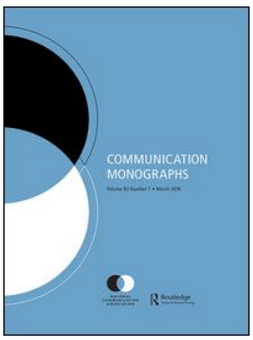

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Communication Monographs

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rcmm20

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**To cite this article:** Rong Wang & Wenlin Liu (2021): Moral framing and information virality in social movements: A case study of #HongKongPoliceBrutality, Communication Monographs, DOI: 10.1080/03637751.2021.1918735

**To link to this article:** https://doi.org/10.1080/03637751.2021.1918735

Published online: 27 Apr 2021.

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COMMUNICATION MONOGRAPHS
https://doi.org/10.1080/03637751.2021.1918735

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# Moral framing and information virality in social movements: A case study of #HongKongPoliceBrutality

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**ABSTRACT**

Guided by moral foundation theory and information virality theory, this study explored how moral framing, operationalized as the use of one of the five moral dimensions in tweets (i.e., care, fairness, loyalty, authority, and sanctity), is related to virality of social movement messages. It offered a case study of the 2019 Hong Kong protests by analyzing Twitter data collected using #HongKongPoliceBrutality. Results demonstrated that *care* framing promotes message virality, indicated by the likelihood of getting retweeted and favorited. However, the use of the *fairness* or *authority* frame decreased virality. Results indicated that the supporters of the movement were more likely to be triggered by non-political messages. The effect of moral framing on information virality was contingent upon the audience.

**ARTICLE HISTORY**
Received 24 August 2020
Accepted 9 April 2021

**KEYWORDS**
Moral framing; moral foundation theory; police brutality; social media; information virality

A series of protests in Hong Kong in 2019 started with the public's opposition to the government's amendment to the extradition law, but have deeper roots in other contentious matters related to the relationship between mainland China and Hong Kong (Purbrick, 2019). The protests involved almost two million people and began peacefully (BBC, 2019). However, they quickly escalated into violent clashes between protesters and the Hong Kong police (Siu, 2020). It was reported that Hong Kong police fired about 16,000 rounds of tear gas and arrested more than 6000 people throughout the protests (Griffith & Yeung, 2020). Hong Kong protesters and their foreign supporters used multiple local and global social media platforms to spread their messages to the world (Steger, 2019). Twitter was among the most popular platforms used to document excessive force from the Hong Kong police and garner support from the outside world (Ho, 2019), leading to a viral hashtag #HongKongPoliceBrutality.

The focal issue involved, police brutality, is nothing new in Hong Kong protests. During the 2014 Umbrella Movement, images of police's repressive actions toward unarmed protesters fueled further participation (Cheng & Chan, 2017). Local citizens are still calling for justice years after the movement (Chan, 2018). The police brutality issue during the Hong Kong protests needs to be analyzed through the lens of the juridical and security relations between Hong Kong and mainland China (Lee & Chan, 2018). As a controversial topic, police brutality attracts polarizing public opinion and

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intensive moral judgment. As Jasper (2008) argued, individuals may experience moral shock when an unexpected event raises a sense of outrage. Police brutality can be a triggering event that is likely to be evaluated morally and can lead to greater mobilization (Cheng & Chan, 2017; Jasper, 2017). The current research examined social media messages associated with a particular hashtag (#HongKongPoliceBrutality) to offer important insights into how protesters may strategically leverage social media, such as Twitter, to attract attention and mobilize support across borders.

Protests have been conceptualized as a moral issue of right and wrong, which moves beyond personal preferences (Hoover et al., 2018). Social media have become an important platform for the public, domestic or global, to express grievances and their moral approval or disapproval of social and political issues (Brady et al., 2017). Although the framing effect is not always intended nor achieved, activists can strategically frame social movement messages with *moral values*, such as social justice, harm, and betrayal, to mobilize support from diverse social groups through moral sentiment and outrage (Brady et al., 2017). In other words, morally relevant messages about a social movement would likely go viral on social media.

This study brought two areas of academic inquiry into the conversation: moral foundation theory (Graham et al., 2013) and the literature of online activism. Online activism captures the actions for positive social change that occur online, and in particular on social media platforms (Wang & Chu, 2019). The goal is to uncover how, and which, moral values are used in the framing of social movement messages on social media to drive information virality. Guided by moral foundation theory, we conceptualized *moral values* as a multidimensional concept that consists of five dimensions: care, fairness, loyalty, authority, and sanctity. With Twitter data collected from the 2019 Hong Kong protests, this study first examined which dimensions of moral values are frequently used by activists to frame social media messages. It then examined how moral relevance is associated with message virality, operationalized as re-tweeting and favorite frequency.

## Theoretical framework

### *Moral framing and online collective action*

The social movement literature views framing as an important micro-mobilization strategy through which organizers or participants "assign meaning to and interpret relevant events and conditions that are intended to mobilize adherents and constituents, to garner bystander support, and to demobilize antagonists" (Snow & Benford, 1988, p. 198). Collective action frames involve "negotiating shared meaning" (Gamson, 1992, p. 111). It helps to market a social movement to appeal to potential supporters (Bob, 2005). A social movement's ability to legitimize its actions, create a sense of collective identity, and inspire support depends on its framing techniques, or its ability to communicate its goals and characterize messages in a way that resonates with the public (Benford & Snow, 2000; Wouters & Walgrave, 2017).

Multiple types of collective action frames can be used to serve different tasks, among which moral frames are widely adopted among activists. Moral frames employ moral prescriptions, normative values, and religious or cultural tenets to justify the truthfulness or legitimacy of a message (Jasper, 2008). This type of framing is analogous to what

sociologists term as "moral vocabularies," that is, "a particular mode or ethos of moral reasoning and a way of life that includes not only particular forms of moral augmentation, but also particular symbols, signs, code words, and other moral resources" (Lowe, 2002, p. 108).

