Understanding Double Stigma Toward Minority Groups on Social Media in the COVID-19 Pandemic: Findings from South Korea

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This study aims to compare social perceptions of four minority groups in South Korea categorized by religion, sexual orientation, and occupation. Using data collected from Naver News, a prominent Korean website, between February and June 2020, dynamic topic modeling was conducted on over 200,000 data points. The findings revealed that stigma-related topics such as labeling, negative stereotypes, separation, and status loss emerged in discussions about religious and sexual minority groups, subjecting them to the double stigma linked to COVID-19 and AIDS. In contrast, non-stigma-related topics, such as sympathy, criticism of government actions, and COVID-19 prevention, appeared in discussions about occupational minority groups. Over time, blame toward religious minorities increased, while sympathy towards occupational minorities increased. This study suggests that interventions on social media platforms can enhance the awareness of double stigma, contributing to its reduction.

Keywords: *COVID-19, double-stigma, social media, minority, big data, South Korea*

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INTRODUCTION

South Korea (hereafter, Korea) experienced an early outbreak of COVID-19 in late February and March 2020 (BBC 2020). One notable characteristic of the COVID-19 trajectory in Korea was an initial mass infection with more than 5,000 confirmed cases among a religious minority known as the Shincheonji Church of Jesus, which is considered a cult by mainstream churches in Korea (Kim et al. 2020). In March, another mass COVID-19 infection occurred among an occupational minority group of workers at a call center located in Seoul's Guro District, with approximately 170 confirmed cases (Choi et al. 2020). There were subsequent COVID-19 mass infections with more than 100 confirmed cases in May, one of which was related to a sexual minority group (comprising persons who had attended a club in Itaewon, a popular spot for foreigners, US military servicemen, and sexual minorities). Another mass infection involved a second occupational minority group of workers at a Coupang distribution center, with over 10 distribution center workers and delivery workers dying from overwork due to COVID-19 (Choi et al. 2020).

After the Shincheonji outbreak in March, two Shincheonji Church members in Korea died by suicide due to stigma and discrimination against them (Cho 2020). Later, in May, people of a sexual minority group who had visited a gay club avoided being tested for COVID-19 because they were wary of being stigmatized and discriminated against because of their sexual orientation (Borowiec 2020). Despite the widespread COVID-19-related discrimination against minority groups, no research to date has examined COVID-19-related stigma in Korea. As Bruns et al. (2020) pointed out, we need to consider unique cultural and social backgrounds to understand COVID-19 stigma.

Korea is a relevant case study insofar as it is a homogeneous society with a low level of racial and ethnic diversity and a low degree of social acceptance for various minority groups (Camilia 2019). Previous research on social distance toward minority groups in Korea (Lee and Lee 2019; Kim 2004) and findings by Yoo and Jang (2024), which identified varying levels of interpersonal fear and social empathy toward these groups during the COVID-19 pandemic, suggest that minority groups may be perceived as either perpetrators or victims of COVID-19 mass infection, depending on the level of perceived distance or fear from the broader Korean population. Thus, our study examines COVID-19-related stigma among different groups based not on race or ethnicity but on other minority or identity-based

statuses to shine light on the particular implications. Understanding how minority groups in Korea face stigma during the COVID-19 pandemic, especially when the minority groups are associated with cases of mass infection, can provide insights into how to reduce stigma and health disparities among minority groups in Korea. As we have learned from recent pandemics and epidemics, including the H1N1 (Tang et al. 2018), Ebola (Tang et al. 2018), and Zika viruses (Vijaykumar et al. 2018) in certain parts of the world, together with the current COVID-19 pandemic (Budhwani and Sun 2020; Shin et al. 2022), social media plays an important role in the sharing or disseminating of information and social stigma. By analyzing online news comments targeting particular groups of minorities, the present study aimed to investigate COVID-19 mass infection-related information that people shared and compare the degree of stigma and pertinent stigma components toward different groups associated with mass infections based on their minority status over time. Herein, minority is defined as "any group of people who, because of their physical or cultural characteristics, are singled out from the others in the society in which they live for differential and unequal treatment, and who therefore regard themselves as objects of collective discrimination" (Wirth 1945, p. 347). In this study, we included four minority groups—Shincheonji church members, gay individuals, call center workers, and Coupang delivery workers—based on their religion, sexuality, and occupational status. Before the COVID-19 pandemic, the majority of recognized minority groups in Korea were categorized based on sexual orientation, religion, race/ethnicity, and nativity (Lee and Lee 2019; Oleksiuk 2019). However, we categorized these occupational groups as minorities because the pandemic exacerbated their vulnerability (Côté et al. 2021; Kim 2020; Park et al. 2020; Taylor 2020) as they lacked the privilege of working from home, which increased their exposure to the virus.

LITERATURE REVIEW

Sharing information and shaping perception in social media

Whenever a global health crisis occurs, uncertain information related to prevention, symptoms, and treatment can confuse people. News reports and comments play a substantial role in facilitating public discourse on certain issues by enabling prolific communication among people with common interests. In the case of issues with high uncertainty or risk, the influence of

social media is remarkable, as observed in the public's risk perception of or prevention of critical public health concerns such as H1N1 influenza, MERS, COVID-19 and others (Karasneh et al. 2021; Oh et al. 2020). Stigma is created or reinforced on social media, which has the potential to perpetuate it (Budhwani and Sun 2020). Previous studies have discussed the association between stigma and mental illnesses and confirmed that online media reports have considerable impacts on the creation or heightening of stigma and discrimination against people afflicted by mental illnesses (Ross et al. 2019).

It should be noted that people tend to leave comments on news articles that match the tone of the articles themselves (Gwarjanski and Parrott 2018). News articles reporting dangerous behaviors or crimes by people with schizophrenia often have many negative comments, whereas positive articles describing the recovery of mentally ill patients generally have many affirming comments and have been shown to reduce stigma. As for news articles on grievances caused by stigma, there are usually many positive comments along with sympathy (Shigeta et al. 2017). These findings highlight the significant impact of social media use on stigma reduction.

Stigma and Double Stigma

Since the early definition of stigma in the work of Goffman (1963) as an "attribute that is deeply discrediting" and that reduces the bearer "from a whole and usual person to a tainted, discounted one," scholars have indicated that stigma is based on the particular characteristics of an individual, which are often perceived as negative based on normative and/or limited thinking in the society to which the individual belongs. Link and Phelan (2001) argued that stigma must be understood beyond individuals, and instead, as "the product of social process." They suggested the following components and consecutive processes of stigma: (1) distinguishing and labeling differences, (2) associating human differences with negative attributes/stereotypes, (3) separating ideas of "us" from ideas of "them", and (4) making a connection between labeled persons or groups and their experiences of status loss and discrimination.

Scholars have introduced the concept of "double stigma," indicating that certain groups or individuals who belong to these groups face more than one stigma against them and thereby experience more severe discrimination due to additive characteristics, together with already stigmatized characteristics (Gary 2005; Roe et al. 2007). For example, previous studies have found that

individuals with HIV/AIDS receive a higher level of stigma when they are gay (Grossman 1991) or have other illnesses such as tuberculosis (Daftary 2012) in comparison to "normal" individuals with HIV/AIDS. Furthermore, individuals with mental illnesses tend to experience higher levels of stigma and discrimination if they are ethnic minorities (Gary 2005), unemployed (Staiger et al. 2018), have limited literacy, or are obese (Mizock 2015).

