



Research Article

Algorithmic Visibility of Marginalized Voices on Social Media and Its Implications for Democracy in Pakistan

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Abstract

This study examines the impact of algorithm content curation of marginalized voices within Pakistan digital sphere. Employing a quantitative content analysis, by comparing marginalized movements (#AuratMarch and #PTM), political content (Imran Khan), and entertainment content (Pakistani dramas). The findings reveal significant disparities in content visibility, the findings reveal significant disparities in content visibility. The study further highlights platform-specific differences, as TikTok demonstrates substantially higher engagement levels than X across all categories. The study further highlights platform-specific differences, as TikTok demonstrates substantially higher engagement levels than X across all categories. However, both platforms exhibit a similar tendency to prioritize engagement-driven content, often limiting the visibility of socially significant issues. However, both platforms exhibit a similar tendency to prioritize engagement-driven content, often limiting the visibility of socially significant issues. The results suggest that algorithmic content curation plays a crucial role in influencing public discourse and may reinforce existing inequalities in digital visibility.

Keywords: Algorithms, X, TikTok, Social media, Marginalized voices, Democracy.

Introduction

In modern democratic countries, freedom of speech is a fundamental right of everyone as it supports political legitimacy and encourages public participation. However, in the digital age, this freedom is increasingly influenced by non-transparent and profit-oriented algorithms that control the spread of information and public voice on social media and decide what should be visible on the platforms. In this age, where social media platforms have become the primary form of public discourse, the logic of algorithmic content curation is more oriented to engagement rather than to upholding democratic values. Initially, social media was seen as a tool to overcome the limitations of ideas in the marketplace, especially for those marginalized voices that were socially silenced. By lowering the cost of communication, it allows individuals to express their thoughts on certain and specific issues without relying on traditional gatekeepers such as political elites or mainstream media (Magarian, 2021). Social media has enabled historically marginalized groups of people to express their views and organize collectively, and challenge dominant narratives through active and open counter speech (Joseph, 2012; Karami et al., 2020; Okonkwo et al., 2024).

The Arab Spring is the key example of the potential of social media, highlighting how grassroots level can begin momentum through decentralized public mobilization rather than institutional support. These protests

began in the early 2010s and spread all over the Arab world in response to political corruption and economic stagnation. However, the extent of social media influence on these events is under debate (Alkhouja, 2015). Social media platforms like YouTube and Facebook no doubt play a significant role among political participants and awareness protests (Salem & Mourtada, 2011). Social media architecture based on interactivity, virality, and unequal patterns of communication provides a new form of public discussion, which is faster, more interactive, and less hierarchical than traditional models. It provides an opportunity for the marginalized voices to give their point of view and get interaction (Joseph, 2012). However, social media held a promise to rely on a more inclusive marketplace of ideas for marginalized voices to amplify their perspective and demand Political and cultural recognition (Zimmer et al., 2019).

Arguably, the more significant oversight that social media is the marketplace of ideas was the failure to recognize that these platforms are more profit-driven businesses (Kim, 2017). Their financial model is built on user engagement through likes, comments, and saving the content. The more users engage with the content, the more they are exposed to such advertisements. Platforms are incentivized through algorithms to gain the attention of the user. In essence, the social media platform model is built on a profit-driven model, which generates revenue through user engagement. This often leads to a conflict between democratic ideals of open and meaningful disclosure and the economic interests that shape the platform's operations (Ross, 2024).

In the early 2010s, particularly during the Arab Spring, social media platforms were primarily structured around the chronological feed, which means every new post appears at the top of the content, enabling activities to coordinate effectively and get visibility with minimal platform intervention. Limited moderation and minimal algorithmic meant that every user encountered similar content simultaneously, facilitating mass dissemination. Social media algorithms are designed to optimize user experience by analyzing large amounts of data to anticipate individual user preferences. Importantly, these systems also rely on passive users by analyzing metrics such as screen time and scrolling patterns (Kim, 2017). For instance, Instagram introduced prioritizing content based on user interest, addressing the issue of previously unseen posts (Instagram, 2016). While such developments are ostensibly intended to enhance user satisfaction, they are also designed to increase user engagement and encourage repeated platform use, ultimately boosting advertising revenue. Across platforms, including TikTok and X's algorithmically curated "For You" feeds and YouTube's autoplay feature, content is tailored according to prior engagement. These systems not only respond to user preferences but also shape them, reinforcing consumption patterns that prioritize profit over democratic discourse. Consequently, social media platforms operate within a business model that is fundamentally misaligned with the epistemic and civic functions historically attributed to traditional journalism. Rather than prioritizing truth, these platforms focus on maximizing user engagement, where even false information can become profitable if it attracts attention. This networked information environment exerts a corrosive effect by facilitating the spread of doubt, making it easier to undermine established narratives than to produce credible and trustworthy content (Johnson et al., 2018).

