

Do Activists Prioritize Solutions over Grievances? A Twitter Study of Black Lives Matter

Aktivistler Şikayetlerin Yerine Çözümlere mi Öncelik Veriyor? Siyahların Hayatı Önemlidir Üzerine Bir Twitter Çalışması

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Abstract

Do social movements shift the focus of their framing from grievances to tactics as they mature? This paper examines the nature of the frames that social movements and activists co-create using the case of Black Lives Matter (BLM). Building on (Snow & Benford (1988)), we explore whether BLM's frames have evolved from diagnostic to prognostic frames since the movement's emergence. We compiled a novel tweet dataset collected from Twitter that contains 269,963 tweets sent under the hashtag "BlackLivesMatter" from Jan. 01, 2020, to Dec. 31, 2021. Using statistical tools and network analysis, we show that BLM activists increasingly use prognostic frames while expressing their grievances because injustices and discrimination toward the Black continue. The evidence suggests that tweets on tactics and solutions outnumber the grievance-related frames only after Chauvin's guilty plea alleviates grievances.

Keywords: Black Lives Matter, online activism, framing, social networks

Öz

Sosyal hareketler, olgunlaştıkça çerçevlendirme odaklarını şikayetlerden taktiklere kaydırır mı? Bu makale, Siyahların Hayatı Önemlidir (BLM) örneği üzerinden sosyal hareketlerin ve aktivistlerin birlikte oluşturduğu çerçevelerin doğasını incelemektedir. Snow ve Benford'un (1988) çalışmalarına dayanarak, BLM'in çerçevelerinin hareketin ortaya çıkışından bu yana tanısal çerçevelerden öngörülse çerçevelere evrilip evrilmediğini araştırıyoruz. Twitter'dan derlenen yeni bir tweet veri kümesi kullanarak, 01 Ocak 2020'den 31 Aralık 2021'e kadar "BlackLivesMatter" etiketi altında gönderilen 269.963 tweet'i içeren bir veri kümesi oluşturduk. Çeşitli istatistiksel analizi ağ analizi birleştirerek yaptığımız çalışmamızın temel bulgusu şöyledir: BLM aktivistleri, hala adaletsizlik ve ayrımcılık devam ettiği için, şikayetlerini dile getirmek adına giderek daha fazla öngörülse çerçeveler kullanmaktadır. Kanıtlar, taktikler ve çözümlerle ilgili tweet'lerin, Chauvin'in suçlu olduğunu itiraf etmesinden sonra şikayete ilgili çerçevelerden daha fazla sayıda olduğunu göstermektedir.

Anahtar Kelimeler: Siyahların Hayatı Önemlidir, çevrimiçi aktivizm, çerçeveleme, sosyal ağlar

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1. Introduction

The murder of George Floyd, an unarmed Black man, in a chokehold by a White police officer on May 25, 2020, spurred nationwide Black Lives Matter (BLM) protests in the United States (Hill et al., 2021). The Floyd protests were one of the many protest waves associated with the “black lives matter” motto initiated by activists in 2003 to draw attention to racial inequality (Ince, Rojas, & Davis, 2017; Tillery, 2019). Floyd died while repeating the words “I can’t breathe” over 20 times (Singh, 2020), a case reminiscent of Eric Garner, another Black homicide of a chokehold perpetrated by the police. The “I can’t breathe” slogan went viral on the web as an outcry against police brutality that triggered worldwide protests (Corbet & Garriga, 2020), demonstrating what a strong frame it had become. In the early 2000s, when BLM had emerged as a decentralized movement, activists would underscore the victims who had died due to police violence and voice grievances about various manifestations of racial discrimination in daily life (Garza, 2014). Since then, BLM has been institutionalized. The deaths of Breonna Taylor (March 13, 2020) and George Floyd (May 25, 2020) triggered the largest Black Lives Matter (BLM) protests in 2020 and 2021 (Buchanan, Bui, & Patel, 2020). These protests, which spread across 39 states and endured for multiple days (*Crowd Counting Consortium Dataset*, 2020/2023), were largely peaceful --“violent demonstrations, have been limited to fewer than 220 locations” (S. Jones & Kishi, 2020). The question arises: did activists prioritize solutions over grievances in this period of high protest activity?

This paper studies the framing choices of online activists during the peak of BLM protests in 2020 and 2021. In this work, online activists refer to those who employ the movement’s official hashtag to convey their perspectives and engage with the cause on social media platforms. Specifically, we examine whether activists emphasize tactics and policy changes over grievances. Exploring the presence of such a shift is of significance as it indicates that the movement is transitioning from primarily voicing grievances to strategically focusing on concrete solutions and policy reforms during an intense activity period. This shift underscores that BLM is not solely about raising awareness but actively working to bring about changes in society. Social movements develop frames to mobilize activists, and these interactions, in turn, transform movement frames and collective identities (Brown, Ray, Summers, & Fraistat, 2017; Gamson, 1992; Oktavianus, Davidson, & Guan, 2021; Pond & Lewis, 2019). Research has shown that frame production in the BLM case is mainly decentralized because the movement emerged as an online movement and rallied support on social media before institutionalization (Milkman, 2017). It is crucial to establish whether the emphasis of BLM frames has shifted from grievances to tactics and policy change following institutionalization. Although the movement has become institutionalized and advances concrete policy changes, activists may still prefer to express grievances primarily.

We study online BLM activists’ frames as they manifest themselves on social media because social movements increasingly interact with activists on these platforms (Brown et al., 2017; Ince et al., 2017; Oktavianus et al., 2021). Also, social media allows individual activists to respond to opportunities with personalized content. These individual reactions sum up to create a “connective action” without the requirement of collective identity framing or the levels of organizational

resources (Bennett & Segerberg, 2012). Therefore, social media is not only an appropriate but also a must-look-at terrain of study to comprehend frame development and changes in the age of connective action. Previous work has established the frames that BLM employs (Clayton, 2018; Ince et al., 2017; Tillery, 2019), the specific identity frames it utilizes to boost public support (Bonilla & Tillery, 2020), and the novel frames that have emerged, such as the “Black dignity” call (Clayton, 2018). However, few studies have analyzed the nature of frames online activists use during the apogee of BLM protest activity. This paper aims to fill in this gap in the literature.