While intersectionality (Collins and Bilge 2020) explores how overlapping identities interact in complex ways to influence an individual's overall experience of discrimination, the concept of double stigma is more fitting for the current study. Double stigma specifically addresses the overlap of two distinct stigmatized identities. Considering that the four minority groups in our study were already stigmatized as religious, sexual, and occupational minorities, we found that these groups experienced an additional layer of stigma due to their association with COVID-19 mass infection. Thus, double stigma more precisely captures the additive effect of these overlapping stigmatized identities in the context of the pandemic.

DATA AND METHODS

Data collection

News articles and comments were collected from the news section of the online platform Naver (https://www.naver. com), a popular web portal in South Korea that provides internet news articles published by various press companies as links that can be accessed directly from its news section. The data collection procedure consisted of four main steps: (1) searching for and collecting articles based on keywords, (2) filtering out any mutually exclusive or irrelevant articles, (3) collecting comments posted on relevant articles, and (4) identifying negative comments.

First, articles containing keywords that matched certain conditions were searched for and collected from Naver News using Python. The search terms for each minority group consisted of "corona," the main label of the group, and the location of the outbreak. For example, with "corona," the search terms of "Shincheonji" and "Daegu," "gay," or "sexual minority" and "Itaewon" were used for minority groups, and the search terms of "call center" and "Guro," "Coupang," and "Bucheon" were used for non-minority groups. Publication dates were set within one month of the outbreak (when the first confirmed case for each group appeared) to collect the most relevant data. Accordingly,

data regarding the COVID-19 outbreaks among Shincheonji Church members were collected from February 18, while that for gay nightclub visitors was collected starting May 7, call center workers on March 9, and Coupang workers on May 25 (all in the year 2020).

Next, we selected mutually exclusive articles and filtered out irrelevant articles based on the uniform resource locator (URL) and title or summary of each article. Article titles and summaries were manually scanned to identify keywords that were related to the outbreak (i.e., "confirmed case") and keywords that frequently appeared in irrelevant or weakly related articles, such as those focusing on a certain political party, a member of the National Assembly, an administrative order, or a celebrity. The filtering process ensured that various combinations of essential keywords were present in the article titles, but irrelevant keywords were not present in either the title or summary.

User comments posted on the remaining relevant articles were collected for analysis. This data collection did not include re-comments of any original comment, and the "Cleanbot" feature that blocks inappropriate comments was turned off to collect all available comments. The publishing trends of the comments showed that for most groups, with the exception of Shincheonji, more than 90 percent were posted within a week of each outbreak (Table 1). Thus, we concluded that the data collected for one week sufficiently represented these groups.

Finally, sentiment analysis using KoBERT (https://github.com/ SKTBrain/KoBERT) was conducted to identify negative comments. KoBERT is a version of the bidirectional encoder representation from transformers (BERT) developed by Google (Devlin et al. 2019) and modified to better analyze Korean texts. We used the base KoBERT model, which has a transformer architecture of 12 layers, a hidden size of 768, and 12 attention heads. The model was fine-tuned with a dataset of 200,000 positive and negative movie review comments in Korean collected from the same online platform, Naver (https://github.com/e9t/nsmc), and achieved an accuracy level of 0.90.

As shown in Table 1, the number of comments analyzed was as follows: minority groups including Shincheonji Church members and gay groups received 166,716 and 30,958 negative comments, respectively, and non-minority groups including call center workers and Coupang workers received 14,373 and 4,274 negative comments, respectively.

TABLE 1

NUMBER OF COLLECTED ARTICLES AND COMMENTS FOR EACH GROUP

Group	Article date	N of relevant articles	N of comments	Comment date	N of comments	N of negative comments
Shincheonji	02/18–3/16	4,446	345,014	02/18–2/24	208,065	166,716
Gay	05/07–6/03	280	41,592	05/07–5/13	38,346	30,958
Call center	03/09–4/05	732	18,896	03/09–3/15	18,606	14,373
Coupang	05/25–6/21	560	6,006	05/25–5/31	5,799	4,274

Data analysis

Dynamic topic modeling (DTM) was conducted using latent Dirichlet allocation (LDA), a generative probabilistic model frequently used to discover underlying topics from a relevant set of words within a collection of documents (Blei et al. 2003). The DTM adds a time dimension to this model, making it suitable for topic evolution analysis (Blei and Lafferty 2006). Data preprocessing of the collected comments involved tokenization and morpheme analysis using the Korean morpheme analyzer tool KoNLPy (Park and Cho 2014), as well as the removal of emoticons and stop words. The LDA-based DTM of the tokenized text data was then conducted using the Gensim library (Řehůřek and Sojka 2010) to extract a number of topics and the probability distribution of words that occurred in each topic for discrete time periods (Blei and Lafferty 2006). These were labeled by analyzing the highest-probability words in each topic and identifying their relevance to the sociological theory of stigma components and double stigma (Link and Phelan 2001). Additionally, relevant comments containing keywords with specific meanings that were difficult to grasp were extracted (Fischer-Preßler et al. 2019).

As the analysis results varied according to the predefined number of topics, the topic coherence score was computed to determine the optimal number of topics that represented the data. The topic coherence score quantifies the human interpretability of topics based on the semantic similarity of keywords in each topic (Röder et al. 2015). For each group, we selected the highest scoring model, or those that showed a peak in the coherence score. These were labeled by two experts and then discussed together to compare the models until a consensus was reached (Allen 2019; Biel and Gatica-Perez 2014). To understand the topic trends of each group during the week after the outbreak, we analyzed the proportion of each topic

out of the total comments posted within a certain timeframe. This was achieved by assigning each comment to its dominant topic using the probability distribution of the topics for a comment (Kim et al. 2022; Oh et al. 2022).

FINDINGS

Changes in negative comments against minority groups over time

Figure 1 illustrates the fluctuations in the number of negative comments for each newspaper article about various minority groups across different periods. First, the highest number of negative comments per newspaper article was directed towards sexual minorities (gay individuals). This elevated number declined until the third day and rebounded on the fourth day before decreasing again. Second, the trends in negative comments targeting religious minorities (Shincheonji Church members) and the call center workers exhibited a parallel pattern: the number surged on the second day and gradually waned over time. Finally, the number of negative comments concerning the Coupang workers remained marginal and consistent throughout the observed timeframe.
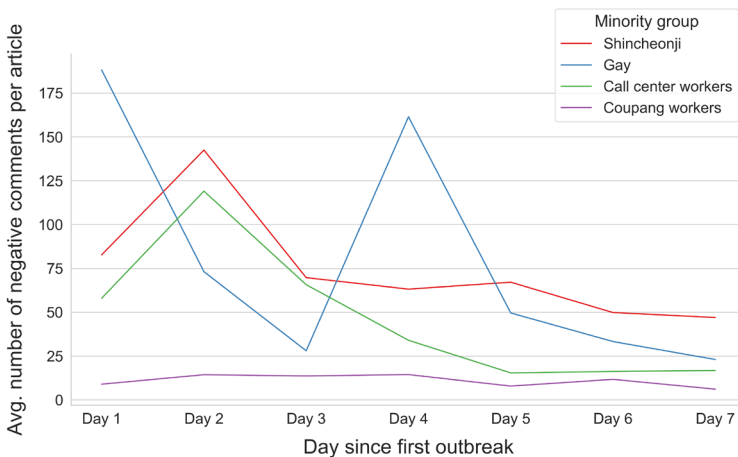