The purpose of this research is to examine the role of social media in Pakistan as a democratic state, where these platforms can play a significant role in amplifying marginalized voices, including Aurat March, the Pashtun Tahafuz Movement (PTM), and the Students Solidarity March. This study compares two different types of platforms, TikTok and X (Twitter), to examine how algorithms influence the visibility of entertainment content and social issues. Echo chambers fundamentally constrain the equal participation necessary for marginalized groups to succeed in the marketplace of ideas by limiting their visibility and misrepresenting their voices. Democratic legitimacy relies on open dialogue among free and equal citizens; however, echo chambers introduce significant asymmetries in who is heard. Marginalized individuals advocating for progressive or contested rights are often confined to sympathetic networks, preventing their arguments from reaching wider public forums and being fully debated, thus reinforcing existing limitations in public discourse. These echo chambers weaken the effectiveness of the counter speech (Napoli, 2018).

The popularity of social media in Pakistan, with over 100 million active users, has transformed how citizens access news and engage politically. However, the algorithms that govern these platforms often priorities

attention grabbing or emotionally charged content over accuracy and balanced discussion. These tools have the potential to amplify the voices of marginalized groups such as women activists, religious minorities, regional language communities, and transgender populations. Their posts get limited engagement with a broad audience, and this reduces the opportunity to influence public debates. Consequently, this algorithm setup disrupted the mechanisms of equal participation that are essential for democratic legitimacy, reinforcing existing power imbalances and making it harder for minority perspectives to challenge dominant narratives.

Social media platforms in Pakistan leverage algorithms that shape what users see by prioritizing engagement over the quality of information rather than balanced discussion. This creates a spectrum of soft censorship by showing users only what they are predicted to enjoy, while less “relevant” material is hidden. This may appear harmless, for instance, excluding unrelated entertainment content, it becomes politically significant when users engage with political discourse, and feeds often amplify existing beliefs, reducing exposure to contrasting or critical perspectives. Features such as Twitter’s “For You” feed, intended to broaden users’ experiences, may paradoxically narrow awareness and reinforce echo chambers, constraining access to varied political speech.

Following the 2022 acquisition of Twitter by Elon Musk, studies revealed that the potential for algorithmic bias on social media platforms has become increasingly evident (Rohlinger et al., 2023). Computational analyses have identified instances of algorithms favoring Republican supporters in the US (Graham & Andrejevic, 2024). In the Pakistani context, such biases could result in certain parties or political narratives being disproportionately promoted while alternative or minority perspectives remain underrepresented. Social media algorithms can influence political discourse not merely by reflecting user interactions but also by embedding systemic preferences that shape engagement and access to information.

Significance

The research holds substantial significance in examining the role of social media algorithms in shaping content visibility within the context of Pakistan. In contemporary digital environments, which increasingly function as central arenas for political communication and public discourse, the ways through which information is curated and distributed have become deeply consequential. However, the increasing dependence on algorithmic systems to filter and prioritize content raises concerns about fairness, representation, and access to visibility. This research specifically focuses on how these systems influence unequal visibility, particularly affecting marginalized groups, which are often dependent on digital platforms to gain recognition and participate in broader societal discussions. Academically, this study contributes to the field of political communication by providing empirical insights into the relationship between algorithmic curation and content visibility. Although global scholarship has extensively examined these issues, while a significant portion of existing literature focuses on Western societies, there is limited research exploring these dynamics within Pakistan. By situating the analysis within a developing democratic society, this study offers how algorithms function in these societies. The comparative analysis of X (Twitter) and TikTok further enhances this contribution by identifying differences in how various platforms shape visibility through their algorithmic structures.

From a practical perspective, the findings of this study are relevant for a wide range of stakeholders, policy makers, digital activists, and content creators. Policymakers can use these findings to better understand the implications of algorithmic bias and its potential impact on democratic participation and inclusive communication. For activists and marginalized communities, the research exposes structural barriers embedded within digital platforms that may hinder their ability to gain visibility. Additionally, content creators can benefit by understanding the dynamics of algorithmic prioritization and its influence on audience reach and engagement. Furthermore, this research has important implications for democratic values. In principle, digital platforms are often associated with expanding access to public discourse and are essential for ensuring diverse perspectives and inclusive representation. This raises critical concerns regarding equity, inclusion, and the quality of democratic participation. By highlighting these issues, the study contributes to a broader understanding of how digital platforms shape communication, power, and representation in modern society.