Using Snow & Benford’s (1988) framing categories, we argue that diagnostic framing remains highly significant, even as prognostic frames have gained prominence. The enduring salience of diagnostic frames is a direct response to the ongoing injustices prevalent in daily life, policing, and the criminal justice system, particularly in relation to the Black community. We posit that activists will persist in voicing their concerns as long as these injustices and systemic discrimination endure. Diagnostic framing, associated with problem identification, remains pivotal in this context. Prognostic framing involves ascribing blame and articulating potential solutions, while motivational framing entails inspiring people to participate in activities aimed at effecting change (Snow & Benford, 1988, p. 198).

We test this argument on the case of the murder of George Floyd—a recent event that sparked nationwide and worldwide protests (Hill et al., 2021). The murder of Floyd is a relevant case to study frame shift because it induced intense protest and social media activity in the run-up to the 2020 US elections. We test this argument on a dataset of 269,963 tweets collected between Jan. 01, 2020, and Dec. 31, 2021. This period covers the murder of Floyd (May 25, 2020), the US elections (Nov. 3, 2020), the beginning of Chauvin’s trial (Mar. 8, 2021), the end of his trial (Apr. 20, 2021), and his guilty plea (Dec. 15, 2021). Using Twitter’s application programming interface (API), we collected the tweets that appeared under the “BlackLivesMatter” hashtag. Using these data, we identify the most frequently used hashtags and the kind of framing with which they are associated. We also construct a hashtag co-occurrence network using network analysis to establish which hashtags conjointly appear in tweets. These analyses help reveal whether BLM demands resonate with the public and grievances find a weaker voice than tactics and policy change and pinpoint which demands and grievances spark conversation between BLM supporters and countermovements.

This paper contributes to the BLM and social movements literature by studying the nature of frames online activists use during the apogee of BLM protest activity. The paper is structured as follows. The first two sections elaborate on the emergence of BLM and how movements utilize and transform frames to mobilize support. Section 3 describes our data and our methodology to study BLM frames. Section 4 presents our findings. We conclude with a discussion of our results.

2. Black Lives Matter: The Making of a Mass Movement

BLM emerged as an online movement in 2013 following the murder of Trayvon Martin, a 17-year-old Black teenager, by a White police officer, George Zimmerman. Three Black women, Alicia Garza, Patrisse Cullors, and Opal Tometi, initiated a campaign on Twitter using the hashtag

#BlackLivesMatter. Garza describes the campaign as “a response to the anti-Black racism that permeates our society and also, unfortunately, our movements” (Garza, 2014). #BlackLivesMatter went viral. Other campaigns and organizations adopted the motto “Black Lives Matter” (Garza, 2014). The acquittal of Zimmerman fueled the frustration with deeply ingrained institutionalized racism, leading to an outpouring of activists’ feelings, demands, and aspirations on Twitter accompanied by this hashtag. By the end of the year, Cullors founded the Black Lives Matter Global Network Foundation to transform BLM into a decentralized leaderless organization (“Black Lives Matter Global Network Foundation,” n.d.).

In 2014, BLM gained momentum due to more Black civilians losing their lives through extrajudicial killings. Eric Garner, a Black civilian, died in a chokehold at the hands of a White police officer. Mike Brown was shot dead after being shot by Darren Wilson, another White police officer (Anderson, Toor, Rainie, & Smith, 2018). These deaths propelled large protests across America. By the end of the year, local BLM organizations had mushroomed under the coordination of the Black Lives Matter Global Network Foundation.

BLM protests reached their apogee in 2020 and 2021 in response to the extrajudicial killings of Breonna Taylor, George Floyd, and Ahmaud Arbery. The murder of Floyd, reminiscent of Eric Garner’s chokehold death, sparked nationwide protests in all 50 states and Washington, DC. (R. K. Jones Sam, 2020). Figure 1 reflects the spatial distribution of BLM protests in 2020. As depicted in Figure 1, protests were pervasive throughout the United States, with a notable concentration on the East Coast. While the majority of these demonstrations remained peaceful, it is worth acknowledging that a subset escalated into riots.

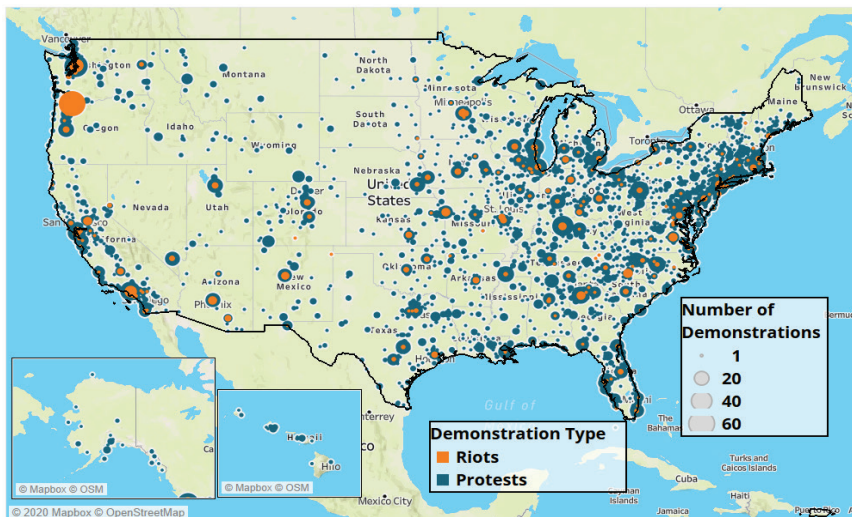


Figure 1. Demonstrations Associated with Black Lives Matter (BLM) by Demonstration Type (24 May - 22 August 2020)