The growing scholarly interest in morality and moral framing coincides with two trends: the emergence of digitally enabled social movements (Bennett & Segerberg, 2013), and a paradigm shift from a structural approach to incorporating culture and emotions in understanding the logics of collective action (Jasper, 2011, 2017). The affordances of digital media have given rise to new modes of collective action. Recent social movements such as the Arab Spring (Eltantawy & Wiest, 2011), the Occupy Wall Street movement (Wang et al., 2016), and the Black Lives Matter movement (Yang, 2016) all exemplify how the network features of social media, such as the use of hashtags, facilitate dissent communication and resource mobilization. Bennett and Segerberg (2013) referred to this new form of collective action as "connective action" (p. 3), which is characterized by leaderless, decentralized organizational structure, geographic dispersion, and personalized movement messages. The ability for movement messages to appeal to a group of networked publics thus makes framing strategies particularly relevant for digitally enabled collective action.

A structural approach of social movement focuses on external structural factors, such as opportunity structures or recruitment strategies, in mobilizing collective action (see McAdam et al., 1996 for a comprehensive review). Less explored are cultural and psychological mechanisms through which a movement gains legitimacy and achieves frame resonance. Jasper (2017), among other scholars, advocated bringing back culture and emotions to understand the intricate process of movement mobilization. Jasper (2017) further recognized the centrality of morality in culture, contending that morality operates "as a bundle of intuitions and emotions that drive our actions" (p. 289). The moral framing theory applied in the current study is aligned with this paradigm shift and views moral framing as one way of mobilizing resources during social movements.

Social movement activists have frequently used moral framing in issue-based advocacy, particularly surrounding socially controversial issues. For example, Miceli (2005) investigated the competing moral frames used by Christian right groups versus gay-rights social movement organizations. This study found that both parties used moral framing to justify their agendas. The Christian right's moral frames were constructed by provoking ingrained social, cultural, and religious beliefs against homosexuality, whereas the gay-rights SMOs resorted to the moral dimension of fairness and minority rights.

Several cognitive and psychological pathways make moral frames effective in mobilizing public attention and amplifying the impact of a social movement. First, moral frames are powerful antecedents of moral emotions, which are "intelligent emotional responses based on judgment that guide our ethical views about what is good or bad" (Nussbaum, 2001, p. 12). Moral frames may generate powerful emotions such as patriotism, outrage, or injustice, which were found to motivate youth participation in the *Nuit Debout* movement in France, a movement opposing the Socialist government's neoliberal legislation (Pickard & Bessant, 2018). Second, moral frames can facilitate individuals' sharing intentions and behaviors, both of which are important factors determining how fast and far a movement message can spread. Valenzuela and colleagues (2017) found that, in an era of

cultural wars and political polarization, news stories containing moral frames are more likely to be shared on social media platforms due to their ability to arouse emotion and reinforce selective exposure. Finally, moral frames can promote individuals' engagement in collective actions (Hoover et al., 2018), which has great implications for raising awareness and mobilizing resources toward a collective cause.

Although existing work has identified the great utility of moral frames in social movement communication, there is little consensus on how to operationalize moral frames. In the current study, we adopted moral foundation theory as a theoretical framework and operationalized moral frames as salient moral dimensions in social movement messages.

## *Moral foundation theory and mechanisms to mobilize contemporary collective action*

Human beings are grouped by judgments about right or wrong, which leads to divisions of political parties and religious groups (Graham et al., 2013). Moral foundation theory (MFT) was developed to conceptualize key moral values upon which individuals make decisions (Haidt, 2012). MFT proposes that individuals' moral systems consist of five key dimensions: care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, and purity/degradation (Graham et al., 2013). Researchers have debated whether all five dimensions are variations of harm concerns or whether they capture distinct classes of concerns (Hoover et al., 2018). In the current study, we followed the original conceptualization from Graham et al. (2013) to view the first two foundations as "individualizing" foundations, which are generally concerned with the protection and fair treatment of individuals, and the other three foundations as "binding" ones that underlie moral systems and divide people into larger groups and institutions. The five foundations from MFT are relevant to social movements, as they involve feelings of approval and disapproval of certain issues based on moral norms (Jasper, 2011; Sabucedo et al., 2018). When certain moral foundations are violated, emotions are triggered to drive collective actions (Haidt, 2012).

The first foundation, *care/harm*, captures intuitions of sympathy, compassion, and nurturance in response to caring for vulnerable populations, such as children and the elderly. This foundation makes individuals sensitive to signs of suffering and cruelty. Violation of care results in anger and outrage in social movements, which motivates individuals to punish the offenders (Mooijman, Meindl, et al., 2018). Scholars have documented how activists used a non-violence or care frame to obtain legitimacy (Bob, 2005). Interestingly, but not surprisingly, counter-protesters and authorities used the framing of harm to marginalize social movements by arguing that activists engaged in deviant behavior to hurt innocent civilians (Boykoff, 2006).

The second foundation, *fairness/cheating*, captures the notion of rights and justice. It makes individuals sensitive to signs of exploitation and motivates them to shun or punish cheaters. Social movement researchers have long recognized the centrality of *injustice* as a meta-frame to mobilize grievances (Gamson, 1992). Specifically, activists identify "victims" of injustice and amplify their victimization in constructing movement messages (Benford & Snow, 2000). The fairness/cheating dimension emphasizes the violation of rights by the dominant, and the ability of the advocated cause to rectify the injustice.

The third foundation of *loyalty/betrayal* focuses on forming and maintaining coalitions based on shared identities, which make individuals want to trust and reward in-group members and ostracize those who betray the group. Collective identity motivates social movement participation through norms of obligation, reciprocity, and shared grievances (Polletta & Jasper, 2001). The social identity model of collective action (Van Zomeren et al., 2008, 2011) integrates morality with identity, arguing that the violation of moral convictions against social inequality increases identification with the victims, who are then perceived as one's in-group allies against the hegemonic party.

The fourth foundation of *authority/subversion* captures the notion of traditional social hierarchies and maintaining social order, which makes individuals sensitive to signs of rank or status. Social movements often involve challenging power holders and fostering social change (Tilly, 2004). When the violation of authority occurs, transgression (e.g., state repression, violent police) can be evaluated morally to offer criticism of the existing regime (Jasper, 2017). Immoral authority can also be used to legitimize the advocated cause in a social movement (Laschever, 2017).