Research Objective

1. To investigate the role of social media algorithms on the visibility of marginalized voices in the digital landscape of Pakistan.
2. To analyze how algorithms work on the visibility of content
3. To compare content visibility on X(Twitter) and TikTok.
4. To examine the implications of algorithms for democratic discourse in Pakistan.

Literature Review

Studies highlight that the role of algorithms has a direct impact on democratic societies (Alvarado & Waern, 2018). Bozdag (2013) argued that algorithms are purely technical system, it has a human reflection that is embedded in them. He suggested that algorithms may influence which voice should be visible or not. In contrast, Geiger (2014) argues that those who design and control these algorithmic systems hold the power to shape the user's opinion and influence their behavior. This highlighted how algorithms structure the visibility of content, potentially affecting the voices of marginalized voices in digital space. Studies reveal that many users remain unaware that their social media feeds are curated by algorithms and are often surprised when expected content, such as that from close friends or family, does not appear. This limited awareness highlights that users may not fully understand how algorithms control the visibility of information. Consequently, the invisibility of certain content is not always recognized by users, including social issues and marginalized voices, may be less visible without users even realizing it (Eslami et al., 2015). Gillespie (2013) introduced the concept of 'public relevance algorithms', which explains how systems shape the visibility of the content.

1. Patterns of inclusion and exclusion: algorithms filter out the information
2. Cycles of anticipation: the algorithm predicts the preferences based on past interest
3. Evaluation of relevance: it decides what content is important and legitimate
4. Perceived objectivity: it appears neutral, but is influenced by human design
5. Entanglement with practice: it influences how users create and interact with content

Algorithmic systems rely on multiple ranking signals, including engagement recency, geographic location, and user interactions, to determine the visibility of content on social media platforms. While these mechanisms are specially designed to maximize audience engagement, as a result, they can produce imbalances in representation across different types of content. Through the formation of 'echo chambers,' audience/users are primarily exposed to content that aligns with their existing beliefs. As a result, marginalized perspectives may receive less visibility while dominant ideas get more visibility. A growing body of research suggests that content moderation of social media often results in excessive impact on marginalized communities (Guynn, 2019; Jan & Dwoskin, 2017). Concerns have also been raised regarding censorship, which is observed on transgender TikTok accounts, suppressing their content (Criddle, 2020). Studies further suggest that algorithm bias raises the concern of fairness and representation (Salty, 2019). Online identity transitions are shaped by social media environments, highlighting the role of digital footprints and social networks (Haimson et al., 2016). Emerging research bodies highlight a critical gap in understanding how content moderation systems filter out certain users, a phenomenon known as false positives. Much evidence in the research suggests that incorrectness disproportionately affects the marginalized communities and institutionalized social groups, particularly based on race and gender (Duarte et al., 2018; Electronic Frontier Foundation, 2019; Lux & Hot Mess, 2017; Roberts, 2018; York, 2021).

Research Questions

- RQ1. How do algorithm systems shape the visibility of marginalized voices within the digital landscape of Pakistan?
- RQ2. How does content visibility differ between X(Twitter)and TikTok?
- RQ3. What are the implications of algorithmic content curation for democratic participation and inclusive

public discourse in Pakistan?

Methodology

This study adopts a quantitative content analysis approach to examine the pattern of content visibility on social media platforms. This is a comparative research design that was adopted to compare the content on Twitter(X) and TikTok. The collected data were categorized into three groups: marginalized/social issue content, political content, and entertainment content.

Content visibility was based on engagement metrics, including likes, views, comments, and shares. These indicators were used to measure and compare the performance of each category across both platforms. This methodological approach enables an evaluation of how algorithmic systems shape content visibility, particularly in relation to marginalized voices within digital environments.

Sampling

This study uses a purposive sampling strategy to collect data from two social media platforms in Pakistan, specifically X (Twitter) and TikTok. Posts were selected using predefined keywords representing three content categories: marginalized/social issues, political content, and entertainment content. A structured sample was constructed by selecting an equal number of posts from each category to ensure comparability across platforms. The sample included posts from the Pakistani digital context within a defined time period to maintain consistency in comparison. Only publicly accessible posts with measurable engagement indicators, including likes, views, comments, and shares, were included. This sampling strategy ensures that the data reflects platform activity relevant to the Pakistani audience and research objectives.

Results and Discussion

Table 1. Average engagement metrics across marginalized, political, and entertainment content on X.