Source: ACLED <https://acleddata.com/2020/09/03/demonstrations-political-violence-in-america-new-data-for-summer-2020/>

3. Social movements & Framing

Resource mobilization and political process theories explain how the organizational structures of social movements and changes in political opportunities determine the structure, scope, and success of social movements (McAdam, McCarthy, & Zald, 1996; McCarthy & Zald, 1977; Tilly, 1978). In these views, structural arrangements and radical events shape ideas and meanings. Social movements carry and transmit but do not produce these ideas and meanings. Emphasis on external political opportunity structures and the acquisition and deployment of resources to advance the mobilizing power of social movements led scholars to treat beliefs and ideas as given features of social movements (Snow & Benford, 1988). Contra this structuralist approach, framing scholars contend that social movements take part in the construction and maintenance of ideas and meanings, thus constructing “frames” (Goffman, 1974; Snow & Benford, 1988).

Goffman (1974) introduced the concept of frame to draw attention to the role of ideas and meanings in affecting the mobilizing power of social movements (Goffman, 1974, p. 21). This process, known as framing, involves social movement activists intentionally selecting particular frames to attract the support of potential followers. These activists construct collective action frames, which are “coherent belief systems and meanings oriented toward action, legitimizing and inspiring social movement campaigns and activities” (Snow, Vliegenthart, & Ketelaars, 2018, p. 395). These collective action frames interpret and simplify events, making them more meaningful to potential supporters and providing guidance for their actions (Benford & Snow, 2000). Furthermore, by directing attention, articulating, and elaborating on the elements within the frame, and often reshaping the significance of the focal subjects, collective action frames have the power to transform bystanders into adherents (Snow et al., 2018). Hence, Goffman (1974) maintained that, just like political opportunity structures and organizational resources, ideas and meanings affect the mobilizing power of social movements.

The resilience of social movements is contingent upon the alignment of “interpretive schemata” constructed by movement activists with the way potential supporters interpret events and incidents (Goffman, 1974, p. 21). A social movement’s success is closely tied to how adeptly activists create and maintain these schemata, as they serve the vital function of mobilizing potential adherents, gaining bystander support, and demobilizing antagonists (Snow & Benford, 1988, p. 198). This process, referred to as framing, is an active one where social movement activists make deliberate choices in selecting specific frames over others to attract potential adherents (Snow et al., 2018). This process can be “processual” and “contentious,” that is, collective action frames can be constructed and reconstructed over time and or challenged by the generation of alternative interpretations of relevant events and occurrences (Benford & Snow, 2000).

Snow & Benford (1988) define three core framing tasks, “diagnostic framing,” “prognostic framing,” and “motivational framing.” Diagnostic framing refers to problem identification, the construction of a shared understanding of the problem that needs to be addressed, and the assignment of blame or responsibility for the existence of that issue (Snow & Benford, 1988, p. 200).

This framing type becomes especially visible when a movement stands up against policies that it deems unjust, immoral, or illegitimate (Gerhards & Rucht, 1992). Prognostic framing involves the articulation of possible solutions to the problem at hand. Motivational framing consists of the incitement of people to engage in activities that would create change (Snow & Benford, 1988, p. 201). These three tasks should be “richly developed and interconnected” for the mobilization effort to succeed (Snow & Benford, 1988, p. 198). Of the three, diagnostic frames hold the utmost significance in the mobilization process (Snow & Soule, 2009). Diagnostic frames are pivotal because they not only define the issue that needs addressing but also attribute responsibility to a specific actor, effectively channeling underlying dissatisfaction.

In this paper, we investigate activists’ choices of framing as frames manifest themselves on Twitter. This approach is in order because BLM emerged as a hashtag and has distinctly been a decentralized movement despite its institutionalization in 2020 (Milkman, 2017). Studies have documented how social media platforms affect the structure, scope, and success of social movements by creating “virtual publics” and raising participation opportunities (De Choudhury, Jhaver, Sugar, & Weber, 2016; Q. Jones & Rafaeli, 2000; Khamis & Vaughn, 2012), or enabling coalition-building through the creation of interpersonal networks and recurring interactions (Bystydzienski & Schacht, 2001; Milan, 2015; Shaw, 2013). Furthermore, research has revealed that social media constructs meanings attached to events and occurrences around which social movements develop a frame (Carney, 2016; Kavada, 2015; Tufekci & Wilson, 2012). Social media provides a decentralized and horizontal contribution to frame-making, which differs from the top-down way the public responds to a frame already constructed by the elite by supporting, opposing, or staying ignorant. This paper intends to focus on these efforts.

The construction of collective action frames on Twitter defines a distinctly flexible process called hashtag activism. Hashtag activism is defined as ‘a substantial volume of comments and retweets that surface on social media in response to a hashtagged word, phrase, or sentence’ (Yang, 2016, p. 14). Hashtags are used to connect with and rally supporters by alluding to a specific context, date, and meaningful content (Guo & Saxton, 2014). Additionally, activists incorporate hashtags into their posts to enhance the visibility of their messages (Brock, 2012). Consequently, hashtag activism empowers social movements in mobilizing support within Twitter’s decentralized and leaderless environment (R. Clark, 2016; Yang, 2016). In the specific case of BLM, while movement organizers formulate the movement’s demands and engage in legal actions (“BLM Demands,” 2016), online activists interact with the movement on social media platforms, responding to opportunities with tailored content and hashtag use. Therefore, it is essential to understand the frames employed by online activists in the era of connective action (Bennett & Segerberg, 2012). This study particularly aims to shed light on whether online activists predominantly articulate grievances or proactively present solutions, ultimately contributing to an enhanced understanding of the resonance between movement organizers and their online supporters.