The last foundation, *sanctity/degradation*, captures the notion of spiritual concerns and moral disgust if such spiritual values are violated. This moral value has been primarily tied to religious social movements. For example, the leadership of the pro-life movement is often guided by conservative Christian denominations who view abortion as violating the sanctity of life (Strickler & Danigelis, 2002). Sanctity thus helps to justify social causes that individuals may support (Haidt, 2012).

This study applied MFT to the context of digital activism, an emerging form of social movement. Digital activism participants can frame the advocated issue with a moral ground of right and wrong, instead of mere personal preference (Mooijman, Hoover, et al., 2018). Several studies have documented the prevalence of moral framing in social media messages about protests (Mooijman, Hoover, et al., 2018; Schradie, 2018). The use of moral framing is often viewed as an expression of outrage (Crockett, 2017). Existing studies have primarily conceptualized moral framing as a unidimensional concept and evaluated messages in terms of the overall level of moralization. However, they did not investigate the specific dimensions of moral values (Chan, 2016; Mooijman, Hoover, et al., 2018; Van Zomeren et al., 2011). This way of measuring moral framing about a social issue did not capture which specific moral values may trigger people's reactions toward a social movement. Recognizing this gap, we applied MFT to investigate how each moral dimension is used in the framing of social movement messages on social media.

Moral framing has not yet been examined in recent Hong Kong protests, but has its relevance. Take the Umbrella movement as an example. It was primarily driven by the explicit and immanent concerns of the local political system, the rise of social injustice among residents, and changes in the younger generation's value orientation (Lee & Chan, 2018). These issues triggered moral judgment and outrage (Cheng & Chan, 2017). Furthermore, evidence has shown that Hong Kong activists carefully crafted their social media messages to construct and adjust their contentious discourses, aiming to mobilize supporters (Chan, 2018). Applying MFT to the context of Hong Kong protests, it is important to investigate how moral values manifest in viral social movement messages. Therefore, we proposed the following research question:

$RQ_1$: How prevalent are each of the five MFT dimensions (i.e., care, fairness, loyalty, authority, and sanctity) in viral tweets about Hong Kong protests ($RQ_{1a}$), and what keywords are most associated with each dimension ($RQ_{1b}$)?

## Moral framing and information virality of collective action

Social media enable rapid information diffusion through decentralized networks and facilitate efficient coordination among collective action participants (Wang & Zhou, 2021). However, the networked platform itself does not ensure a wide reach or public acceptance of movement messages. The impact of social media on social movement success depends on how activists use the technology (Lee & Chan, 2018). We argued that the use of moral framing could accelerate information dissemination by promoting the "virality" of social movement messages.

Information virality theory defines *virality* as a social information flow process where people simultaneously circulate specific information over a short period of time to reach diverse networks, leading to a sharp acceleration of information exposure (Nahon & Hemsley, 2013). In online information sharing, virality signals popularity and social approval by others (Alhabash & McAlister, 2015). Communication scholars have developed and tested virality metrics to capture peer reaction, including viral reach (i.e., the volume of message viewership, sharing, and forwarding), affective evaluation (i.e., users' emotional response to online messages through like or favorite), and message deliberation (Alhabash et al., 2015; Kim, 2018).

The current study focused on two aspects of the virality metrics (viral reach and affective evaluation) to capture how social movement messages get shared and favorited by Twitter users. These two aspects are relevant to online activism, which relies on the visibility of messages (i.e., viral reach) and the mobilization of public attention to achieve legitimacy (i.e., approval). Virality has been examined as a strategy that activists and historically marginalized social groups use to generate and promote counter-public power (Xu et al., 2020).

In social movements, content characteristics of messages could influence information virality (Nahon & Hemsley, 2013). As more and more social movements use Twitter as an organizing platform, hashtags have been studied as an important viral content characteristic (Wang et al., 2016). Other factors such as negative or positive sentiment of a message could also lead to information virality by evoking high-arousal emotions (Agur & Frisch, 2019).

We focused on moral framing as a content characteristic to examine its influence on information virality. Mooijman, Hoover, et al. (2018) collected Twitter data related to the 2015 Baltimore protest and found that moralization of tweets could lead to more endorsement online. Studies concerning recent Hong Kong protests have shown that messages that triggered moral judgment (e.g., opposing police violence, supporting universal suffrage) were more likely to attract public attention (Cheng & Chan, 2017). Agur and Frisch (2019) provided more detail on what tactics the leaders of the Umbrella Movement used on social media to communicate with their supporters, adversaries, and the local and global media. They argued that the dissemination of images related to tear gas use led to anger and more participation from previously apathetic HongKongers. Other framing tactics included the use of humor to counter critics and to raise awareness

about police brutality (Gan, 2017). To summarize, these framing efforts taken by Hong Kong activists helped to mobilize public attention and obtain legitimacy for the causes that they were advocating (Lee & Chan, 2018).

Therefore, the current research proposed that moral framing as content characteristics may activate public sentiments and emotions, and affect how likely a message will become viral during the 2019 Hong Kong protests. Messages that carry certain moral values may signal an expression of outrage, through which allegiances or supportive action can be mobilized around shared moral values. For example, the moral value of fairness and equality may appeal to cross-border networks of online publics and transcend national, demographic, or other boundaries. However, depending on the nature of the issue advocated, the influence of each moral dimension on information virality may vary. To investigate the relationship between moral framing and message virality in the context of online activism, we proposed a second research question:

> $RQ_2$: Which dimensions of moral values from MFT will affect the virality of social media messages in Hong Kong protests?

## Method

### *Study context*

This study analyzed the 2019 Hong Kong pro-democracy protest as a case study. In February 2019, the Hong Kong government announced a plan for a bill allowing extradition to mainland China, which sparked the protest. The protesters continued their demonstrations daily for months and turned the protests into a wider pro-democracy movement. Western mainstream media reported the protest as the worst crisis for Hong Kong since the transfer of its sovereignty from the United Kingdom to China in 1997 (BBC, 2019). This wave of protests was not independent of previous social movements in Hong Kong and is deeply rooted in the contentious relationships involving Hong Kong citizens, the Hong Kong government, and the Chinese central government (Lee & Chan, 2018). The 2019 protests remained largely peaceful but clashes between protesters and police were increasingly reported by Western media and protesters on social media (Palmer, 2019). The conflicts and confrontations persisted even after the announcement of bill withdrawal in early September of 2019.