FIG. 1.—NUMBER OF ARTICLES COLLECTED PER GROUP ACCORDING TO THE PUBLICATION DATE

Changes in stigma-related topics against minority groups over time

Figure 2 illustrates the proportion of stigma-related topics across four different minority groups over time, indicating that double stigma was not present for all minority groups during the pandemic. Instead, it primarily affected certain groups, particularly sexual and religious minorities. For example, no stigma-related topics emerged among the occupational minority groups (call center workers and Coupang workers). In contrast, discussions about sexual minorities, particularly gay individuals, predominantly centered on stigma, including labeling, negative stereotypes, and status loss. Moreover, the proportion of these stigma-related topics grew over time. Compared to the sexual minority group, the proportion of stigma-related topics targeting the religious minority group (Shincheonji Church members) was lower and showed a slight decrease over time.
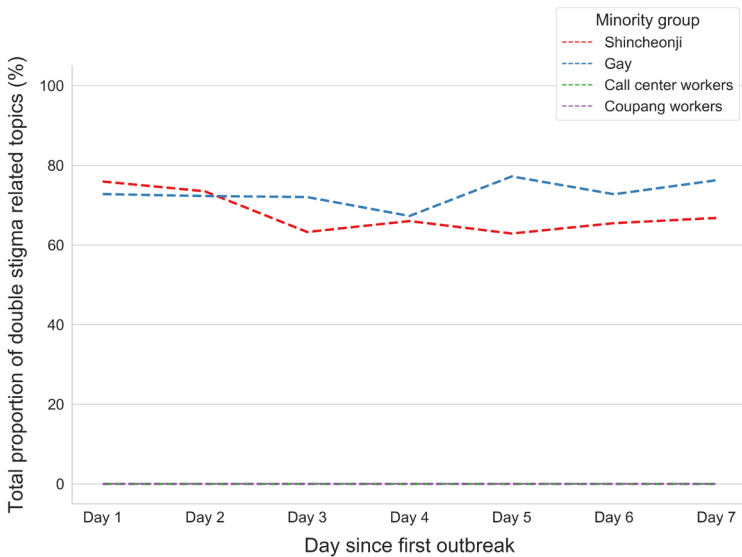
FIG. 2.—PROPORTION OF STIGMA-RELATED TOPICS AMONG MINORITY GROUPS
OVER A ONE-WEEK PERIOD

Religious minority: Shincheonji

As Table 2 shows, seven relevant topics emerged regarding religious

TABLE 2
TOPIC MODELING FOR SHINCHEONJI: TOP KEY TERMS IN EACH TOPIC

Topic name	Key terms	Examples
[Topic 1] Separation: Call for the lockdown of the Daegu region	Daegu, lockdown, area, Gyeongbuk, closure, isolation, Shincheonji	• Blockade the city of Daegu and detain all potential suspects of the infectious disease. • Daegu must be closed off. Block all roads, including national highways and expressways. • Take measures to close all Shincheonji facilities and cafes in Daegu and conduct an epidemiological investigation
[Topic 2] The role of the media in the formation and enhancement of stigma	News, fake, virus, disaster, on purpose, the government, editor, reporter, article, spread	• In this sensitive situation, spreading fake news is unacceptable... Deliberately causing social anxiety is intolerable. • Fake news that shakes our society is a much worse virus than COVID-19. It must be eradicated now. Journalists and media outlets that publish fake news should voluntarily close and resign. • When the entire nation is sensitive to the spread of COVID-19, please refrain from posting false news that is not properly verified. Journalists who publish such articles are as dangerous as the virus itself. They promote fear and distrust!
[Topic 3] Status loss	Refusal, punishment, hospitalization, nuisance, suspicion, arrest, death penalty, personal information, tax	• Disclose [Shincheonji Church members'] personal information! Sentence to imprisonment! • Put them in prison and punish this pseudo-group. • Sentence of the death penalty!
[Topic 4] Negative stereotypes	Shincheonji, curse, crazy, mentality, rubbish, the devil, mess, poop	• Shincheonji is rubbish. • Shincheonji is the devil. • Shincheonji is human cockroaches.
[Topic 5] Heresy labeling	Shincheonji, heresy, a member of the church, religious leader, list, worship, lie, a pseudo-religion	• Don't call Shincheonji a Christian denomination; it's a completely different sect from Christianity. • Shincheonji is a harmful presence in society. It's not Christianity; it's a heresy. • In these chaotic times, false religions are gaining ground.

Topic name	Key terms	Examples
[Topic 6] Separation directed at Chinese	China, entry, Chinese, ban, disaster, country, our country, Wuhan, why, international students	• Shincheonji is a problem, but the bigger issue is the influx of Chinese nationals, who serve as carriers. • No ban on Chinese nationals' entry + a collaboration with Shincheonji, a perfect combo. • Restrict Chinese nationals' entry; the spread may intensify if international students continue to arrive.
[Topic 7] Condemnation and accusation of the government	The government, blame, curse, president, fault, the public, worry, Moon Jae-in, response, incitement	• Why is this government so incompetent? The Blue House control tower only talks but shifts blame onto others. This irresponsible ruling party needs to take responsibility. • It's not just Shincheonji's fault; the government also made mistakes. Where did the 31st confirmed case get infected? Who declared the end of COVID-19? • It's the President's fault; the government should play a control tower role.

minorities and Shincheonji Church members. For Topic 1, key terms that emerged included "Daegu," "lockdown," "area," "Gyeongbuk," "closure" "isolation," and "Shincheonji." These key terms indicate a widespread desire among Koreans to impose a lockdown, specifically in Daegu, which was affected by a number of COVID-19 infections among Shincheonji Church members. Topic 2 was reinforced by many key terms, such as "news," "fake," "virus," "disaster," "on purpose," "the government," "editor," "reporter," "news article," "spread," and more.

