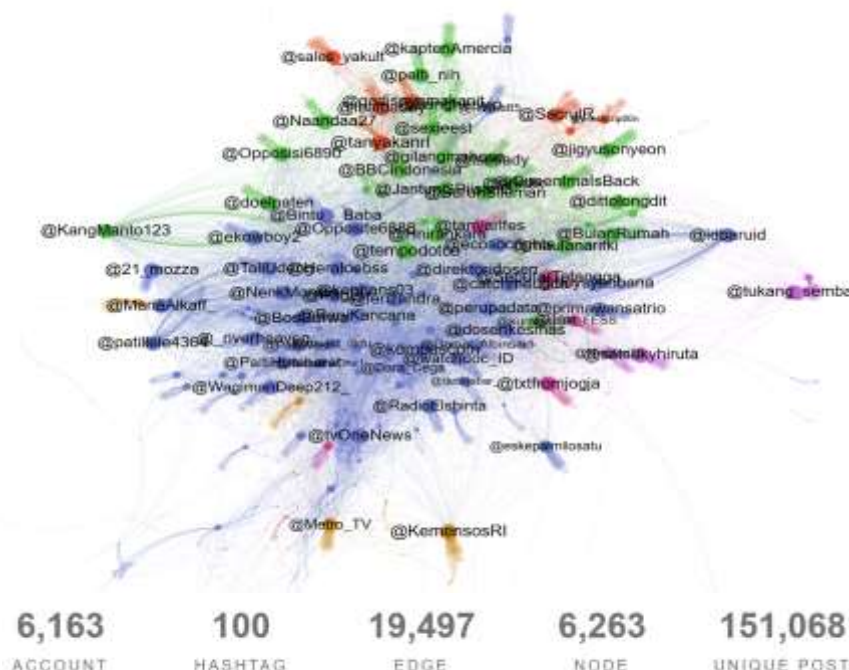


Figure 1: Network Structure of Public Discourse Illustrating the Connectivity Among Actors and the

Formation of Discourse Communities on Platform X.

Source: Advanced Network Analysis (Ana), 2026.

The visualization results in Figure 1 demonstrate that the conversation network is not evenly distributed but instead forms a pattern concentrated around certain actors with high levels of connectivity. These actors function as central nodes within the network, serving as key points in the dissemination of information. Meanwhile, the majority of other actors occupy peripheral positions with lower connectivity. This pattern suggests that although the digital public sphere is open, the distribution of influence is not entirely egalitarian, but rather shaped by network structures and the presence of key actors within the discourse.

In addition to illustrating the overall network structure, interaction patterns among actors can also be understood through the distribution of interaction types. To analyze how communication occurs within the network, the distribution of edge types is presented in Figure 2. This analysis is essential to determine whether public discourse is dialogical or dominated by mechanisms of information dissemination. Understanding these interaction patterns provides insight into the communication characteristics formed within the digital public sphere in the context of health policy discourse.

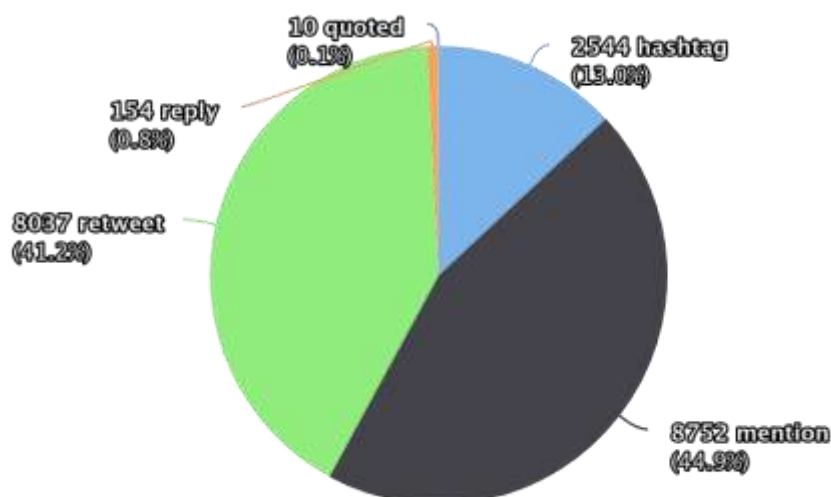


Figure 2: Distribution Of Interaction Types (Edge Types) In the Public Discourse Network on Platform X.

Source: Advanced Network Analysis (Ana), 2026.