This study used the hashtag #HongKongPoliceBrutality to focus on the specific issue of police brutality among various ramifications of this movement. The reasons were threefold. First, police brutality during a social movement raises moral concerns (Jackson & Foucault Welles, 2015). When a protest is moralized, the issue becomes right or wrong and moves beyond the protesters' personal preferences (Mooijman, Hoover, et al., 2018). Second, the police brutality issue is highly controversial as the media in mainland China provided little or no coverage and criticized the Western media as deviating "from objective reporting and professional standards" (Global Times, 2019). However, it remained a major issue in the protest, as protesters officially declared a demand to conduct an independent inquiry into the alleged police brutality cases (Palmer, 2019). Up until now, neither the Chinese nor Hong Kong governments have admitted to the wrongdoings of the police force in Hong Kong. Third, the issue of police brutality has been at the center of the recent waves of protests in other countries,

which may offer a point for comparison as well as implications about how activists can use social media to mobilize global attention. Despite the use of a single hashtag, the sampled tweets included other key hashtags used by protesters, such as #standwithhongkong, #freehongkong, and #SOSHK.

## Data collection and sampling strategy

Data were collected through the following procedures. First, we collected Twitter data using # HongKongPoliceBrutality from October 15th, 2019 to January 30th, 2020. This time frame was selected due to the increasing media coverage about the tension between the protesters and the police after China's 70th-anniversary parade on October 1st, 2019. Following the national day parade that took place in Beijing, Hong Kong experienced unrest when an 18-year-old protestor was shot in the shoulder by the police. A total of 204,079 tweets were archived through an open-source data collection tool with the Twitter Search API (Hawksey, 2020). Second, Python was used to extract relevant metadata of these tweets' unique IDs from the Twitter Search API, retaining 185,959 tweets. This process is referred to as hydrating, which led to attrition of 8.88% of the original sample due to data availability issues. We retained all the English tweets ($n$ = 137,580), of which 33,003 were original tweets. The use of the Twitter Search API allowed the collection of additional information about tweets and users.

Sixty-nine percent of the original tweets were not retweeted. We then further sampled 20% of the most frequently retweeted tweets,[1] generating a final list of 2013 tweets for further analysis. All the sampled popular tweets had a retweeting frequency ranging from 6 to 3027 ($n$ = 2,013). This list of original tweets was generated by a total of 1108 unique users. Lastly, we developed a codebook for the five moral dimensions based on the definitions provided in Haidt (2012) and Graham et al. (2013), and conducted content coding of all 2,013 tweets that were sampled. Finally, user location was also coded and verified based on users' Twitter profiles.

## Intercoder reliability

The content coding was conducted on the assumption that moral frames were not mutually exclusive in a movement message. One tweet could use the *care/harm* frame and the *loyalty/betrayal* frame if the focus was to highlight that Hong Kong police hurt the citizens and betrayed the identity of a HongKonger. After several rounds of training and practice coding, we coded the same set of 100 tweets (5% of the selected sample). The coding reached an acceptable level of intercoder reliability as judged by percentage agreement and Cohen's kappa. Cohen's kappa values greater than .75 represented excellent agreement beyond chance, and .40 to .75 indicated fair to good agreement (Neuendorf, 2018). After the intercoder reliability check, we divided up the remaining 1913 tweets and coded them independently.

Table 1 shows the percentage agreement of each moral dimension. Cohen's kappa penalizes skewed data (Xu & Lorber, 2014). Very few tweets included in the pilot coding were coded as using loyalty or sanctity framing. The coefficients for both moral dimensions thus either fell below the acceptable threshold or could not be computed. Among the 100 tweets, one researcher identified 3 tweets with loyalty framing and 0 tweets with sanctity framing; the other identified 1 tweet with loyalty framing

**Table 1.** Percentage agreement and intercoder reliability for the five moral dimensions.

| Moral dimensions | Percentage agreement | Cohen's kappa |
|---|---|---|
| Care | 92% | .84 |
| Fairness | 92% | .62 |
| Loyalty | 96% | −.02 |
| Authority | 92% | .59 |
| Sanctity | 96% | NA |
| $n = 100$ | | |

and 4 tweets with sanctity framing. In other words, we both agreed on the absence, but not on the presence, of a particular framing. For loyalty framing, we agreed on 98% of the absence, whereas for sanctity framing, we agreed on 100% of the absence.

In the final sample of 2,013 tweets, 485 did not contain any moral dimensions (24%), and 1528 were coded with at least one moral dimension (76%). Out of the tweets using moral framing, 1263 were coded with two moral dimensions (63%) and 264 were coded with three (13%). Each variable was coded into a dichotomous category where the presence of a focal moral foundation was coded as "1;" otherwise, it was coded as "0."

## Measurements

### Virality

Virality of a tweet was captured with two variables: the number of retweets and the number of favorites. *Number of retweets* captured retweeting frequency and ranged from 6 to 3,027 ($M = 54.91$, $SD = 211.74$). *Number of favorites* measured the number of likes each original tweet received, and ranged from 0 to 4,314 ($M = 53.90$, $SD = 208.92$).

### Moral values

The *care/harm* moral dimension captured the mention of vulnerability (such as caring for children), suffering, cruelty, and the need to care for those who were suffering. The *fairness/cheating* moral dimension captured the mentioning of cooperation without getting exploited by the wealthy/powerful, mutually beneficial cooperation, reciprocal altruism, concerns for equality and social justice, concerns, and the need to shun or punish cheaters. *Loyalty/betrayal* captured the mentioning of forming and maintaining coalitions and groups, or the need to hurt/ostracize those who betrayed a group. *Authority/subversion* captured mentioning the need to respect social hierarchy, asymmetric power, mentioning rank or status, and how people needed to behave properly and legitimately given their position. Finally, *sanctity/degradation* captured the mention of the ethics of divinity, religious right, and spiritual subjects.