Of course, we are not the first to study BLM's frames on social media. Prior research has delved into the impact of online activism on news coverage of police brutality (Elmasry & el-Nawawy, 2017; Freelon, McIlwain, & Clark, 2018; Umamaheswar, 2020), the mobilization of frames and their influence on countermobilization (Bonilla & Tillery, 2020; Gallagher, Reagan, Danforth, & Dodds, 2018; Weber, Smith, Madsen, Dejmanee, & Zaher, 2022; Yang, 2016), the coordination of activists in terms of relationships and spatial dynamics (van Haperen, Uitermark, & Nicholls, 2023), the role of social media as an information source for youth (Cox, 2017), and how it fosters the expansion and reinforcement of unity within the movement (Mundt, Ross, & Burnett, 2018). Notwithstanding the invaluable insights these findings provide, this paper seeks to focus on activists' choice of framing during the height of protests. Regarding the framing efforts of online activists, existing findings suggest that users engage in discussions related to specific issues (e.g., #justiceforFloyd) (Yang, 2016). Examining the tweets that co-appear with #BlackLivesMatter in the first year of the BLM movement, Ince et al. (2017) show that people actively "alter and manipulate the movement's construction of meaning" (p. 1827). The authors argue that collective movement frames have "a natural pattern of growth from specific grievances that attract the attention of activists to a more mature phase where grievances recede in importance to tactics and policy change" (p. 1827). Nonetheless, empirical research focusing on activists' framing choices during the period of 2020 and 2021 remains relatively limited. This study seeks to address this critical gap in the existing literature.

Given the decade-long presence of BLM and its growing institutionalization, we would expect BLM to prioritize solutions over grievances if one were to align with the argument presented by (Ince et al., 2017). However, the mere inclination of movement organizers toward emphasizing solutions does not necessarily imply that online activists will automatically align with this approach. Especially in the context of tragic events like the deaths of George Floyd, Breonna Taylor, Ahmaud Arbery, and similar incidents, we anticipate that the persisting issue of police violence against Black individuals, coupled with the lack of accountability for those responsible, will continue to fuel grievances. Consequently, it is improbable that these grievances will subside until authorities enact substantial policy changes aimed at alleviating systemic discrimination in daily life, law enforcement, and the criminal justice system.

4. Data & Methodology

To test whether online BLM activists have shifted their emphasis from diagnostic to prognostic and motivational framing, we use social media content as a source for empirical observations regarding media activism (Brown et al., 2017). For this purpose, we collected data from Twitter between Jan. 01, 2020, and Dec. 31, 2021, which spans events such as Floyd's death, the US elections, the trial of Derek Chauvin (the police officer who had killed Floyd), and Chauvin's guilty plea. The murder of Floyd started a new protest cycle in the election year because Floyd died in a chokehold just like Eric Garner, a previous Black victim whose death had also spurred a protest cycle in 2014. We included the Chauvin trial and Chauvin's guilty plea because activists were unsure whether the court would convict Chauvin, knowing that the police officer who had

killed Eric Garner was not convicted. Therefore, the trial sparked extensive discussions on the grievances of Black people.

We collected tweets with the query term #BlackLivesMatter, the hashtag that coined the BLM movement using the Twitter Application Programming Interface (API) v2.0. Since “#BlackLivesMatter” was the query term, we excluded it from the analysis. Instead, we tracked other hashtag versions, namely, “blacklivesmatter,” “BLACKLIVESMATTER,” “BLM,” “blm,” and “Blacklivesmatter,” tagged along #BlackLivesMatter. We collapsed these alternative versions into BlackLivesMatter to get a sense of the movement’s popularity. For every collected tweet, we have its text and time of posting. Also, for tweets that are replies to other tweets, information about the tweet to which is replied is provided. This procedure yielded 539,482 hashtags in total, of which 75,615 were unique, from our dataset that contains 269,963 tweets with the Python programming language. The total number of users in this dataset is 118,188. Using the API, we randomly sampled 100 tweets within discrete 6-hour intervals on a daily basis.

We divided the period from Jan. 01, 2020, to Dec. 31, 2021, into six periods: I: Jan. 1, 2020–the murder of Floyd (May 25, 2020), II: the murder of Floyd–US elections (Nov. 3, 2020), III: US elections–the beginning of Chauvin’s trial (Mar. 8, 2021), IV: Chauvin trial (Mar. 8–Apr. 20, 2021), V: Chauvin verdict–Chauvin’s guilty plea (Dec. 15, 2021), and VI: Chauvin’s guilty plea–Dec. 31, 2021. Table 1 represents the breakdown of our dataset after periodization. We observe the highest number of tweets after the verdict of the Chauvin trial and Chauvin’s guilty plea, followed by periods II and I. The number of tweets in our dataset drastically drops after Chauvin’s guilty plea.

Table 1. Number of tweets in periods

<i>Periods</i>		<i>Number of tweets</i>
I	Jan. 01, 2020 – Murder of Floyd	47,547
II	Murder of Floyd-2020 US elections	62,086
III	US elections-Start of the Chauvin trial	45,132
IV	The Chauvin trial	16,191
V	The Chauvin trial – Chauvin’s guilty plea	92,421
VI	Guilty plea – Dec. 31, 2021	6,586
Total number of tweets		269,963

We selected the 100 most frequently used hashtags, which were manually coded by three persons into the following four categories: diagnostic, prognostic, call for action (motivational), and the Black community. Diagnostic frames describe grievances about police violence and racial discrimination in political and daily life and victims of police violence, e.g., George Floyd and Mike Brown. Prognostic frames correspond to concrete policy demands and tactics defined as possible courses of action for protesters. We put hashtags about ameliorative collective action into a separate “call for action/motivational” category (e.g., calling on citizens to vote). We borrowed these categories from (Snow & Benford, 1988), except the category

of the “Black community.” We added the Black community to capture hashtags related to the history, heritage, culture, and shared values of the Black, e.g., black history month and the black community (Clayton, 2018). This category did not neatly fall under diagnostic or prognostic categories. Instead, it touches upon community building around shared values and experiences, representing an attempt to organize a “safe space” among activists on the online platform (M. Clark, 2014). Finally, even though hashtags regarding police violence and victims were coded as diagnostic frames, we still traced them separately to track how many diagnostic frames relate to victims and police violence. Victims contain the names of victims of police violence, while police violence refers to the disproportionate use of police force and the indictment of police officers. We coded some hashtags under more than one category. Human coders reached a 90% agreement. Table 2 presents the definition of these categories and examples.