Topic 3 comprises key terms such as "refusal," "punishment," "hospitalization," "nuisance," "suspicion," "arrest," "death penalty," "[release] personal information," and "[increase] tax." These key terms suggest a common sentiment that the spread of COVID-19 among Shincheonji Church members needed to be controlled, even if that meant exerting public force. Based on this, it could be inferred that people did not consider the Shincheonji group to be citizens deserving government protection. Topic 4 was represented in key terms that included "Shincheonji," "curse," "crazy," "mentality," "rubbish," "the devil," "mess," and "poop." For Topic 5, key terms of "Shincheonji," "heresy," "a member of the church," "religious leader," "list," "worship," "lie," "a pseudo-religion," "scammer," and other similar examples
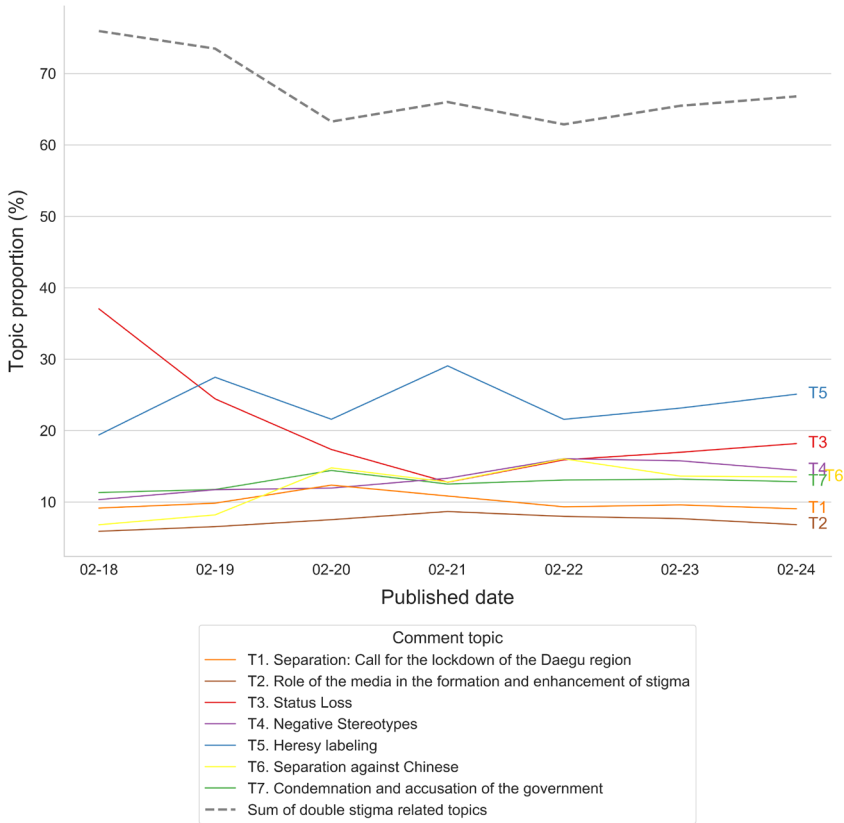
FIG. 3.—CHANGES IN THE PROPORTION OF SHINCHEONJI-RELATED TOPICS OVER
TIME

emerged. Topic 6 had the key terms "China," "entry," "Chinese", "ban,"
"disaster," "country," "our country," "Wuhan," "why," and "international
students." Finally, Topic 7 encompassed key terms including "the
government," "blame," "curse," "president," "fault," "the public," "worry,"
"Moon Jae-in," "response," and "incitement."

Figure 3 illustrates changes in the proportion of Shincheonji-related
topics over a week. Stigma-related topics constituted over 70 percent of all
topics and fluctuated over time. Of the topics discussed, Topics 3 and 5
garnered the most public attention. Topic 3 received considerable attention,
with over one-third of the comments expressing the aspiration for
Shincheonji Church members to be held accountable in the form of various
consequences, including punishment, public disclosure of personal

information, heightened taxation, and even capital punishment. However, this proportion decreased rapidly within a few days. Conversely, the proportion of Topic 5 exhibited some fluctuations. In comparison, the remaining topics underwent relatively minimal changes.

Sexual minority: Gay community

Regarding the gay-related data, both researchers agreed on labeling when the number of topics was five, as presented in Table 3. Topic 1 was represented by the key terms "us," "other" (intended to differentiate between spreaders and "other" gay citizens), "sexual minority," "homosexuality," "gay," "AIDS," "disgust," "minority," "pervert," "queer," and "group." Topic 2 included key terms of outright injustice including "butthole," "poop," "dirty," "rubbish," "curse," "rutting," "mental illness," "nuisance," and "disease." Topic 3 had key terms critical of gays for spreading COVID-19 due to Itaewon club attendance, including "club," "a gay club," "curiosity," "here and there," "why,"

TABLE 3

TOPIC MODELING FOR THE GAY COMMUNITY: TOP KEY TERMS IN EACH TOPIC

Topic name	Key terms	Examples
[Topic 1] Distinction and labeling	Us, other, sexual minority, homosexuality, gay, AIDS, minority, pervert, queer, group	• Do only gay people have human rights, and the rest of us (the majority) don't? This is reverse discrimination. • Why do sexual minorities have rights, but we (the majority) don't? They break the rules, and yet they expect tolerance. For the country to function properly, they should reveal their whereabouts. If they cannot be honest about themselves, who will protect them? For the sake of the majority's health and safety, they should disclose their movements. They should face appropriate punishment for their actions. • Just mind your own business; we will handle our own affairs.
[Topic 2] Negative stereotypes	Butthole, poop, dirty, rubbish, curse, rutting, mental illness, nuisance, disease	• Because AIDS is not enough, gays also spread the coronavirus. • Dirty gays are mentally ill. • There is really no greater nuisance. Seriously. Selfish trash.

Topic name	Key terms	Examples
[Topic 3] Condemnation and accusation	Club, a gay club, curiosity, here and there, why, Itaewon, a gay bar, crazy, symptom, rutting, one night	• Get yourself together! What were you thinking, going to a club during this time? Are you brainless? It's embarrassing to be the same age as you. Let's consider the healthcare workers a bit. • If you're sick, don't wander around! The kids have to go to school. Is not going to a club going to kill you? You're like trash. • In this situation, you not only went to one place but three, just out of curiosity. I can't understand why. You should be mature enough to discern right from wrong, but you lived your life like garbage. Just stay quietly in that corner.
[Topic 4] Human rights & discrimination	People, sexual minority, discrimination, human right, the public, outing, responsibility, a human being, life	• This is a human rights violation. Just disclosing the location and type of club would have been enough; there was no need to mention it was a gay club. People who were in the same place should be cautious enough. If there are individuals with unavoidable secrets, they might get sick but won't get tested, and they might end up infecting others, putting our society at risk. • Why even mention it as a gay club? Wouldn't people understand if it was simply called a club? This seems like an article fueling discrimination against human rights! • Wow, this is a forced outing. It's a violation of human rights. This should be reported to the Human Rights Commission.
[Topic 5] Status loss	Isolation, claim, the right to indemnity, fine, punishment, now, quickly, spread, voluntary, cooperation	• Charge for all expenses. Epidemiological investigation costs, medical expenses, and quarantine costs. • They should be isolated from society forever!! As soon as the compensation amount is determined, we should also file for punitive damages!! • Reveal their face!!! Impose fines!!