### Control variables

Several user-level attributes were measured as control variables. User *tenure* was measured as how many days a user had been on Twitter as of the data collection completion day (i.e., January 30th, 2020) ($M = 804.00$, $SD = 1{,}121.26$). *Number of followers* was measured by recording the number of followers of a Twitter account on the day of completing the data collection ($M = 2{,}205.45$, $SD = 11{,}485.51$). *Number of followees* was measured by recording how many people a Twitter account followed as of data

collection ($M$ = 820.54, $SD$ = 2,815.43). *Number of tweets* was measured by recording how many tweets a Twitter account had as of data collection ($M$ = 3,368.72, $SD$ = 14,725.54). As all of those variables had large variances, they were all transformed using log transformations before conducting our primary analyses. Finally, *location* was measured as a binary variable, where 1 indicated that users self-identified as located in Hong Kong ($n$ = 840 accounts) and 0 indicated otherwise ($n$ = 268, of which 145 reported no location and 123 reported other locations).

### Data analysis

To address $RQ_1$, we applied semantic network analysis to visualize how each dimension of the moral foundation was manifested in the sampled tweets. Semantic network analysis is an analytical approach focused on the co-occurrences (associative patterns), frequency, and clustering patterns among words from a variety of communication texts, such as organizational narratives, news content, and social media messages (Liu et al., 2018). The unit of analysis is the word and the text portion of hashtags. Leximancer, a text analytics tool, was used for semantic network analysis. Leximancer analyzes the presence and frequency of concepts by extracting a collection of terms (or words) representing each concept. A concept is an individual word, or a constellation of words, that appear together. The individual words constituting the concept are weighted according to how frequently they occur in sentences containing the concept, compared to how frequently they appear elsewhere. For example, the concept "gunshot" may contain the individual words "gun," "shot," and "gunshot." Tweets are therefore tagged as containing a concept if the sum of the weighted relevancy scores of the keywords is above the set threshold (Leximancer, 2020).

In the current study, the threshold was set at the default of 2.4 (the classification threshold can range between .1–4.9; Nunez-Mir et al., 2016). The analysis first produced a list of most frequently used concepts, and then developed clusters based on the co-occurrence network matrix containing all concepts (Smith & Humphreys, 2006), which were visualized as colored, overlapping circles or themes on the semantic network map. The software automatically generates the color of each theme based on the relative prevalence of the terms. This means that the "hottest" or most important theme appears in red, and the next in orange, and so on according to the color wheel (Leximancer, 2020).

To address $RQ_2$, we conducted a series of tests on the two virality variables. The unit of analysis was the tweets. First, an independent samples $t$-test was conducted with each moral dimension to examine whether having such a moral value in a particular tweet was associated with a higher or lower retweeting frequency. The same procedure was performed on the favorite frequency to examine whether having a particular moral value was associated with more or fewer likes on Twitter. Then, two negative binomial regression models were run to examine whether the effects of the moral values remained significant after controlling for user-level attributes. The negative binomial regression was chosen because the two outcome variables, retweeting frequency and favorite frequency, were both measured as count variables. Furthermore, the non-parametric distribution and over-dispersion from the raw data indicated that the negative binomial regression model would be the best-suited estimation technique (Hilbe, 2011). The two models had the same set of independent variables (IVs) including moral values, user tenure,

number of followers of a user, number of followees of a user, number of tweets a user sent, and user location. For each IV, its effect on the outcome variable required an exponential transformation of the regression coefficient (i.e., incidence rate ratio, IRR hereafter). For example, the coefficient of a particular moral dimension of 0.11 indicated that using this moral framing could trigger 1.12 times as many or 12% more retweets or being favorited on Twitter (exp [0.11] = .12), holding all other variables in the model constant.

## Results

### *Semantic structure of the key moral foundations*

$RQ_1$ asked how each moral dimension was prevalent in viral tweets about police brutality during the Hong Kong protests ($RQ_{1a}$), as well as what keywords were associated with which dimensions ($RQ_{1b}$). To answer $RQ_{1a}$, the descriptive results from the moral framing coding suggested that the most frequently occurring moral dimension in the framing of #HongKongPoliceBrutality was *care/harm*. Specifically, 687 (44.96%) were identified using the *care/harm* dimension, 626 (40.97%) with the *fairness/cheating* dimension, 149 (9.75%) with the *loyalty/betrayal* dimension, 325 (21.27%) with the *authority/subversion* dimension, and only 18 (1.18%) with the *sanctity/degradation* dimension. For further analysis, we removed the loyalty dimension and the sanctity dimension due to inadequate intercoder reliability scores, which may undermine confidence in each category's conceptual coherence.

To answer $RQ_{1b}$, Table 2 listed the most frequently occurring concepts from tweets associated with each of the three remaining moral dimensions, after removing text and

**Table 2.** The top 20 most frequently occurring concepts from tweets coded under the three prominent moral dimensions.

| Care | | Fairness | | Authority | |
|---|---|---|---|---|---|
| Concepts | Count | Concepts | Count | Concepts | Count |
| Hong Kong | 317 | Hong Kong | 288 | Hong Kong | 163 |
| Hongkongpoliceterrorism | 243 | Standwithhongkong | 198 | Standwithhongkong | 93 |
| Standwithhongkong | 158 | Hongkongpoliceterrorism | 190 | Hongkongpoliceterrorism | 91 |
| Hongkongprotests | 149 | Hongkongprotests | 150 | Hongkongprotests | 75 |
| SOSHK | 133 | SOSHK | 126 | SOSHK | 61 |
| arrested | 113 | arrested | 99 | Hongkongprotesters | 55 |
| protesters | 107 | protesters | 71 | Hongkongpolicestate | 46 |
| gas | 90 | Hongkongpolicestate | 60 | arrest | 40 |
| Hongkongpolicestate | 84 | Hongkongprotesters | 55 | citizens | 32 |
| used | 66 | people | 55 | use | 31 |
| shot | 65 | students | 50 | force | 30 |
| citizens | 60 | use | 49 | need | 29 |
| attacked | 59 | citizens | 48 | people | 25 |
| student | 58 | human | 43 | stop | 24 |
| Polyu | 57 | Polyu | 41 | law | 19 |
| head | 57 | Solomonyue | 40 | Polyu | 18 |
| people | 57 | gas | 36 | government | 18 |
| kill | 54 | tear | 36 | power | 18 |
| gun | 53 | freedom | 33 | violence | 17 |
| shoot | 50 | gun | 31 | gas | 16 |