We examine this dataset from three different perspectives. First, we study the evolution of BLM activists’ social media use over time. Specifically, we examine the monthly fluctuations in the use of some emblematic hashtags in our data typifying diagnostic and prognostic frames namely, GeorgeFloyd, DefundThePolice, and ICan’tBreathe. GeorgeFloyd refers to the victim and involves grievance, and therefore, coded as a diagnostic framing. ICan’tBreathe, Floyd’s last words, has become a famous motto to attack the chokehold style of arrest and has inspired various protests worldwide and BLM’s Breathe Act demand (*BLM Demands*, 2016). In this sense, ICan’tBreathe involves the elements of both diagnostic and prognostic framing. DefundThePolice gives a sense of the evolution of a concrete policy demand (prognostic framing). We further traced the movement’s evolution through BlackLivesMatter.

Second, using the hashtags that we labeled with respect to the four framing categories, we calculate the ratio of the most common 20 hashtags activists utilized in each period. This analysis allows capturing the public’s reactions to the murder of Floyd, the US presidential elections, the trial, and the verdict.

Lastly, we extracted the hashtags that occur in the same tweets to construct a hashtag co-occurrence network. Scholars conduct hashtag co-occurrence analysis to investigate whether the characteristics of hashtags appearing together exhibit certain patterns rather than occurring randomly (Eriksson Krutrök & Åkerlund, 2022). We use this network to investigate the interconnections among frames by examining whether hashtags are utilized in tweets related to specific categories or if they are used across multiple categories. Such an analysis informs us what frame categories prefer to emphasize. In this network, nodes in this network represent hashtags, and edges represent the co-occurrence relations (a pair of hashtags are linked if they appear in the same tweet). For this purpose, we inspect both the global characteristics of the network and sub-networks characteristics. Global characteristics are examined through diameter, average degree, network density, and assortativity score. The diameter of a network is the shortest distance between the two most distant nodes (note that there may be numerous paths between nodes) (Jackson, 2008, p. 54). The average degree is the mean of the number of edges of the nodes in the

network (Jackson, 2008, p. 51). Network density is the ratio of the actual and potential connections of the nodes (Jackson, 2008, p. 51). Finally, the assortativity score conveys the tendency for nodes of similar degrees to connect to each other (McPherson, Popielarz, & Drobnic, 1992). The sub-networks were inspected in two manners: (1) a grouping based on the manual labeling of hashtags with categories and (2) community detection algorithms that partition networks in accordance with their connectivity. These methods convey whether and how communities are related to the labeled hashtag groups. We use the walktrap community detection algorithm to determine the communities within the hashtag co-occurrence graph (Yang et al., 2016, p. 5).

Table 2. Hashtag & framing categories

Category	Definition	Hashtag Examples
<i>Prognostic (demands and tactics)</i>	hashtags discussing concrete policy demands and possible courses of action for protesters and the movement	DefundThePolice, AbolishThePolice, changingthenarrative, abolishthepolice, resist, JusticeForBreonnaTaylor, JusticeForGeorgeFloyd
<i>Diagnostic</i>	grievances about police violence, racial discrimination in political and daily life, and victims of police violence	racism, BreonnaTaylor, GeorgeFloyd, SayHerName, PoliceBrutality, Racism, JusticeForBreonnaTaylor, black, icantbreathe, NoJusticeNoPeace, JusticeForGeorgeFloyd, racist, ICantBreathe, SayTheirNames, justice, AhmaudArbery
<i>Call for action (Motivational)</i>	contains hashtags inviting people to take ameliorative collective action, such as resist or protest	JusticeForBreonnaTaylor, Resist, PortlandProtests, Antifa, BlackTwitterMovement, PortlandProtest, SayTheirNames, protest,
<i>Black community</i>	relates to the history, heritage, and culture of the Black community	BlackTwitter, BlackHistoryMonth, blackexcellence, blackpower, blackgirlmagic, BlackHistory, blackhistory, BlackCommunity, BlackHistoryMonth2020, blacklove, blackwomen, blackculture, BlackWomen, BlackExcellence, blackhistorymonth, blackmen
<i>Police Violence</i>	hashtags regarding the disproportionate use of police force and the indictment of police officers.	DefundThePolice, PoliceBrutality, icantbreathe, ACAB, ICantBreathe, defundthepolice
<i>Victims</i>	name of victims of police violence	BreonnaTaylor, GeorgeFloyd, SayHerName, AhmaudArbery

5. Findings

We begin by examining whether the use of prognostic and motivational frames increases at the expense of diagnostic frames as BLM has matured. Figure 1 represents the monthly fluctuations in the use of some emblematic hashtags in our data typifying diagnostic and prognostic frames namely, GeorgeFloyd, DefundThePolice, and ICan'tBreathe. We expect the DefundThePolice hashtag to appear more frequently than GeorgeFloyd as the activists would pay more attention to the demands and tactics after the initial surge of the grievance-related hashtags.



Figure 2. Hashtag use over time

Figure 2 presents the evolution of hashtags from Jan. 01, 2020, to Dec. 31, 2021. The red and blue vertical lines represent the murder of Floyd (May 25, 2020) and the 2020 US elections (Nov. 3, 2020). The black vertical lines mark the start and end of the Chauvin trial (Mar. 8, 2021–Apr. 20, 2021), while the green line corresponds to Chauvin’s guilty plea (Dec. 15, 2021).