The results shown in Figure 2 indicate that interactions within the network are dominated by mentions (44.9%) and retweets (41.2%), while hashtags account for 13.0%. In contrast, reply-based interactions represent only 0.8%, and quoted tweets account for 0.1%. The dominance of mentions and retweets suggests that communication within the network is oriented toward information distribution and amplification rather than two-way dialogue. The limited presence of reply interactions indicates that the discourse space does not fully function as a deliberative arena but rather as a medium for information dissemination influenced by certain actors.

Overall, the network structure and interaction patterns demonstrate that public discourse in this context reflects the characteristics of a networked public sphere that is not entirely deliberative (Jablonski et al., 2023; Matsentu, 2025; Paskarina,

2023). Although it enables broad participation from various actors, communication within the network tends to be centralized and dominated by information distribution mechanisms. This suggests that the digital public sphere functions not only as a space for exchanging ideas but also as an arena where information is amplified and circulated through specific network structures, ultimately shaping the dynamics of public opinion formation.

3.2. Fragmentation And Community Structure of Public Discourse

Further analysis reveals that public discourse regarding the deactivation of PBI BPJS Kesehatan does not form a unified communication space but is instead fragmented into multiple discourse communities. This fragmentation reflects a separation in interaction structures among actors, where communication is more intensive within

groups than between them. Such a pattern indicates that the digital public sphere is not fully integrated but divided into sub-spaces with distinct characteristics and dynamics. This phenomenon is crucial for understanding how public opinion is constructed within digital networks.

To identify fragmentation patterns more clearly, the visualization of community structures within the network is presented in Figure 3. This visualization illustrates the formation of clusters based on

interaction intensity among actors, with each color representing a distinct discourse community (Brüggemann & Meyer, 2023; Iandoli et al., 2021; Mattei et al., 2022). The position of nodes within each cluster reflects relational proximity, while connection density indicates the intensity of interactions within groups. Thus, this figure provides insight into how public discourse is organized into relatively separate communities within digital communication networks.

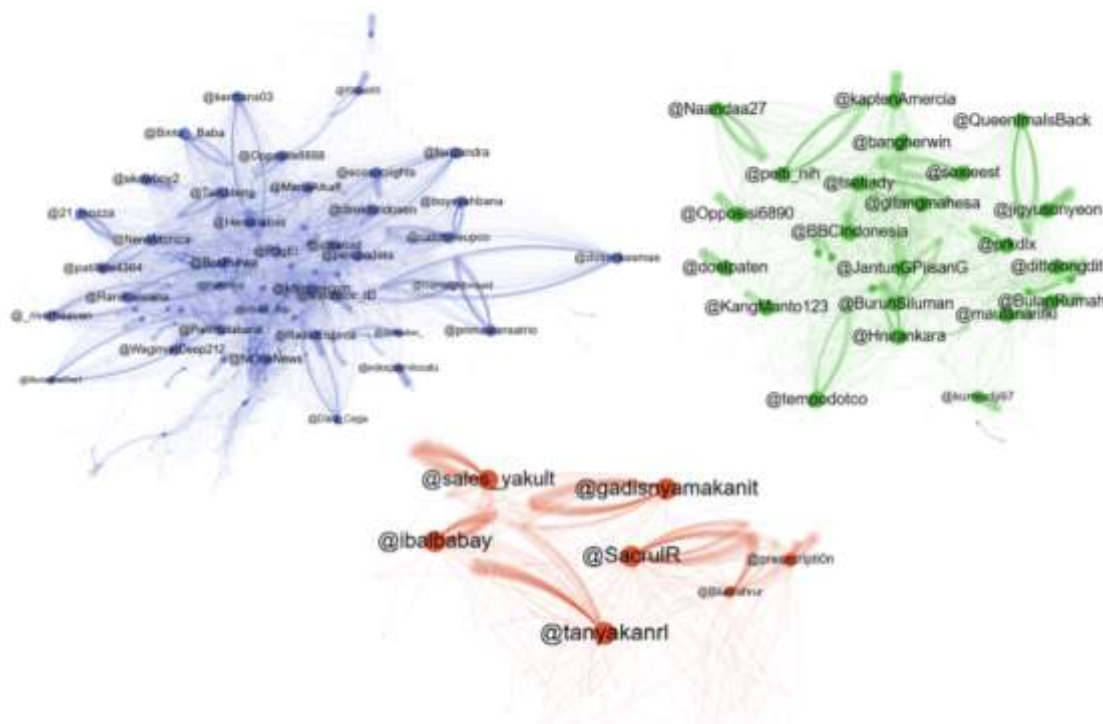


Figure 3: Fragmented Structure of the Public Discourse Network on Platform X Related to the Deactivation Policy of PBI BPJS Kesehatan.