Note. The terms and hashtags that were used to select the sample, #hongkongpolicebrutality, #police, #Hongkongpolice, were removed from the top term counts, as they inevitably were on top of the list.

hashtags associated with the overarching theme of the protest, such as HongKongPoliceBrutality or HongKongPolice. Across all dimensions, top occurring concepts were phrases and hashtags directly related to the movement and the focal issue investigated in this study. For example, "Hongkongpoliceterrorism", "SOSHK", and "Standwithhongkong" were frequently used in almost all the sampled tweets (see the top phrases listed in Table 2). Aside from those common phrases, the *care* dimension included terms that described the violent nature of policing activities (e.g., "gas," "shot," and "gun") and targets (e.g., "protesters," "students," and "head"). The *fairness* dimension was characterized by terms that challenged the fair use of police power and the right of people (e.g., "Honghongpoliceterrorism" and "freedom"). The *authority* dimension also demonstrated a great overlap of top terms from other moral values, and additional terms included "force," "government," and "law" that signaled the status quo was being challenged.

Figure 1 showed the semantic maps based on the tweets coded under the three moral dimensions. As the most frequently occurring moral dimension, the *care/harm* dimension consisted of the two largest themes and revolved around the use of harsh, violent tools in the policing process, such as "gas," "gun," and "pepper spray". Meanwhile, tweets employing a *care/harm* dimension also framed the police force as the antagonists of law-abiding citizens, and especially vulnerable groups. For example, "unarmed citizens" and "students" frequently co-occurred with the concept of "police" and the actions that they took.

The semantic map of the *fairness/cheating* moral dimension reflected an emphasis on human rights and inequality, with frequently occurring concepts such as "freedom," "democracy," and "humanitarian." Police brutality was still a significant theme, but this dimension differed from the *care/harm* moral aspect by shifting the attention to articulate how the police violated fundamental values by using weapons and calling them out as terrorists.

The *authority/subversion* moral dimension exhibited a salient frame around the relationship between Hong Kong and the Chinese Communist Party (CCP)-led Chinese central government. Concepts such as "CCP," "China," and "government" were frequently associated with the concept of "police," which situated the act of police violence within the broader political environment, thereby mobilizing support around subverting existing status-quo and power structures.

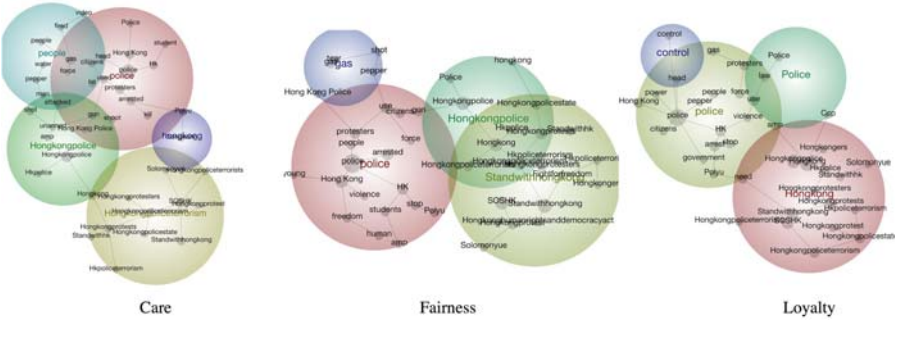


**Figure 1.** Semantic networks of the three prominent moral dimensions from the Hong Kong Protest Tweets.

### Effects of moral foundations on retweeting frequency

Independent samples *t*-test results showed that tweets framed with the care/harm moral dimension ($M = 92.20$, $SD = 309.38$) were significantly more likely to be retweeted than the ones that did not use it ($M = 35.59$, $SD = 132.02$), $t(817.77) = -4.58$, $p < .001$, $r = .13$, Cohen's $d = .24$. Meanwhile, two other moral values had the opposite effect. Tweets that were framed with the fairness/cheating moral value ($M = 33.39$, $SD = 152.10$) were significantly less likely to be retweeted than the ones that did not use this framing ($M = 64.62$, $SD = 233.13$), $t(1760.50) = 3.58$, $p < .001$, $r = .07$, Cohen's $d = .16$. Similarly, tweets with authority/subversion framing ($M = 37.71$, $SD = 104.60$) were also significantly less likely to be retweeted than the ones without the framing ($M = 58.22$, $SD = 226.50$), $t(1014.40) = 2.56$, $p < 0.01$, $r = .04$, Cohen's $d = .12$.

The negative binomial model using the retweet frequency as a dependent variable was significant and showed the consistent effects of three moral values after controlling for the effects of user attributes. The results indicated that when controlling for user location, the tweeting activity, number of followers, and number of followees using the care/harm framing would trigger 1.95 times of retweets or 95% more retweets. Holding the same IVs constant and using a fairness/cheating framing, however, would lead to a decrease of 41% of retweets. Using an authority/subversion framing also had a negative effect in that it would decrease the chance of being retweeted by 24%. To unpack the effects of control variables, the results showed that indicating the location in Hong Kong would decrease the chance of being retweeted by 16%. Being on Twitter for a longer period of time would increase the chance of getting retweeted by 16% and following more accounts would increase the chance by 47%. Yet, having more tweets would decrease the chance of getting retweeted by 4%. Having more followers would decrease the chance by 29% (see Table 3 for model summary).

