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Religiously Polarised Message Diffusion on Social Media

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Abstract. The study intends to examine the relationship between religious polarisation and message diffusion on social media. Communal and religious messages are shared heavily on social media such as Facebook, WhatsApp, and Twitter (Purnell & Horwitz, 2021). The diffusion of such messages translates into real-life crises many times. The study aims to collect and use the tweets collected using a Twitter API to examine the relationship. We plan to encode the religious polarity of messages manually as religious polarisation is a complex subject. The study uses the diffusion of innovation theory (Rogers, 1962) to understand the diffusion of religiously polarised messages on Twitter. In the study, we propose to test if religious polarisation diffuses more than non-polarised tweets and whether negatively polarised tweets disseminate more than positively polarised tweets. The proposed hypotheses will be tested using Twitter data which will be collected using Twitter API about a religious congregation. The paper aims to contribute to understanding the diffusion of religiously polarised messages on social media and hence to policymakers and governing bodies to mediate the spread of hatred and communal messages on social media.

Keywords: Polarisation, Message Diffusion, Religious Polarisation, Social Media, Diffusion of Innovation, Negativity Bias

1 Introduction

Social media gives users a stage to discuss and share information. However, at the same time, it poses a threat of spreading hatred, false news, and misinformation which even leads to real-life crimes sometimes (Chan, Ghose, & Seamans, 2016). One of the vital issues is religious hatred in religiously polarised messages (Soundararajan, T., Kumar, A., Nair, P., Greely, 2020). The extant literature on social media information diffusion focuses highly on the sentiment and content of messages in viral/online marketing (Ullah, Amblee, Kim, & Lee, 2016), diffusion of false information or rumour (Oh, Manish, & Rao, 2013; Volety, Valecha, Vemprala, Kwon, & Rao, 2018), information travel during and after a disaster (natural or human-made) (Pang & Ng, 2016). On many social media platforms, such as products of Facebook,

Facebook, and WhatsApp content diffusion is heavily communal. The communal messages diffused over such platforms even translated into communal riots in February 2020 in the capital city of India (Purnell & Horwitz, 2021). The diffusion of religiously polarised messages on social media is a grave concern but the research paucity on the topic. In this essay, we test the relationship between tweets' religious polarity and diffusion using diffusion of innovation theory as a lens. The study will help us better understand the dissemination of religious polarisation on social media. Social media research is heavily focused on content features such as hashtags, URL inclusion, sentiment (emotions) of the message, and network features such as the number of followers associated with information diffusion (Stieglitz & Dang-Xuan, 2013). It has been shown that the presence of negative emotions/sentiments, the subject of the tweet, and the number of followers of the publisher of the tweet affect the message diffusion (Stieglitz & Dang-Xuan, 2013). We focus on the religious polarity of tweets and their impact on message diffusion. We propose that religiously polarised tweets will diffuse more than not polarised tweets due to the presence of extremity displayed in the tweets. Social media such as Twitter facilitate speedy information dissemination, leading to public opinion formation (Vosoughi, Roy, & Aral, 2018). Although most information and news consumption are guided by social media (Vosoughi, Roy, & Aral, 2018), we lack understanding their contribution in disseminating religious polarity online.

Existing literature discusses the role of different emotions present in the tweet's content, the sentiment of the tweet, and whether the tweet is accurate or not on its diffusion on social media. However, inquiries are lacking on how religious polarisation spreads on such platforms or if religious polarity plays a role in the fast diffusion of messages on social media. Understanding such diffusion on social media is required as social media is creating public opinion, setting trends, and is capable of causing panic or stress situations (Henry, Stattner, & Collard, 2017). This study proposes two hypotheses: religiously polarised tweets spread more than non-polarised, and negatively polarised tweets spread more than positively polarised ones.