Category	Avg Likes	Avg RTs	Avg Comments	Avg Views
#AuratMarch	94	30	6	4,200
#PTM	58	32	4	1,006
#Imran Khan	126	113	61	18,780
#Pakistani Drama	619	85	63	51,664

Table 1 presents the average engagement metrics across marginalized, political, and entertainment content on X, highlighting clear disparities in content visibility. The findings reveal that Entertainment content, represented by Pakistani dramas, dominates the platform, receiving the highest engagement, with an average of 51,664 views per post. This is substantially higher than political content related to Imran Khan, which recorded an average of 18,780 views.

In contrast, marginalized content, including #AuratMarch and #PTM, received significantly lower engagement. AuratMarch posts averaged approximately 4,200 views, while #PTM had the lowest visibility, with an average of 1,006 views per post. These findings suggest that content visibility on X varies across categories, with entertainment content receiving greater exposure than marginalized issues.

Figure 1 illustrates the variation in average views across different content categories on X. Figure 1 visually represents the disparities in average views across different content categories on X, further reinforcing the findings presented in Table 1. The graph shows that Pakistani drama content achieved the highest visibility, significantly outperforming other categories in terms of visibility. With average views exceeding 50,000, entertainment content receives more than ten times the exposure of marginalized content, such as #AuratMarch and #PTM.

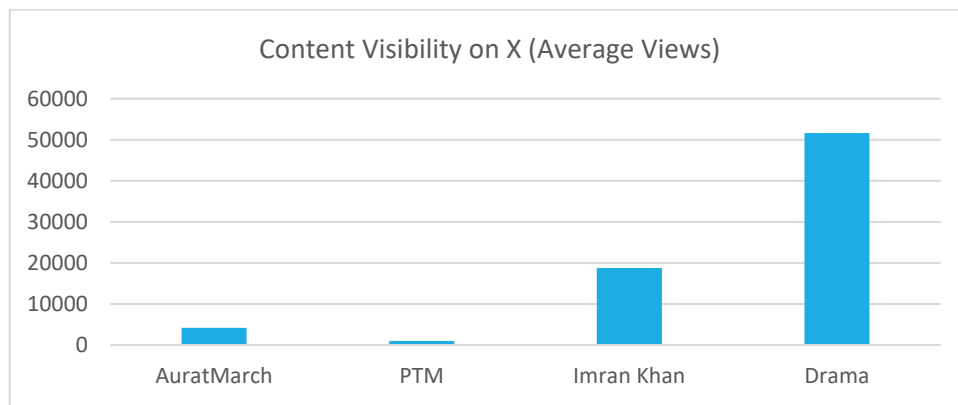


Figure 1. Content Visibility on X.

This pattern indicates that entertainment content is more prominently visible on the platform, while marginalized topics receive relatively limited attention and engagement.

Table 2. Average Engagement across Content Categories on TikTok.

Category	Avg Likes	Avg Comments	Avg Shares	Avg Views
AuratMarch	3,200	680	300	85,000
PTM	2,100	450	180	52,000
Imran Khan	8,500	1,200	950	210,000
Pakistani Drama	25,000	3,800	2,400	950,000

Table 2 presents the average engagement metrics across different content categories on TikTok. The findings indicate significantly higher engagement levels compared to X, particularly for entertainment content. Pakistani drama content received the highest visibility, with an average of 950,000 views per video, followed by political content related to Imran Khan, which averaged 210,000 views.

In contrast, marginalized content such as #AuratMarch and #PTM showed comparatively lower engagement, although still higher than their performance on X. These results suggest that while TikTok provides greater overall visibility, disparities across content categories persist, with entertainment content receiving the highest exposure.

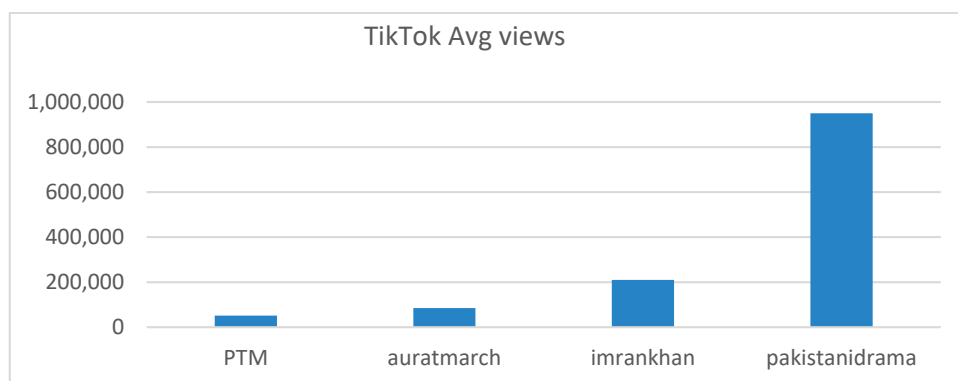


Figure 2. Content Visibility on TikTok.