"Itaewon," "a gay bar," "crazy," "symptom," "rutting," "one night," and others. Topic 4 had the related words "people," "sexual minority," "discrimination," "human right," "the public," "outing," "responsibility," "a human being," and "life." Finally, Topic 5 comprised key terms that indicated a strong push for
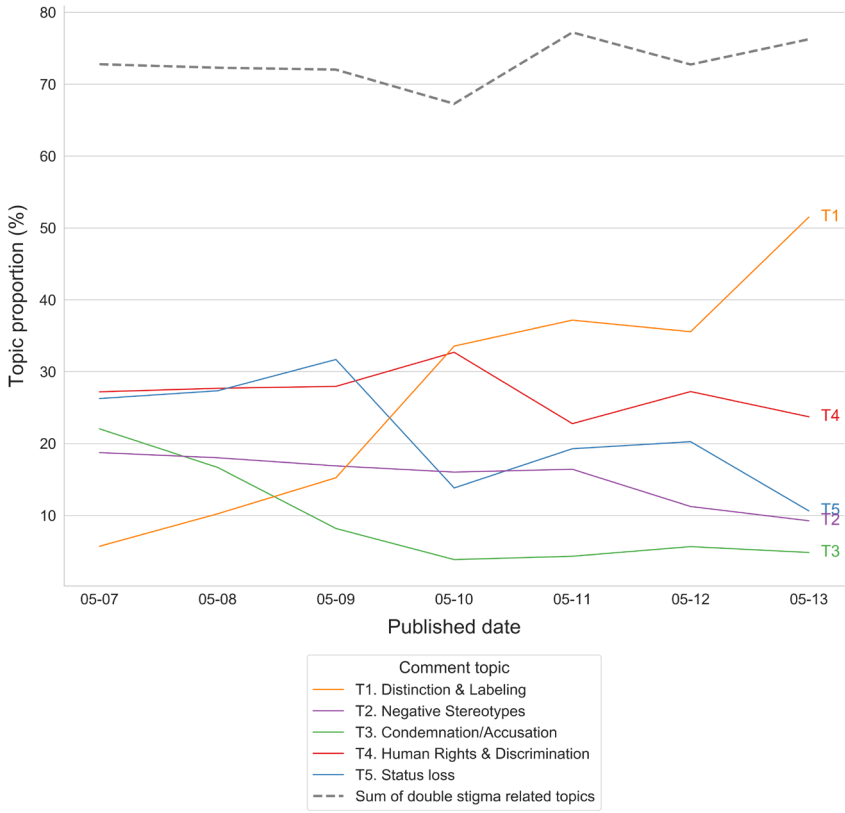
FIG. 4.—CHANGES IN THE PROPORTION OF GAY-RELATED TOPICS OVER TIME

the diminishment of social standing within the minority group. The key terms included "isolation," "claim," "the right to indemnity," "fine," "punishment," "now," "quickly," "spread," "voluntary," and "cooperation."

Figure 4 illustrates the temporal dynamics of various topics, showing that stigma-related topics constituted over 70 percent initially and increased over time. Topic 1 experienced a rapid increase over time, whereas other topics declined. This trend suggests that the public sought to establish a boundary between themselves ("us") and sexual minorities ("you") as the spread of COVID-19 was linked to a gay club. Topics 4 and 5 initially accounted for a significant proportion compared to other topics but decreased with time.

Occupational minority: Call center workers

As Table 4 presents, with respect to data pertaining to call centers, researchers agreed on seven topics: criticism of the president's discourse on COVID-19, prevention of COVID-19 in daily life, criticism of the Seoul metropolitan government's COVID-19 response, accusations linking COVID-19 mass infection to Shincheonji, accusations linking COVID-19 mass infection to China, separation of Chinese residents in Korea, and sympathy for the call center work environment.

TABLE 4
TOPIC MODELING FOR CALL CENTER WORKERS: TOP KEY TERMS IN EACH TOPIC

Topic name	Key terms	Examples
[Topic 1] Criticism of the president's discourse on COVID-19	Disaster, Moon Jae-in, self-praise, president, government, the public, country, a snout, mouth, problem, curse, impeachment	• As soon as Moon Jae-in praised himself, a disaster happened. • I'm really tired of the ruling party and Moon Jae-in's self-praise, seriously! • When will Moon Jae-in be impeached?? Looking at the way the world is turning right now, it seems like he deserves to be impeached. But why isn't it happening? Would any other president have gotten away with this without impeachment?
[Topic 2] Prevention of COVID-19 in daily life	Subway, school, bus, job, public transport, distance, let's do it, together, commuting, family, symptom, careful, each other	• Let's not forget to have our meals alone and avoid eating together in a shared lunchbox. • On buses and in crowded places, please open the windows. • Not wearing a mask during this time... Please, for a few days, refrain from going out and strictly maintain personal hygiene.
[Topic 3] Criticism of the Seoul metropolitan government's COVID-19 response	Seoul, corona, fault, situation, Guro, call center, Park Won-soon, lockdown, disaster, the mayor of Seoul, responsibility, Guro District, government, a crime of murder, accusation	• Mayor Park Won-soon, please visit the scene and announce future measures. Why are you making Seoul citizens anxious??!!! • Park Won-soon, take responsibility and resign once the situation is resolved. • Due to Park Won-soon's dirty politics, unfortunate victims among the call center employees have emerged.

Topic name	Key terms	Examples
[Topic 4] Accusations linking COVID-19 mass infection to Shincheonji	Confirmed cases, infection, Daegu, group, spread, Seoul, Shincheonji, believers, contact, nationwide, isolation, cause	• There is a high possibility of Shincheonji being the main cause. If someone is found to have been infected despite being part of Shincheonji and continues their social activities, they should face over a year of imprisonment. Religious freedom exists, but they should not lie and endanger everyone else. • The place where confirmed cases are suddenly appearing seems to have Shincheonji followers. • It looks like there might be Shincheonji among them. Quickly identify and isolate them.
[Topic 5] Accusations linking COVID-19 mass infection to China	China, entry, country, ban, now, infection, the metropolitan area, lockdown, spread, Chinese, early, Wuhan, Korea, response, nationwide	• Before blaming call centers and churches, entry from China should have been completely prohibited. They say it's impossible to trace Shincheonji followers who are foreigners. If they are foreigners, they are Chinese, and it is these Chinese who infected Shincheonji. • Closing the door to China would greatly help solve the problem. • It will be difficult to achieve early termination of COVID without banning entry from China.
[Topic 6] Separation of Chinese residents in Korea	China, Chinese, Wuhan, ethnic Koreans, entry, COVID-19, why, ban, spread, international students, Korean, Daerim-dong, Sindorim, we, Korea	• Why do you associate call centers with Shincheonji? There are many Chinese in Daerim-dong, near Guro District, and many Chinese students, but why is no one talking about them? • If there are no Chinese infections reported, it's probably because they haven't been tested. Look at the Chinese students; they said they didn't have coronavirus in China, but how many of them got infected after coming to South Korea? • Guro District and Yeongdeungpo District have densely populated areas with ethnic Koreans. Asymptomatic Chinese infections have started spreading the virus. It seems like Seoul will become a hellgate.
[Topic 7] Sympathy for the call center work environment	Mask, a call center, people, insurance, healthy, working from home, building, environment, still, office, together	• The mass infection among call center employees is really heartbreaking. Due to the nature of their job, they can't wear masks and are exposed to the risk of infection through respiratory droplets. Moreover, how many employees commute in their private cars? They're all probably infected... It's just a lingering hatred towards Shincheonji...

Topic name	Key terms	Examples
		• I feel sorry for the call center employees. They can't even wear masks while making calls. For others, please practice good hand hygiene and wear masks. • I hope the working environment for call center employees improves, and I hope they are provided with sufficient rest breaks.

For Topic 1, the key terms of "disaster," "Moon Jae-in," "self-praise," "president," "government," "the public," "country," "a snout," "mouth," "problem," "curse," and "impeachment" appeared. Topic 2 involved key terms related COVID-19 preventive measures and situations at an individual level, such as "subway," "school," "bus," "job," "public transport," "distance," "let's do it," "together," "commuting," "family," "symptom," "careful," and "each other." Topic 3 had the key terms of "Seoul," "Corona," "fault," "situation," "Guro," "call center," "Park Won-soon" (the mayor of Seoul during the COVID-19 pandemic), "lockdown," "disaster," "the mayor of Seoul," "responsibility," "Guro District," "government," "a crime of murder," and "accusation."