Findings reveal that BLM’s presence on social media flares up with the murder of Floyd and does not attenuate until Chauvin’s guilty plea. The salience of #BlackLivesMatter remains stable for the entire period, indicating that activists primarily employ the movement’s hashtag to convey messages. GeorgeFloyd is the second most popular hashtag of the other three, except in Jan. 2021 and the last three months of 2021. DefundThePolice, which closely follows GeorgeFloyd for most periods under analysis, becomes the top hashtag after Oct. 2021. Its rising salience in late 2020 evokes an attempt to press politicians for policy change on the eve of the US elections. These findings suggest that activists verbalize grievances and advance demands for policy changes equally intensely. In other words, diagnostic and prognostic frames go hand in hand. The high salience of grievances is not surprising; Floyd’s death reopened old wounds, urging activists to verbalize grievances. Yet, it is clear from the salience of DefundThePolice that BLM does not merely express grievances, as was mostly the case early stages of the movement (Ince et al., 2017). Instead, activists make concrete policy demands and sustain their activities on social media to keep the public’s attention focused on their cause.

Next, we identified the top 20 hashtags to accompany #BlackLivesMatter in tweets (Table 3). Results indicate that the dataset’s most common hashtags --BlackTwitter, BlackHistoryMonth-- belong to the Black community category. Grievances, incarnating diagnostic framing, are the second most salient category, followed by countermovements and politicians. This finding suggests that, after more than fifteen years since the beginning of the BLM, the movement

frame predominantly dwells on grievances on social media instead of tactics for mobilization and demands for policy changes. It appears that since BLM is a decentralized movement and people actively engage in the framing processes, no gradual change from diagnostic framing to diagnostic framing occurs even after more than 15 years of the movement's emergence. Let us see if the same pattern springs out after periodizing the data.

Table 3 shows that BlackTwitter and BlackHistoryMonth are the most salient hashtags of all periods except for prior to the 2020 elections. This finding suggests that activists deem it a priority to express solidarity and build a network through social media. In Period II, previous victims of police violence gain salience given the murder of Floyd. Floyd's death outraged activists who have been expecting policy changes to end disproportionate police violence toward the Black. However, activists go beyond merely expressing grievances; they appeal to politicians and demand policy changes by utilizing hashtags like DefundThePolice. StopAsianHate is the most popular hashtag of the trial period. This hashtag conveys solidarity with other movements opposing racial discrimination. Overall, victims (falling under diagnostic framing) and the Black community constitute the most salient frames. The salience of grievances over time shows the exasperation with deeply in-grained injustice and discrimination toward the Black. This exasperation, in turn, encourages activists to get organized and build a safe space of their own on social media and explains the salience of Black community hashtags throughout the period under investigation.

Table 3. Hashtag use

Most frequently used hashtags			Period I			
Hashtag	Occurrence	%	Jan. 01, 2020 – Murder of Floyd	Hashtag	Occurrence	%
BlackTwitter	10186	3.954	BlackTwitter	2607	5.513	
BlackHistoryMonth	6967	2.705	BlackHistoryMonth	1603	3.39	
racism	4123	1.601	Indivisible	1367	2.891	
COVID19	3904	1.516	AllLivesMatter	1316	2.783	
blackexcellence	3703	1.438	BernieSanders	1244	2.631	
GeorgeFloyd	3459	1.343	blackexcellence	1112	2.352	
AllLivesMatter	3104	1.205	AhmaudArbery	977	2.066	
Trump	2941	1.142	COVID19	962	2.034	
USA	2850	1.106	Trump	937	1.982	
DefundThePolice	2464	0.957	Bernie2020	905	1.914	
BreonnaTaylor	2436	0.946	racism	870	1.84	
Democrats	2381	0.924	BernieBeatsTrump	728	1.54	
SupportBlackBusiness	2376	0.922	blackpower	725	1.533	
MLK	2356	0.915	CNN	712	1.506	
Biden	2311	0.897	NotMeUs	688	1.455	
defundthepolice	2294	0.891	Feminism	670	1.417	
FreedomOfSpeech	2157	0.837	coronavirus	667	1.411	
PoliceBrutality	2132	0.828	HillaryClinton	664	1.404	
Changingthenarrative	2111	0.82	Islam	656	1.387	
BidenHarris	2052	0.797	ItsOkToBeWhite	645	1.364	

Period II			Period III		
Murder of Floyd – 2020 US Elections			US Elections – Start of Chauvin Trial		
Hashtag	Occurrence	%	Hashtag	Occurrence	%
BreonnaTaylor	1198	2.257	BlackHistoryMonth	2212	5.02
GeorgeFloyd	1116	2.103	BlackTwitter	1212	2.75
COVID19	859	1.619	MLK	996	2.26
DefundThePolice	836	1.575	BidenHarris	889	2.02
BidenHarris2020	762	1.436	GrenfellTower	867	1.97
BlackTwitter	681	1.283	HolocaustMemorialDay	864	1.96
PortlandProtests	644	1.214	TigrayGenocide	819	1.86
racism	637	1.2	COVID19	699	1.59
Trump	636	1.198	racism	608	1.38
BlackTransLivesMatter	624	1.176	Tigray	524	1.19
Portland	585	1.102	DefundThePolice	500	1.14
AllLivesMatter	580	1.093	BreonnaTaylor	452	1.03
PoliceBrutality	563	1.061	GeorgeFloyd	438	1
icantbreathe	539	1.016	defundthepolice	424	0.96
JusticeForBreonnaTaylor	528	0.995	abolishthepolice	400	0.91
FinePeopleFromKenya	521	0.982	Trump	325	0.74
USA	507	0.955	love	323	0.73
NoJusticeNoPeace	491	0.925	JusticeForBreonnaTaylor	319	0.72
EndSARS	470	0.886	Resist	313	0.71
JusticeForGeorgeFloyd	460	0.867	AllLivesMatter	312	0.71
Period IV			Period V		
Chauvin Trial			Trial verdict – Chauvins Guilty Plea		
Hashtag	Occurrence	%	Hashtag	Occurrence	%
StopAsianHate	927	5.891	BlackTwitter	4682	5.149
GeorgeFloyd	600	3.813	BlackHistoryMonth	2530	2.782
BlackTwitter	474	3.012	SupportBlackBusiness	2016	2.217
AsianLivesMatter	439	2.79	blackexcellence	1899	2.088
MLK	401	2.548	FreedomOfSpeech	1859	2.044
BidenHarris	392	2.491	Changingthenarrative	1847	2.031
OprahMeghanHarry	391	2.485	followus	1682	1.85
HolocaustMemorialDay	383	2.434	racism	1637	1.8
GrenfellTower	383	2.434	USA	1577	1.734
JusticeForGeorgeFloyd	267	1.697	DaniloIgnacio	1562	1.718
DaunteWright	260	1.652	1DDrive	1522	1.674
racism	255	1.62	defundthepolice	1413	1.554
PoliceBrutality	239	1.519	blackbusiness	1389	1.527
Africa	234	1.487	abolishthepolice	1308	1.438
StopAsianHateCrimes	223	1.417	Democrats	1291	1.42
FreeSenegal	222	1.411	BBC	1279	1.406
DefundThePolice	201	1.277	GeorgeFloyd	1262	1.388
BreonnaTaylor	194	1.233	Biden	1253	1.378
DerekChauvinTrial	190	1.207	realitybites	1216	1.337
EndSARS	183	1.163	COVID19	1215	1.336