Figure 1 illustrates the variation in average views across different content categories on X. Figure 2 demonstrates significant variation in content visibility across different categories on TikTok. Entertainment content, particularly Pakistani dramas, achieves the highest average views, indicating the platform's strong preference for visually engaging and widely appealing content. Political content related to Imran Khan also shows considerable visibility, reflecting public interest in political discourse. However, marginalized topics

such as #AuratMarch and #PTM receive comparatively lower exposure, suggesting that such content may not be algorithmically amplified to the same extent. These findings highlight the role of TikTok's recommendation system in prioritizing content that generates higher user interaction and retention.

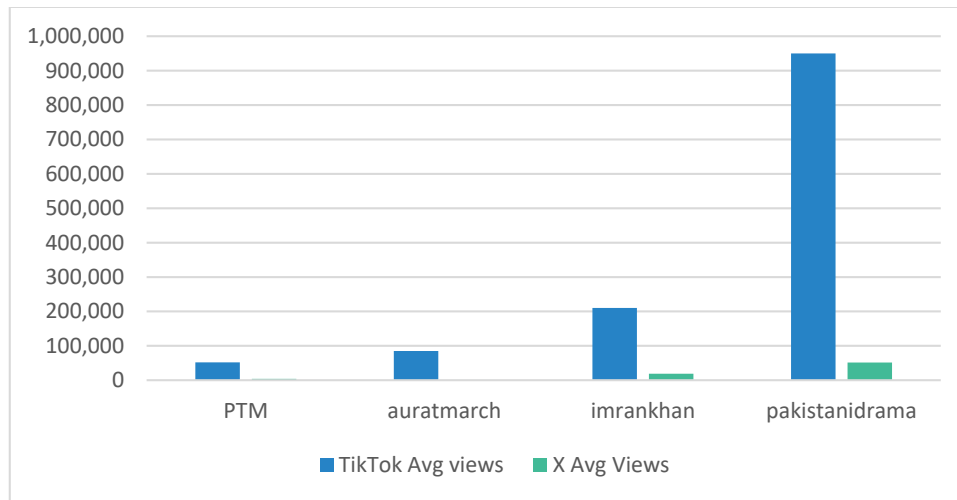


Figure 3. Comparison between X and TikTok engagement.

Figure 3 illustrates a substantial disparity in content visibility between X and TikTok across all categories. TikTok consistently demonstrates significantly higher engagement levels, particularly for entertainment content, where Pakistani dramas achieve the highest visibility. Even marginalized content such as #AuratMarch and #PTM receives greater exposure on TikTok compared to X, although it still remains less prominent than entertainment and political content. These findings highlight platform-specific differences in algorithmic amplification, suggesting that TikTok is more effective in promoting high-engagement content compared to X.

Discussion

According to findings, social media platforms apply filters on the content visibility, which content should be visible or not, and this is also discussed in many previous studies. The algorithm uses a keyword system to give visibility to specific content. The findings from X, which are shown in Table 1, indicate that X(Twitter) provides limited visibility to such keywords, but the marginalized voices get low visibility compared to entertainment content and politics. TikTok results show prominent visibility to content and provide maximum views, but in the case of marginalized voices, the results are the same as those in Table 2. This algorithmic bias increases over time 2022 acquisition of Twitter by Elon Musk shows the same results. The Arab Spring, which is a result of a social media movement, where social media played a very important role, but at that time, social media platforms were not fully developed, and every new piece of content was shown as the first post on everyone's mobile phones (Alkhouja, 2015).

Conclusions

This research explored the impact of algorithmic content curation in shaping the visibility of marginalized voices in Pakistan by comparing engagement patterns across X and TikTok. The study demonstrates that content visibility is unevenly distributed across categories, with entertainment content receiving the highest exposure, followed by political content, while marginalized issues remain significantly underrepresented. Entertainment content consistently achieved the highest engagement on both platforms, followed by political content, while marginalized topics such as #AuratMarch and #PTM received comparatively lower visibility.

The findings further reveal that platform architecture plays a crucial role in shaping engagement patterns. TikTok's recommendation system amplifies high-engagement content more effectively, resulting in substantially higher visibility across all categories compared to X. However, despite these differences, both platforms exhibit a similar tendency to prioritize content that maximizes user interaction, often at the expense

of socially significant issues. These results suggest that algorithmic systems, while designed to enhance user experience, may inadvertently reinforce existing inequalities in digital visibility, thereby impacting inclusive public discourse in democratic contexts such as Pakistan.

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