Source: Advanced Network Analysis (Ana), 2026.

The results in Figure 3 show that the conversation network is divided into three main clusters with distinct characteristics. The blue cluster represents the largest group, characterized by high connectivity and a denser structure compared to others. This cluster is dominated by media actors and accounts with wide reach, functioning as central hubs for information dissemination. The high density of interactions indicates that discourse within this cluster is highly organized and driven by strong information diffusion mechanisms.

The green cluster represents a community with relatively high interaction but lower density compared to the main cluster. Interactions within this cluster tend to occur among users focused on specific

issues, forming a more thematic discourse community. Meanwhile, the red cluster is smaller and more isolated, with lower connectivity. This pattern highlights differences in participation levels and discourse intensity among groups, reflecting the heterogeneity of the digital public sphere.

Beyond structural fragmentation, thematic differences across communities are also evident. To identify key discourse themes, the distribution of keywords and hashtags is presented in Figure 4. This visualization reflects the frequency of specific terms, indicating the primary issues discussed by the public. Such analysis is essential not only to understand network formation but also to identify the content of discourse within each community.



Figure 4: Distribution Of Keywords and Hashtags in Public Discourse on Platform X Related to the Deactivation Policy of PBI BPJS Kesehatan.

Source: Advanced Network Analysis (Ana), 2026.

The results indicate that discourse is dominated by terms such as “BPJS,” “chronic patients,” and “national health insurance,” reflecting a strong focus on healthcare access. Additionally, terms like “#cucidarah” and “kidney failure” highlight narratives driven by specific cases that trigger public responses. The presence of terms such as “government image” and “serious impact” suggests that discourse extends beyond technical policy issues to include broader social and political implications.

Overall, both structural and thematic fragmentation indicate that the digital public sphere is not only divided in terms of interaction patterns but also in discourse content. Each community differs not only in structure but also in issue focus, suggesting that public discourse evolves in parallel rather than within a unified deliberative space. This reflects the fragmented nature of the networked public sphere, where public opinion is constructed within diverse and relatively isolated communities.

3.3. Distribution Of Influence and Dynamics of Public Discourse

The distribution of influence within the conversation network indicates that not all actors play equal roles in shaping and disseminating information. The network structure reveals a concentration of influence among certain actors with high connectivity, who act as central nodes in information diffusion. In this context, public discourse is not entirely horizontal but is influenced by key actors capable of extending the reach of information (Gusti et al., 2025). This pattern highlights that communication dynamics in the digital public sphere are strongly shaped by unequal distributions of influence.

To identify influential actors and active participants, the distribution of influencers and troops is presented in Figure 5. This visualization ranks accounts based on connectivity and contribution within the network. Influencers are identified through the intensity of interactions they receive, while troops are defined by their active role in disseminating information. This figure thus illustrates how influence structures are formed within public discourse networks.

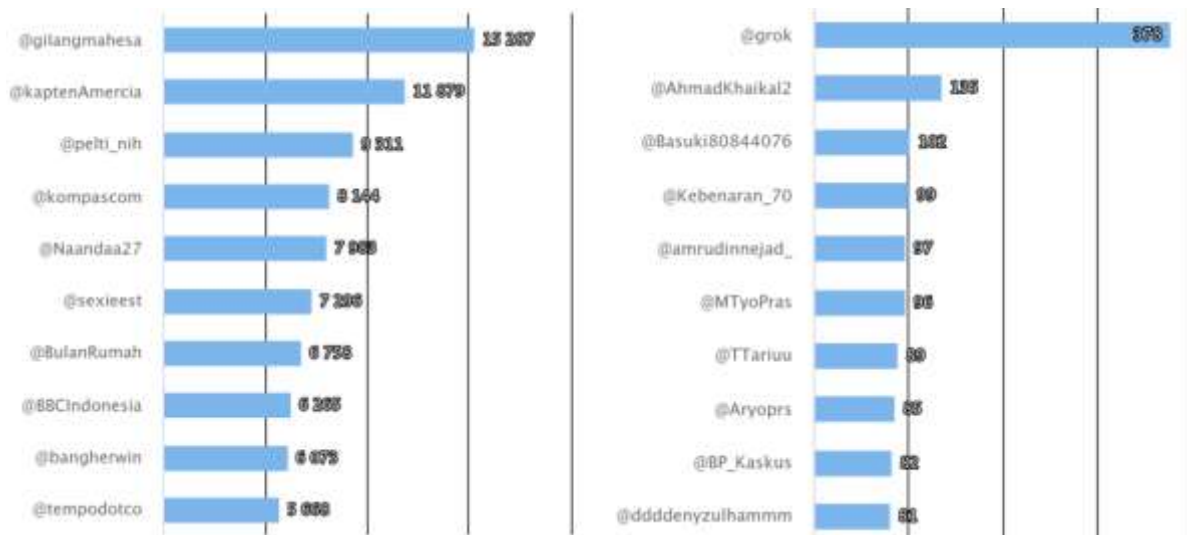


Figure 5: Distribution Of Influential Actors (Influencers) And Active Participants (Troops) In the Public Discourse Network on Platform X.