Topics 4 and 5 covered allegations about the causes of mass COVID-19 infection, with Topic 4 centering on Shincheonji Church members and Topic 5 focusing on China. Topic 4 contained key terms such as "confirmed cases," "infection," "Daegu," "group," "spread," "Seoul," "Shincheonji," "believers," "contact," "nationwide," "isolation," and "cause"; Topic 5 contained the key terms "China," "entry," "country," "ban," "now," "infection," "the metropolitan area," "lockdown," "spread," "Chinese," "early," "Wuhan," "Korea," "response," and "nationwide." While Topic 5 was about accusations aimed at China at the national level, Topic 6 was also about China; an attempt to separate "them" from "us" with the following various key terms that include not only Chinese people abroad but also those who reside in Korea as ethnic Chinese who are mainly concentrated in the ethnic enclaves of the Daerim-dong and Sindorim areas: "China," "Chinese," "Wuhan," "ethnic Koreans," "entry," "COVID-19," "why," "ban," "spread," "international students," "Korean," "Daerim-dong," "Sindorim," "we," and "Korea." Finally, Topic 7 was represented in key terms such as "mask," "a call center," "people," "insurance," "infection," "healthy," "working from home," "building," "environment," "still," "office," "together" and other similar terms.

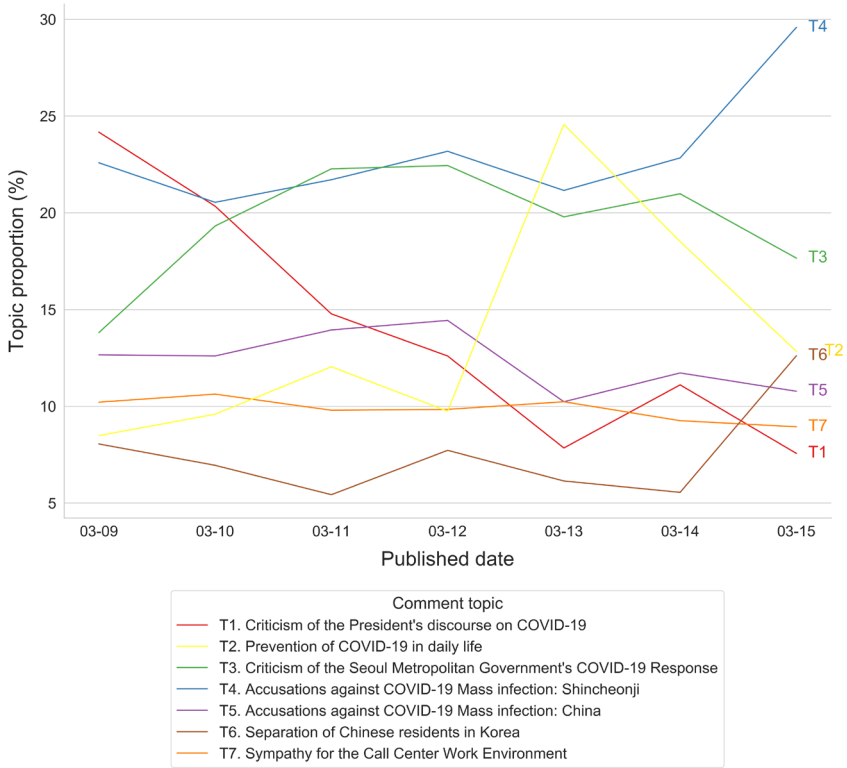Figure 5 depicts the evolution of seven call center worker-related topics.

Fig. 5.— Changes in the proportion of call center worker-related topics over time

No topics related to stigma components emerged. Several topics, including Topics 5, 6, and 7, fluctuated but remained relatively stable over time. Topic 3 increased but then decreased. Topics 2 and 4 showed more dramatic changes over time; the proportion of Topic 2 increased three days after the initial news of call center workers becoming infected broke. In contrast, the proportion of Topic 4, which concerned accusations levied at Shincheonji Church members, was high from the start and remained high, even increasing after one week.

Occupational minority: Coupang workers

For Coupang-related data, a consensus was reached when the number of topics was seven (Table 5). The topics were labeled: sympathy for Coupang

delivery workers, prevention and control of COVID-19, criticism of the government's response to COVID-19, accusations related to COVID-19 mass infections aimed at those other than Coupang workers, sympathy for Coupang delivery workers' work environment, concerns about infection in daily life, and education-related policies and concerns.

Topic 1 consisted of terms such as "Coupang," "hard," "part-time job," "the public," "mask," "call center," "two jobs," "day job," "one day," "victim," "medical treatment" and other examples expressing compassion for a difficult situation. Topic 2 included terms such as "mask," "wear it," "testing," "hands," "an infectious disease," "texting," "disinfection," and "government." We labeled Topic 3 "criticism of the government's response to COVID-19" because the following key terms emerged: "disaster," "COVID-19," "government," "Moon Jae-in," "country," "nation," "self-praise," "response," "public," "rubbish,"

TABLE 5

TOPIC MODELING FOR COUPANG DELIVERY WORKERS: TOP KEY TERMS IN EACH TOPIC

Topic name	Key terms	Examples
[Topic 1] Sympathy for Coupang delivery workers	Coupang, hard, part time job, the public, mask, call center, two jobs, day job, one day, victim, medical treatment	• Get proper treatment and recover soon. It's tough for those who work hard to earn a living; it's a pity... • They were working part-time until the weekend... It's a pity for someone who works hard. • You were living diligently with multiple jobs, and it's unfortunate that you got infected. I hope you recover quickly.
[Topic 2] Prevention and control of COVID-19	Mask, wear it, testing, hands, an infectious disease, texting, disinfection, government	• At the very least, let's wear our dental masks while working. • Even if it's tough, let's wear masks while working for the health of ourselves, our families, and others. • Instead of sending unnecessary messages, such as our whereabouts through disaster alerts, please send reminders on how to properly wear masks two or three times a day. More and more people are using masks as chin covers or just covering their mouths. Please provide public service announcements on how to properly wear masks and keep sending reminders through disaster alerts.

Topic name	Key terms	Examples
[Topic 3] Criticism of the government's response to COVID-19	Disaster, COVID-19, government, Moon Jae-in, country, nation, self-praise, response, public, rubbish, curse, reaction	• The government should accurately identify the areas where the disease prevention measures have been flawed, and promptly come up with appropriate measures to stabilize the country from COVID-19. Continuing with the current approach will only result in more and more people suffering, with businesses and self-employed individuals going bankrupt, and even leading to family breakdowns. The government needs to address this issue quickly. Small and medium-sized travel agencies are facing a crisis of bankruptcy. • This crazy government keeps praising itself whenever the number of confirmed cases slightly decreases, but how will it handle the consequences? They will probably use all sorts of excuses and fabricated propaganda to escape responsibility. Ignorant citizens will continue to support them. • Why didn't the government and health authorities enforce strict and specific disease prevention guidelines and inspections at logistics centers? Why haven't they ordered transparent vinyl partitions to be installed on each table at restaurants nationwide? What are the government and health authorities doing other than making announcements?
[Topic 4] Accusations blaming COVID-19 mass infection on those other than Coupang workers	Instructor, academy, Itaewon, lie, club, gay, Shincheonji, claims, damage, punishment, mess, infection, spread, the right of indemnity, a gay club	• One lying academy instructor who went to an Itaewon gay club caused a tsunami. • Thanks to people from Coupang, we've been stuck at home for months, and those who work so hard, including all others, what's going on? Even if the Itaewon OOO instructor didn't lie, the situation wouldn't have improved. I really want to express my anger; you people are a social evil, and you should be treated as serious criminals. • I don't get angry at Coupang's people, but I really want to curse those who went to Itaewon clubs! I hope all their identities are revealed!