### Effects of moral foundations on favorite frequency

When the favorite frequency was tested as the outcome variable, similar results emerged. An independent samples *t*-test showed that tweets using care/harm framing ($M = 85.63$, $SD = 297.04$) were more likely to receive favorites on Twitter compared to those that did

**Table 3.** Summary of two negative binomial regression models.

| | Retweeting frequency | | | Favorite frequency | | |
|---|---|---|---|---|---|---|
| Variables | *b* | SE | IRR | *B* | SE | IRR |
| Intercept | 2.85*** | .18 | | 2.60*** | .18 | |
| Moral Values | | | | | | |
| Care | .67*** | .06 | 1.95 | .57*** | .06 | 1.77 |
| Fairness | −.52*** | .06 | .59 | −.51*** | .06 | .60 |
| Authority | −.27*** | .08 | .76 | −.29*** | .08 | .75 |
| User Attributes | | | | | | |
| Tenure (ln) | .15*** | .02 | 1.16 | .18*** | .02 | 1.20 |
| Number of followers (ln) | .39*** | .02 | 1.48 | .39*** | .02 | 1.48 |
| Number of followees (ln) | −.34*** | .02 | .71 | −.32*** | .02 | .73 |
| Number of tweets (ln) | −.04 | .02 | .96 | −.03 | .02 | .97 |
| Hong Kong location | −.18** | .06 | .84 | −.24*** | .07 | .79 |

** $p < .01$. *** $p < .001$.

not use this framing ($M = 37.45$, $SD = 140.74$), $t(848.91) = -4.02$, $p < .001$, $r = .09$, Cohen's $d = .21$. Tweets using the fairness/cheating framing ($M = 34.15$, $SD = 152.06$) were significantly less likely to receive likes on Twitter, compared to the ones without the framing ($M = 62.81$, $SD = 229.52$), $t(1741) = 3.31$, $p < .001$, $r = .06$, Cohen's $d = .15$. Tweets with authority/subversion framing ($M = 39.41$, $SD = 117.90$) were less likely to receive likes than ones without the specific framing ($M = 56.69$, $SD = 222.13$), $t(842.57) = 2.04$, $p < 0.05$, $r = .03$, Cohen's $d = .10$.

The negative binomial regression results were consistent with the ones from the model predicting retweet frequency. After controlling for user attributes, we found that using a care/harm framing would trigger 77% more favorites. Using a fairness/cheating framing could lead to a 40% decrease in the number of favorites. The same applied to the use of an authority/subversion framing, which could lead to a decrease of 25%. The effects of user-level control variables remained consistent. Accounts reported to be in Hong Kong experienced a 21% decrease in the number of favorites received. Being on Twitter for longer would increase the chance of getting favorites by 20%, and following more accounts would increase the chance by 48%. On the other hand, greater activity in tweeting decreased the chance of getting favorites by 3%, and having more followers similarly decreased the chance by 27% (see Table 3).

## Discussion

This study examined how the use of moral framing was related to information virality of online social movements using a case study of the 2019 Hong Kong anti-extradition bill protest. Guided by MFT and information virality theory, it uncovered which moral values were manifested in activists' messages on Twitter, and how these moral values were related to the likelihood of a tweet getting retweeted and favorited. With relevant tweets sampled through #HongKongPoliceBrutality, we found that the most frequently retweeted messages were framed using the following moral values: care/harm, fairness/cheating, and authority/subversion. These moral dimensions had consistent effects on retweet and favorite frequencies. The use of care framing was positively related to information virality. The opposite trend was found for messages framed with fairness/cheating or authority/subversion. Messages sent by accounts that indicated their locations in Hong Kong were also less likely to go viral. These results suggested that Twitter supporters of the 2019 Hong Kong protest were more likely to be triggered by non-political messages. We discuss these findings in the context of the case study and online activism.

### *Differential impacts of key moral foundation dimensions*

MFT conceptualizes moral values as a multidimensional construct consisting of five key dimensions. This conceptualization allowed us to uncover their differential impacts on digital activism. To begin, when a message about the protest was framed as care or a violation of care (i.e., harm), it was more likely to receive attention through both retweeting and favorites. This moral value remained the strongest source of influence compared to all other moral dimensions and control variables. This can be explained by the unique context of police brutality, where incidents of hurting vulnerable protesters (e.g., students, younger generations, and the elderly) were often described with vivid detail in

the sampled viral tweets. Higher virality through this framing indicates that messages employing the care framing are more likely to trigger Twitter users' emotional responses, such as moral outrage and their need to care for others. Therefore, individuals are more likely to take action through retweeting or favoriting the tweets to help mobilize attention.

The negative effects from moral framing were associated with two moral dimensions: fairness and authority. As shown in Figure 1, keywords clustered around fairness included human rights, democracy, and humanitarian crisis. This is consistent with the evolution of the protest where protesters moved beyond the opposition of the extradition bill to focus on more fundamental differences that they held against the mainland Chinese government. Meanwhile, the keywords identified from the authority dimension included power, control, and CCP. This framing focused on narratives related to the abuse of power, tyranny, and illegitimate policing. The negative effects from these two moral dimensions suggest that they are less effective in promoting information virality through triggering Twitter users' emotions. These two dimensions may carry more rational and substantive elements about political debate, which may dilute the emotional appeal compared to the care dimension.

MFT categorizes fairness and care as individualizing foundations and the other three (i.e., authority, loyalty, and sanctity) as dividing foundations, that is, core values that are group or institution based (Graham et al., 2013). The different effects from the individualizing foundations (i.e., care and fairness) found in this study can be explained by the fact that care framing was used simply to highlight the mistreatment of vulnerable citizens, whereas the fairness framing was often used in combination with political terms such as freedom or civil liberty. This indicates that when the application of individualizing moral values is used through a political lens, their effect on information virality may become contingent upon the audience rather than being universally positive. This can be further corroborated by the negative effect of authority/subversion framing. Individuals who retweeted or favorited messages using fairness or loyalty framing were likely keen supporters of the overall political agenda of the 2019 Hong Kong pro-democracy protest, whereas people who retweeted or favorited messages using care framing might represent a broader group of individuals who might be neutral to the protest's political agenda.

### *Effects of moral values versus user attributes*

The current study examined Twitter user attributes as control variables in predicting information virality. Comparing the effects associated with user attributes with those associated with moral framings could reveal more insights. In terms of users' geographic location, results suggested that users who indicated their location in Hong Kong were less likely to have their messages retweeted or favorited. This suggests two possible explanations. First, whereas collective identity is often a strong mechanism for movement mobilization (Polletta & Jasper, 2001), location-based identity in this case may hinder the spread of movement messages to a broader spectrum of the public. For movement messages to gain virality, the grievances not only need to be widely shared among the "in-group" members (e.g., movement participants) but also outside groups such as bystanders or ideologically neutral individuals. Activists need to distribute social movement messages beyond a limited geographic reach.