Period VI		
Guilty Plea – Dec. 31, 2021		
Hashtag	Occurrence	%
BlackTwitter	530	8.126
Repa%nsNow	299	4.584
BlackHistoryMonth	295	4.523
SupportBlackBusiness	270	4.14
realitybites	264	4.048
followus	264	4.048
Changingthenarrative	264	4.048
FreedomOfSpeech	264	4.048
1DDrive	264	4.048
blackexcellence	237	3.634
USA	205	3.143
Democrats	163	2.499
Biden	163	2.499
Israel	162	2.484
MLK	152	2.331
AOC	151	2.315
MAGA	150	2.3
DaniloIgnacio	149	2.285
BidenHarris	149	2.285
science	148	2.269

We refine our analysis by tracing the evolution of frames using the top 100 hashtags we coded (Figure 3). Results reveal that diagnostic framing is the second most common frame after the Black community before the murder of Floyd. With the murder, grievances swell, and diagnostic frames peak. Diagnostic frames remain salient from Floyd's death to Dec. 2021. Activists utilize frames related to victims and police violence, both subcategories of diagnostic frames, in the aftermath of Floyd's death. Yet, these frames lose momentum for the remaining period. Hence, even though the murder of Floyd stimulated this protest cycle, activists did not only express grievances about Black victims of police violence and the disproportionate use of police force. The black community shows an opposite trend compared to diagnostic frames. It outranks all other frames before the murder of Floyd, dips down in the aftermath of Floyd's death, peaks around the start of the Chauvin trial, and attenuates following the verdict. The ridge around the beginning of the trial suggests that activists attempt to get organized under #Blacktwitter against institutionalized discrimination in criminal justice. In Dec. 2022, diagnostic frames fall behind prognostic frames. Prognostic frames lose salience before Floyd's death and gain popularity afterward. Noticeably, activists employ prognostic frames most after Chauvin's guilty plea. Motivational frames present an interesting case. They start low, momentarily increase before Floyd's death, and remain low for the rest of the period. One would expect motivational frames to spike around the elections and the Chauvin trial. Yet, activists may be channeling their motivations through prognostic frames.

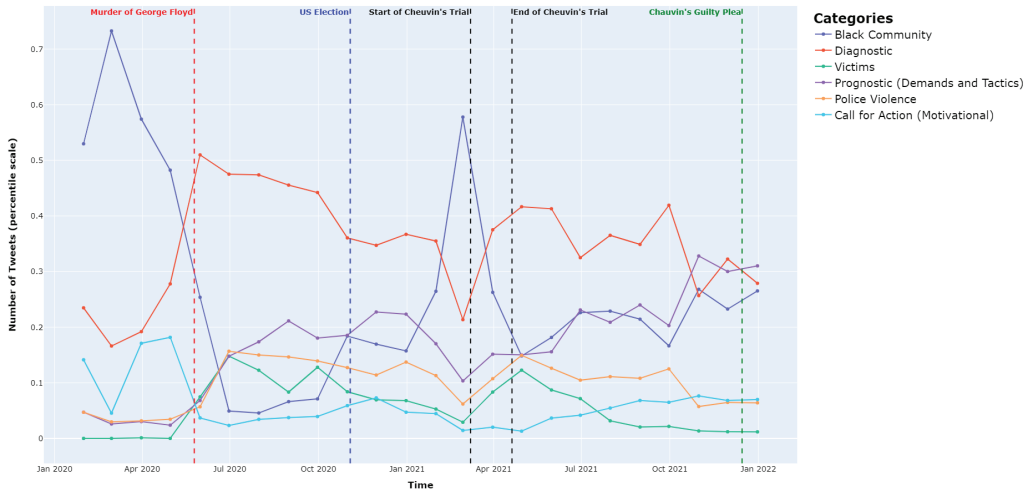


Figure 3. Hashtag use under categories over time

The analysis of frames conveys important patterns regarding activists' reactions as expressed on social media and BLM's institutionalization. Prognostic frames gain salience over time. Yet, they outnumber diagnostic frames only around Chauvin's guilty plea. Diagnostic frames remain salient for the entire period, except before the murder and around the start of the trial—when the Black community peaks. Thus, although BLM has become institutionalized and advances concrete policy changes, activists on social media primarily employ diagnostic frames. The Black community is highly salient except around the death of Floyd. Activists intensely utilize this frame to create a safe space against systemic institutionalized discrimination.

6. Do Activists Combine Different Frame Categories?

This section investigates whether activists mix certain frame categories or use multiple hashtags of the same category. To this end, we analyze the co-occurrence network of the categorized hashtags. In our network, nodes represent hashtags. Hashtags share an edge if they appear in the same tweet. The network is undirected and weighted, with weights representing the number of times a pair of hashtags co-appears in the dataset. We excluded #BlackLivesMatter and its derivations from the network because their overrepresentation in the dataset may distort our results. Using this procedure, we obtained 47 nodes and 594 edges.