Topic name	Key terms	Examples
[Topic 5] Sympathy for Coupang delivery workers' work environment	Coupang, distribution, parcel service, COVID-19, center, shipping, staff, delivery, people, virus, quick, rocket, box, hardship, order, dawn, company, client, worry, sorry, thank	• Sigh... Coupang employees, you've been working so hard... I hope nothing bad happens, and you can continue to live without any troubles. - A loyal Coupang customer. • Don't blame Coupang! Aren't other logistics centers the same? People working in the delivery service have almost similar routes. I also order from Coupang, Auction, 11st, and others. If that's the case, all of them are at risk. We shouldn't lose focus. Instead of targeting specific companies, focus on inspections, prevention, and countermeasures. • This is a good opportunity to improve the conditions of logistics centers and delivery drivers. They work in such crowded conditions!
[Topic 6] Concerns about infection in daily life	COVID-19, people, the public, asymptomatic, work attendance, first-birthday party, family, school, infection, symptom, company, parents, worry	• Even without this situation, these days, being invited to a first birthday celebration is a hassle. Did they really have to hold the event so grandly for the baby? Did they do it because they feel sorry for the baby? They should have thought about what's best for the baby. Even though the baby is precious, what about the close family members and guests who risked coming despite the danger? • When employees show symptoms, the bosses should allow them to rest without worrying about their performance. It's actually beneficial for the company. Being too strict and ignoring the situation can make things worse for the company, and it's terrible just to think about it. Are sales really that important? • It seems to be prevalent in the community now... Always remember to wear masks and wash your hands. It's soon going to be hot and humid during the monsoon season, and I worry about the laborers working outside wearing masks, risking their lives.

Topic name	Key terms	Examples
[Topic 7] Education-related Policies and concerns	Go to school, starting school, school, distance, COVID-19, child, government, student, ban, compulsion, vaccine, the Ministry of Education, an exam, Yoo Eun-hye, responsibility	• Even in this situation, the incompetent Yoo Eun-hye insists on in-person classes for students to conduct biological experiments! • The Ministry of Education, which continues to enforce in-person attendance, needs to be prepared to take full responsibility. It's a responsibility that ignores the safety of the children! • Let's close the kindergartens and switch to online classes for students, right now!

"curse," "reaction" and so on. Topic 4 encompassed key terms such as "instructor," "academy," "Itaewon," "lie," "club," "gay," "Shincheonji," "claims," "damage," "punishment," "mess," "infection," "spread," "the right of indemnity," "a gay club," and similar examples related to blaming the academy instructor who visited a gay club in Itaewon and Shincheonji Church members for their alleged contribution to previous mass infections, as well as connecting them to the mass infection caused by Coupang delivery workers. Topic 5 was labeled "sympathy for Coupang delivery workers' work environment" as indicated in the key terms "Coupang," "delivery," "shipping," "virus" "quick," "box," "hardship," "dawn," "worry," "sorry," "thank," and so on.

Topic 6, labeled "concerns about infection in daily life" included key terms such as "COVID-19," "people," "the public," "asymptomatic," "work attendance," "first-birthday party," "family," "school," "infection," "symptom," "company," "parents," and "worry" that express the public's concerns about COVID-19 infection in various situations in their daily lives. Last, Topic 7 was labeled "education-related policies and concerns" as we found the following key terms: "go to school," "starting school," "school," "distance," "COVID-19," "child," "government," "student," "ban," "compulsion," "vaccine," "the Ministry of Education," "an exam," "Yoo Eun-hye" (the minister of education during the COVID-19 pandemic), and "responsibility."

Figure 6 shows that the ratios of all seven topics exhibited varying fluctuations over time. There were no topics that addressed stigma components. Among them, Topic 5 stood out with a higher proportion compared to the other topics and displayed an upward trend starting one
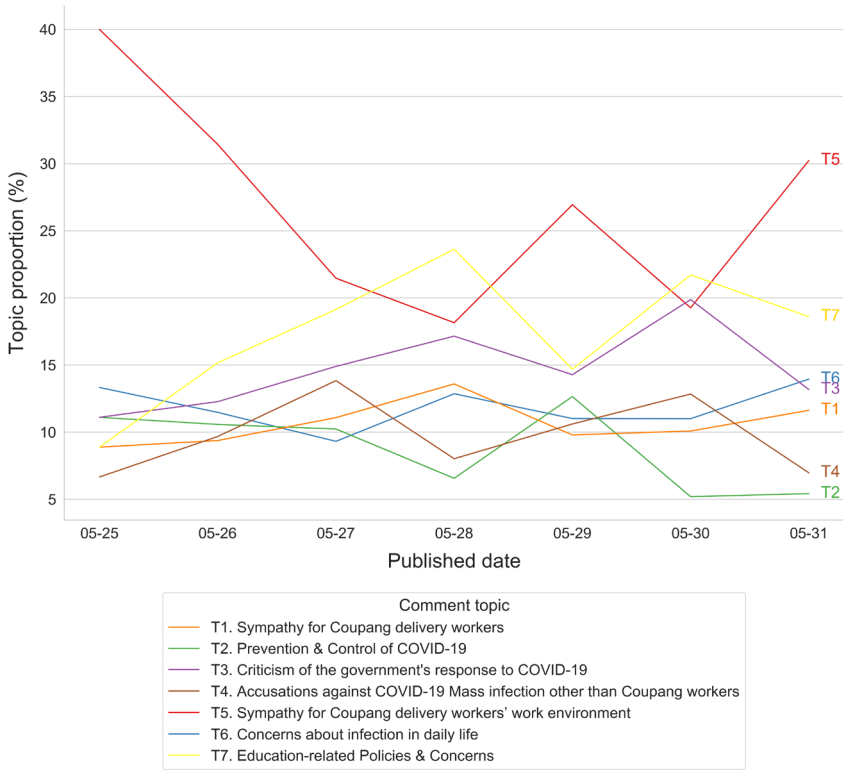
FIG. 6.— CHANGES IN THE PROPORTION OF CALL CENTER WORKER-RELATED
TOPICS OVER TIME

week after the initial newspaper article on Coupang delivery workers was
published.