Relatedly, this finding also implies that the effect of moral claims may be bound by group identity. That is, even though certain moral claims can promote message spread, such as the positive influence of the care moral dimension, such an effect may be only limited to individuals who share the same group identity. This finding is consistent with prior research. Brady et al. (2017) found that "moral contagion," or the tendency for moral-emotional content to spread on social media, was largely bound by group membership, such as political ideologies. The current finding reinforces this idea, suggesting that location-based identity can be an equally important factor to consider along with moral framing. As shown in the results, the *t*-tests conducted with key moral values and the two outcome variables indicated small to negligible effect sizes. This further suggests that moral framing alone has limited effects on information virality, consistent with existing literature that shows framing effects may be moderated by factors such as place attachment (Scannell & Gifford, 2013) or social identity (Lucas et al., 2018).

### *Limitations and future directions*

Several limitations in the study warrant directions for future research. First, the content analysis was based on a sample of frequently retweeted tweets from a particular social movement. These tweets were not randomly selected. Although this allowed us to examine characteristics associated with viral tweets, it may be subject to the "survivor bias" and thus not applicable to the content that failed to capture public attention. It may provide additional insights if future work broadens the sampling frame or takes a random sampling approach. A related issue speaks to generalizing the current findings to other social movement contexts. Due to variability in contentious political issues (e.g., climate change, #BlackLivesMatter, and defunding the police), activists' movement discourse may embody different ways of incorporating moral frames. We call for future research to further theorize how movement context and social issues may interact with moral framing to catalyze real social change.

Second, the coding of the moral framing did not capture the existence or the lack of a moral dimension. Each moral value has two sides (e.g., care versus harm) and differentiating them could provide additional insights into who contributed to the narrative and what could trigger people's emotions. Take the #BlackLivesMatter (BLM) movement as an example; differentiating care and harm (or authority and subversion) could help unpack the dynamics between pro-BLM activists and police supporters. Future research should examine the two sides of moral framing and the target of each opposing component. Another research direction is to code a moral value along a continuum to examine how the degree of moral framing influences information virality.

Third, tweets may not be the best subject with which to examine framing due to their brevity. In this study, we based our content coding only on the text of the tweets, not considering other features such as images and embedded hyperlinks. Visual content, for example, may include additional moral claims that contribute to the virality of a message. Future work may assess multiple aspects of tweet content to operationalize the use of moral framing. Future researchers can also replicate our examination of moral framing in other media platforms used by the Hong Kong protesters as well, such as Facebook, Telegram, and LIHKG.

Finally, the virality metrics examined in this current research focused on the reach of a tweet and the affective evaluation by Twitter users, which does not necessarily lead to material or political support for a social movement. Researchers investigating digital activism debate the notion of "slacktivism," which refers to actions that take place online and have no real-life impact (Tufekci, 2017). On one hand, scholars argue that slacktivism only makes people feel good (Chiluwa & Ifukor, 2015) and may even hinder real activism (Lee & Hsieh, 2013). On the other hand, social media could increase offline protest participation, as they serve as new information sources which counterpublics can use to avoid regime control (Tufekci & Wilson, 2012). The focus on information virality allows us to examine which type of information is more likely to gain public attention and whether moral framing accelerates the information dissemination process on Twitter. We call for future research to investigate the impact of social media use on the actual action taken to support a movement.

## Conclusion

With the recent wave of the BLM movement and the constant debate of police brutality, this study provides a case analysis from a non-Western context. The issue of police brutality is a sub-issue within a larger context of the 2019 Hong Kong pro-democracy protest. Although it is only one of the five core demands from the Hong Kong protesters, it offers an opportunity to investigate how a local protest can use social media and moral framing to mobilize attention across the globe. The moralization of a social issue (e.g., police brutality) is a complex process confounded with racial and political factors (Jackson et al., 2020). Future research may examine how moral framing interacts with a specific movement context to facilitate the moralization process. In particular, an investigation should focus on how such interaction may influence the mobilization of public attention and the achievement of legitimacy.

This study makes several contributions. First, it applies MFT and information virality theory to examine how moral framing is associated with message reach and public endorsement in online activism. Although moral framing can be an effective means to mobilizing resources in social movements, few studies have dissected multiple dimensions of morality in a manner similar to that taken here. The literature has primarily focused on the presence or absence of moral values, or the level of moralization (Mooijman, Meindl, et al., 2018). The application of MFT helped unpack multiple dimensions of moral framing and examine how they may promote or constrain the dissemination of social movement messages on social media.

Second, this study advances the literature on online activism by offering important implications for how to mobilize collective action through the lens of moral framing. As the findings suggest, not every type of morality has the same effect. The differential associations suggest that moral effects may be contingent on social media users' group identity and personal preferences. When using moral framing as a strategy to mobilize public attention, movement participants need to carefully assess the scope of their audience and tailor the message to appeal to in-group versus out-group members. Depending on the nature of social issues as well as the specific movement context, certain moral dimensions may prove more instrumental in promoting information virality and mobilizing public attention than others.

Finally, the combination of content analysis and semantic network analysis provides contextualized interpretations of moral foundations. Compared to the computational approach that relies on a dictionary of terms (Mooijman, Meindl, et al., 2018), this mixed-method approach moves beyond the mere detection of moral values from a large corpus of social media data. The semantic network analysis supplements content analysis by spelling out the interconnections among topics, actors, and values that constitute each moral dimension. This proves necessary as moral claims are often context specific. The same moral dimension may be manifested differently across various movement contexts. Consequently, the findings demonstrate that the effects of moral framing need to be interpreted in specific cultural and political contexts.

## Note

1. We selected the top retweeted tweets rather than taking a random sampling approach because both dependent variables were highly skewed. Random sampling may select disproportionately less visible messages about the movement. The distribution of the retweet frequency showed a significant decrease in the frequency number (5 and less) when it hit the top 20% of the tweets. The selection of the top 20% allowed us to focus on viral tweets but also to include a sample with a significant variance in both outcome variables.

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