Figure 4 presents our results. In the hashtag co-occurrence network, node size is proportional to the frequencies in the dataset. The thickness of the edges indicates the frequency of co-occurrence. Furthermore, we color-coded the nodes according to the category they belong to, namely diagnostic, prognostic, or motivational/call for action frames and the Black community. The nodes that appear in more than one category (e.g., “vote” falls under prognostic and motivational frames) are shown in red.

Next, we examine whether activists bundle up frames belonging to the same category (homophily) or prefer to mix hashtags from different frame categories (heterophily). To this end, we run the community detection algorithm called walktrap. Figure 4 presents the results of the walktrap community detection. The hashtags that fall in the same community are depicted in the same shape. The algorithm identified four communities: circle, triangle, rectangle, and pentagon. We find that our frame categories and communities somewhat, if not perfectly, overlap. The triangle community overwhelmingly displays Black community-related hashtags and a few prognostic frames, such as SupportBlackBusiness. The circle, the largest community, predominantly consists of diagnostic frames (e.g., PoliceBrutality, Racism, SayTheirNames) and features a few prognostic frames (e.g., DefundThePolice, abolishthepolice, resist). Other prognostic frames (e.g., Changingthenarrative) appear in the rectangle community. The pentagon contains the hashtag PennState only. PennState gained salience in the media because an official report called *More Rivers to Cross 1 & 2* documented systemic racism in the institution (Moyer, 2022). Our coders put it under diagnostic frames as it defines a problem at a prestigious university.

Figure 4 reveals that activists use specific hashtag pairs more frequently than others, abolishthepolice--defundthepolice, BlackTwitter--blackexcellence, BlackTwitter--BlackHistoryMonth, freedomofspeech--changingthenarrative, humanrights--blackexcellence, and blackexcellence--supportBlackBusiness. Of these, many fall under the same framing category, e.g., freedomofspeech--changingthenarrative, abolishthepolice--defundthepolice, and BlackTwitter--blackexcellence. Thus, although activists combine all sorts of hashtags, specific hashtag pairs appear to be used more frequently than others (e.g., BlackTwitter--blackexcellence, BlackTwitter--BlackHistoryMonth) and specific prognostic frames (e.g., abolishthepolice--defundthepolice). Does this constitute a pattern at the graph level? To this end, we calculate the assortativity coefficient score of the network. The assortativity coefficient employs a scale of -1 to 1 to measure connections between similar vertices based on some nodal attribute (here, the framing category to which a hashtag belongs) (Jackson, 2008, pp. 187-189). One represents perfect homophily, and minus one corresponds to perfect heterophily. Our network's assortativity score equals 0.03, meaning that our network displays neither homophily nor heterophily. Overall, we observe that activists frequently use some specific hashtag pairs in the Black community, prognostic, and diagnostic framing categories. However, we did not detect a tendency to bundle up hashtags related to the same framing category or mix up different categories.

7. Discussion & Conclusion

This paper examined online activists' choices of framing during the height of BLM protests on social media. To this end, we compiled a large tweet dataset using Twitter's API and the BlackLivesMatter hashtag as the query from Jan. 01, 2020, to Dec. 31, 2021. This period covered the murder of George Floyd, the indictment of Derek Chauvin (the police officer who killed Floyd in a chokehold), the Chauvin trial, and Chauvin's guilty plea. We contend that the high salience of diagnostic frames is a natural response to ongoing injustices in daily life, policing, and the criminal justice system. We believe that activists will continue to spill out their grievances

so long as injustices and ingrained discrimination toward the Black continue. In line with this idea, we identified that prognostic frames surpass diagnostic frames following Chauvin's guilty plea (Dec. 2021). The guilty plea alleviates grievances and induces activists to shift their focus to tactics for mobilization and possible solutions to the problems at hand.

A key finding was that the activists deemed it a priority to express solidarity and build a safe space and a network through hashtag use on social media. In fact, we identified the Black community to be the predominant frame at the beginning of 2020. In the aftermath of the murder of Floyd, grievances spiked, and diagnostic frames resurged. Still, the Black community frame remained a salient framing category. We identified an upsurge in the use of hashtags, such as BlackTwitter, around the Chauvin trial. This finding shows that activists employ the Black community frames to demonstrate solidarity with the movement against police violence and institutionalized discrimination in the criminal justice system.

Another key finding was that although activists combine some hashtag pairs from the Black community and prognostic framing more frequently than others, they do not show a tendency to bundle up hashtags from the same framing category or mix up different categories. This finding parallels Milkman's argument that BLM is a decentralized movement (Milkman, 2017). Activists from diverse socioeconomic and political backgrounds engage with BLM through social media. These activists have different inclinations to discuss solutions and strategies and seek mobilization when in grief. Therefore, unlike social movements in which the framing processes are centralized, detecting a general pattern characterizing hashtag co-occurrence is unusual in decentralized social movements. When the frames are constructed not by the elite but by the people, the boundaries between different framing tasks become more fluid. This finding puts into question to what extent the theoretical discussions on the three framing tasks (diagnostic, prognostic, and motivational) could explain the framing processes in the decentralized social movements.

Finally, this work has two potential limitations related to measurement and generality. Our measure of social movement frames dwells on the data collected from social media posts containing a particular hashtag, i.e., BlackLivesMatter. Future research should collect data using keyword searches and examine how frames evolve by considering those tweets that do not specifically mention a particular hashtag. While activists generally employ hashtags to broaden the reach of their message, it could also be the case that the broader public does not necessarily use hashtags when posting on BLM-related issues. Furthermore, regarding external validity, further research should examine other movements to address how online activists' framing choices evolve.

Declaration of competing interests

The authors report there are no competing interests to declare.

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Data Availability Statement

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

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