DISCUSSION

The present study analyzed data related to the social stigma caused by
COVID-19 infection and spread, gathered from online news and news
comments on popular platforms in Korea. We compared social stigma across
four groups and through this comparison, we sought insights into the degrees
of social stigma experienced by these groups and how it relates to their
respective circumstances, particularly regarding the COVID-19 pandemic.
We found that some minority groups were perceived either as perpetrators or

victims of COVID-19 mass infection, with certain groups facing double stigma. The first two groups—referred to as "perpetrator" minority groups—were subjected to negative perceptions that extended beyond the pandemic context. These included Shincheonji Church members and individuals from a sexual minority group associated with a club in Itaewon. In contrast, the other two groups were more often perceived as "victims" of the mass infection. These include Coupang employees and call center workers, who garnered public sympathy after contracting the virus while working in poor conditions that did not meet quarantine regulations. Regarding the religious minority group of Shincheonji Church members and the sexual minority group associated with Itaewon, our analysis used the framework outlined by Link and Phelan (2001). This framework encompasses various components of the stigmatization of minority groups. Across seven distinct topics, we identified the presence of stigma processes, including labeling, association with negative stereotypes, separation, and the experience of loss of social status among religious minorities, such as Shincheonji Church members. Similarly, within the discourse on sexual minorities, we identified topics that revolved around distinction/labeling, negative stereotypes, and a sense of loss of societal status.

While our dataset showed significant stigma against these two minority groups, we also observed instances in which they became targets of stigma within discussions involving occupational minority groups. For instance, during conversations about call center workers, blame was attributed to Shincheonji Church members for contributing to the mass infection. Similarly, in the discourse concerning Coupang delivery workers, both Shincheonji Church members and individuals from sexual minority groups were blamed.

Our comprehensive analysis illuminated the multifaceted nature of stigma, extending beyond specific contexts and intersecting different minority groups, thereby providing a deeper understanding of its dynamics during the COVID-19 pandemic. Most importantly, the analysis of the dataset highlighted the presence of a noteworthy phenomenon known as double stigma. This was particularly evident in the case of Shincheonji Church members, who faced stigmatization not only for their association with the pandemic but also because they were labeled as heretics. Similarly, the gay community experienced double stigma regarding the connection between AIDS and their identity. These findings contribute to the literature on double stigma by providing insight into the extent of its manifestation.

Intriguingly, the absence of stigma-related topics in the dataset regarding

the "victim" minority groups—specifically, the occupational minority groups—is notable. This departure from previous findings, where COVID-19 diagnoses and individuals connected to spreaders were often stigmatized as viral transmitters (Srivastava 2020), was intriguing. A plausible explanation for this divergence is that these occupational minority groups, which were predominantly infected in their workplaces, are composed of a significant number of socioeconomically disadvantaged individuals. Instead of focusing on stigma-related topics, discussions of these occupational minority groups have revolved around non-stigma-related matters. The topic of blaming the government and sympathy emerged prominently within these conversations.

Call center and Coupang workers differ from the general population, as they were infected in the everyday space of their workplace. Rather than focusing on stigma-related issues, discussions among these "victim" minority groups have centered on non-stigmatizing topics. Notably, themes of government blame and sympathy have emerged, reflecting expressions of concern and social support for these groups. Interestingly, they attribute the outbreak to government failures. The general public may perceive workplace outbreaks as something that could happen to anyone. In this context, placing blame on the government is significant: the public's support for these occupational minorities may stem from not viewing them as a distinct minority.

Remarkably, the proportion of sympathy expressed for the Coupang delivery workers surpassed that of other topics over time. This observation underscores the potential of sympathy as a factor that counteracts the negative impacts of stigmatization. An important implication is that the interaction between sympathy and social stigma seems to take precedence over the stigma itself. It is important to note that this interaction, which reveals how sympathy can mitigate the effects of social stigma, presents a novel perspective that has not been extensively discussed in the existing literature on double stigma.

The findings highlight how information-seeking on social media enhances social learning in specific situations or circumstances. That is, people observe and judge others by sharing their own perceptions and information, which solidifies collective attitudes or opinions (Bae and Yi 2017; 2019). The driving and building of public opinion by the media was identified as a major topic. People express their opinions and adjust their thoughts or attitudes by seeking information about what others think and how they act (including the media). This suggests that while media may impact the creation of public opinion, citizens more powerfully form social

perceptions or learn social norms by considering the reactions of others.

According to previous studies (Klik et al. 2019; Schnyder et al. 2017), stigma hinders help-seeking. Stigma is typically associated with serious diseases. In the case of COVID-19, such stigma inhibited immediate testing and treatment, increasing the spread and, as in our examples, leading to super transmission. Therefore, one desirable role of social media is to reduce stigma and provide information to help form correct perceptions or social norms for stigmatized groups in scaffolding information that discusses stigmatized diseases. The findings of the present study indicate that sympathy for and/or perceptions of those diagnosed with COVID-19 as victims rather than perpetrators effectively reduced stigma. Hate speech tends to spread easily on social media; therefore, systems are required to reduce its pernicious effects. Some previous studies (Hajjem and Latiri 2017; Li et al. 2018) offered insights into improving the current Cleanbot tool by developing systems that filter comments containing hate speech in online news comments in real time based on topic modeling. This has the potential to remarkably contribute to the mitigation of stigma.

While providing valuable insights, this study acknowledges certain limitations that should be addressed in future research. Our examination exclusively focuses on the COVID-19-related double stigma prevalent among minority groups, as observed in Naver News and in the associated comments. This scope excludes prominent social media platforms, such as Twitter, Facebook, and Instagram. Given that different platforms often present diverse interactions, visual content, motivations, and emotional expressions concerning the same subjects (Thelwall and Vis 2017; Waterloo et al. 2018), it is plausible that varying discourses might emerge across different formats. This unexplored area is a promising avenue for future studies. In addition, our study did not include the individual characteristics of the participants, such as age, gender, race/ethnicity, educational attainment, religious affiliation, and sexual orientation. A prospective avenue for future research could delve into the influence of demographic characteristics on the prevalence of double stigma in the context of COVID-19. Lastly, the varying perceptions and discourse among different minority groups could be influenced by the timeline of the COVID-19 pandemic. This suggests caution when interpreting the findings, as there is a possibility that Koreans' perception of crisis, danger, and distress diminished over time as the pandemic progressed, as highlighted in earlier studies (Kimhi et al., 2020; Shuster et al., 2021). Since Shincheonji was the first group to experience a mass outbreak, they may have been particularly vulnerable to double stigma.

Conclusion

Our findings illuminate how minority groups with different identity-based characteristics are stigmatized on social media in the context of COVID-19. This study identifies sympathy as a powerful virtue that reduces or mitigates social stigma. It is intriguing that the public tended to show sympathy for people who contracted COVID-19 due to poor working conditions or jobs—a set of circumstances that overrode the stigma of having the virus—whereas the public applied a strong double stigma against a pseudo-religious group, even more so than against a sexual orientation-based minority group. Our findings on the critical roles of sympathy and/or distinctive perceptions of double stigma contribute to enriching the existing literature on double stigma. Future research is needed to identify potential factors or virtues beyond sympathy that bolster or lessen social stigma and reduce discrimination against identity-based groups.

Our findings provide practical insights into reducing discrimination against stigmatized groups. Interventions can be effective in facilitating understanding of or concern for minority groups through campaigns or movements on social media. Above all, it can be inferred that people's thoughts and opinions on social media are important in shaping other people's perceptions; thus, information-seeking on social media promotes social learning and/or the development of social norms, particularly in new and uncertain situations.

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