Source: Advanced Network Analysis (Ana), 2026

The analysis shows that accounts such as @gilangmahesa and @kaptenAmerica rank among the most influential actors in the network. Media accounts such as @kompascom also play a significant role in disseminating information. Meanwhile, actors such as @grok and @AhmadKhaikal2 function as active participants who support information diffusion through intensive engagement. This pattern suggests that information dissemination

relies not only on central actors but also on collective participation from other users.

Beyond influence distribution, discourse dynamics are also shaped by sentiment and emotional responses. To examine public reactions, the distribution of sentiment and emotions is presented in Figure 6. This analysis provides insights into how public opinion is expressed both cognitively and emotionally within the network.

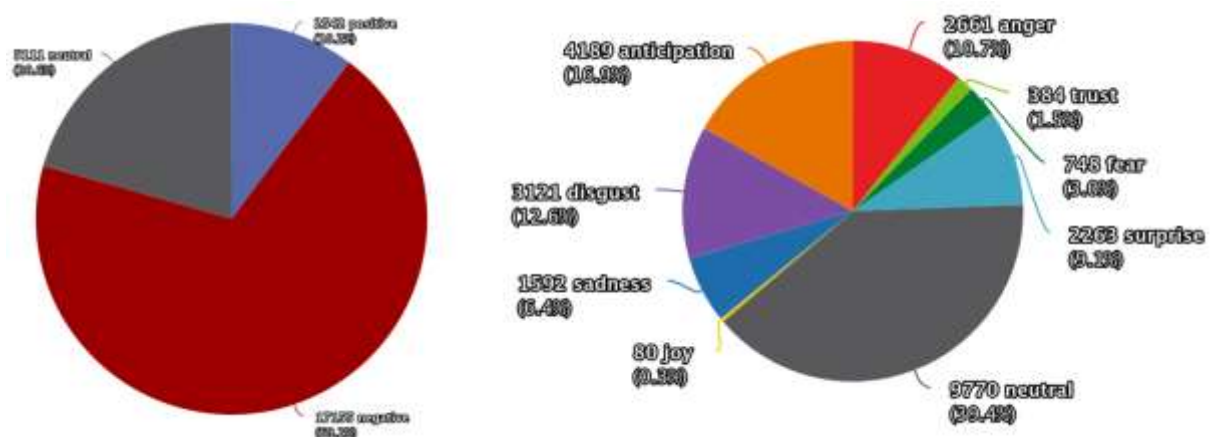


Figure 6: Distribution Of Sentiment and Emotions in Public Discourse on Platform X Related to the Deactivation Policy of PBI BPJS Kesehatan.

Source: Advanced Network Analysis (Ana), 2026.

The results indicate that negative sentiment dominates public discourse at 69.2%, followed by neutral sentiment at 20.6% and positive sentiment at 10.2%. This dominance of negative sentiment suggests that the policy has triggered significant critical responses from the public. It also indicates that discourse is not neutral but is shaped by

widespread negative perceptions within the digital communication network.

Further analysis of emotional dynamics shows that neutral emotion dominates (39.4%), followed by anticipation (16.9%), disgust (12.6%), and anger (10.7%). Additionally, emotions such as sadness (6.4%) and fear (3.0%) are present, indicating a strong

affective dimension in public discourse. These emotional responses suggest that discussions are not purely rational but are influenced by personal experiences and emotional reactions to policy impacts.

Overall, the distribution of influence and sentiment dynamics demonstrates that public discourse is shaped by the interaction between key actors and collective emotional responses. Influential actors play a role in disseminating information, while public emotions amplify the intensity and direction of discourse. This indicates that the digital public sphere functions not only as a space for information exchange but also as an arena where public opinion is constructed through the interplay of network structures and affective dynamics.

4. DISCUSSION

The findings of this study indicate that the digital public sphere in the context of the deactivation policy of PBI BPJS Kesehatan reflects the characteristics of a complex and not fully deliberative networked public sphere. Although high levels of participation suggest open access for diverse actors to engage in public discourse, the resulting network structure reveals inequalities in the distribution of influence. This finding aligns with the argument that digital public spheres do not automatically produce communicative equality, but remain shaped by network structures and the positional advantages of certain actors within digital communication systems (Atsilah Siregar & Nugroho, 2025; Yue & Yu, 2025; Zhang, 2023).

The dominance of interaction patterns based on mentions and retweets suggests that communication within the network is more oriented toward the distribution and amplification of information rather than the exchange of deliberative arguments. Within the framework of the networked public sphere, this phenomenon indicates that digital platforms tend to facilitate rapid information dissemination but do not necessarily support in-depth dialogue. The limited presence of reply-based interactions further reinforces the finding that public discourse in this context resembles a broadcasting mechanism rather than an interactive and equally participatory deliberative space.

The fragmentation of the network into several clusters demonstrates that the digital public sphere does not function as a single, integrated arena of discourse. Instead, discourse develops within relatively separate communities, where interactions are more intensive within groups than between them. This condition reflects fragmentation within the

networked public sphere, where flows of information and opinion are often confined within specific communities, thereby limiting the exchange of broader perspectives in public discourse.

Beyond structural fragmentation, differences in discourse themes across communities indicate the presence of substantive fragmentation within the digital public sphere. Each cluster differs not only in its network structure but also in the issues it addresses, ranging from healthcare access and patient experiences to perceptions of government performance. This suggests that public opinion formation does not occur within a unified narrative framework but rather through multiple parallel narratives emerging across different communities. Such a phenomenon reinforces the view that the digital public sphere is pluralistic yet fragmented.

The concentration of influence among a limited number of actors highlights that public discourse dynamics continue to be shaped by key actors, including media organizations and individuals with extensive reach. Within the networked public sphere, this finding suggests that while digital technologies enable broad participation, the formation of public opinion remains mediated by actors occupying strategic positions within the network. The role of active participants (troops) in extending the reach of information further demonstrates that information diffusion results from the interaction between central actors and collective user participation.

The dominance of negative sentiment, along with the emergence of emotions such as anger, fear, and sadness, indicates that public discourse is not purely rational but is strongly influenced by affective dimensions. From the perspective of the networked public sphere, emotions play a crucial role in intensifying public engagement and accelerating the spread of information (Bruns, 2023; Friemel & Neuberger, 2023). However, the prevalence of negative emotions may also contribute to polarization and hinder the development of constructive discourse, particularly in the context of policy issues that directly affect vulnerable populations.

Overall, this study demonstrates that the digital public sphere in the context of health policy is not merely an arena for information exchange but also a space where network structures, community fragmentation, and emotional dynamics interact in shaping public opinion. These findings underscore that while the networked public sphere has the potential to enhance public participation, it also presents challenges related to fragmentation, unequal influence distribution, and the dominance of

affective responses. Therefore, understanding these dynamics is essential for designing more inclusive and responsive public communication strategies in the digital era.

5. CONCLUSION

This study demonstrates that public discourse surrounding the deactivation policy of PBI BPJS Kesehatan on platform X reflects the characteristics of a complex, fragmented, and not fully deliberative networked public sphere. While the network structure indicates high levels of public participation, the distribution of influence remains uneven and tends to be concentrated among specific actors. The dominance of interaction patterns based on mentions and retweets suggests that communication is oriented more toward information dissemination than two-way dialogue. As a result, the digital public sphere in this context functions more as an arena for narrative amplification than as a space for equitable public deliberation.

The fragmentation of the network into multiple discourse communities indicates that public conversations do not occur within a single, integrated space but are instead divided into groups with distinct characteristics and issue focuses. In addition to structural fragmentation, this study also identifies substantive fragmentation, where each community develops different narratives, ranging from issues of

healthcare access to critiques of government policy. This condition suggests that public opinion formation in digital spaces occurs in parallel rather than converging toward consensus.

Furthermore, the distribution of influence within the network reveals that key actors, including media organizations and individuals with extensive reach, play a central role in shaping and disseminating discourse. At the same time, the participation of active users contributes to expanding the reach of information through mechanisms of collective diffusion. Sentiment and emotional analyses indicate the dominance of negative sentiment and the presence of affective dimensions such as anger, fear, and sadness, which intensify discourse and reflect public responses to the policy's impact.

Overall, this study highlights that the digital public sphere holds significant potential to expand public participation in policy discourse, yet it also faces challenges related to fragmentation, unequal influence distribution, and the dominance of emotional expressions in public conversations. These findings contribute to a deeper understanding of the dynamics of the networked public sphere within the context of health policy and underscore the importance of developing more transparent, responsive, and inclusive public communication strategies to reduce fragmentation and enhance the quality of public discourse in digital environments.

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