2 Literature Review

Information diffusion studies have a long history in communication, social, and computational sciences. Other than that, researchers in marketing and business have always been curious about factors that influence message diffusion in the context of viral and online marketing (e.g., Ullah et al., 2016). With time message diffusion research started focussing on different social media platforms such as SNS, weblogs, picture-sharing platforms, and others. However, a large set of research was inclined towards Twitter (e.g., Lee, Agrawal, and Rao 2015; Oh, Eom, and Rao 2015; Oh, Manish, and Rao 2013; Volety et al. 2018) as it was becoming a most popular medium to put opinions and platform for accessing news, especially during a crisis. As of 2022, Twitter has 436 million active users per month (Statista, 2022), making it one of the most used social networking sites. Now, Twitter has evolved to be a platform for the public to share and discuss any topic ranging from public policies, crises and calling out different entities (organizations, politicians, ministers, policies, practices, actions). Tweets reach several users by word-of-mouth, impacting trends and contributing to public opinions about the subject of the tweet in society (Pang & Ng, 2016). Extant literature has shown the impact of the user's influence (J. Lee et al., 2015), the sentiment of the tweet (Stieglitz & Dang-Xuan, 2013), the distance between the place of crisis and the user who is tweeting (Volety et al., 2018), mood displayed in the tweet, use of URLs, use of hashtags on the extent to which a tweet is diffused.

2.1 Message Diffusion on Twitter

The researchers have inquired about the content of messages that impact their diffusion on social media. Studies such as Stieglitz and Dang-Xuan (2013) dwell on how the sentiment of tweets impacts the extent of diffusion by retweeting and the rate of retweeting. Gruzd (2013) claims that users post more positive tweets than negative ones, and positive tweets spread more than negative, suggesting the Twitter user interface is partially responsible. However, Stieglitz & Dang-Xuan (2013) stated that though sentiments spread more on Twitter, negative sentiments diffuse more than positive ones. Researchers also investigated the role of different sentiments, such as

visual and textual, on information dissemination and found out that visual and textual sentiment dissonance enhances the shareability of information (Yim, Gao, & Khuntia (2020). The sentiment analysis lacks the understanding of the emotions of tweets and their impact on diffusion by retweeting. Researchers then focused on the impact of emotions on message dissemination. Kwon & Gruzd (2017) studied the emotions present in the comments of a YouTube video and found out negative emotion like anger is mimicked and displayed more in subsequent comments if earlier comments display similar emotion. Berger (2011) claimed the content with emotions creating more psychological arousal, such as disgust, is shareable than emotions that evoke low psychological arousals, such as sadness or contentment. Chang et al. (2015) used the elaboration likelihood model to explain the impact of the persuasiveness of messages, measured by argument quality, post popularity, and post attractiveness on the intent of users to like and share the messages in the context of media marketing.

One significant stream of literature on Twitter information diffusion is rumour/non-rumour diffusion amid crises and fake news dissemination (Vosoughi, Roy, & Aral, 2018). Researchers have studied the impact of emotion, i.e., anxiety, ambiguity of information provided in the tweet, the tweeter's involvement, and its impact on rumormongering (Oh et al. 2013). Additionally, studies have found the significant impact of the number of followers, reaction time, and hashtags in the diffusion of information on Twitter measured by the number of retweets (J. Lee et al., 2015). The literature on social media diffusion is skewed by the diffusion of sentiments, emotions, and fake/false information on social media.

In addition, social media research vastly covers research on communicative responses during/immediately after crises and disasters (Spence, Lachlan, & Rainear, 2016). J. Lee et al., (2015) studied the message diffusion during the extreme event of a man-made disaster and claim that number of followers and hashtags positively impact message diffusion on Twitter. Heo, Park, Kim, & Park (2016) discloses that social media allows users to consume information about some events and enables them to form its discourse. Pang & Ng (2016) studied an ongoing riot and found that emotive cues were dominant in the beginning, predominantly negative sentiment, but tweets with positive sentiments were more likely to be shared. The dissemination of

messages on Twitter is vastly measured using retweet counts, and it is positively influenced by the number of followers and the use of hashtags in every context of information dissemination research.

In social media research, scholars have explored the polarisation of content on social media. Polarisation means extreme opinion towards an issue, group, or agenda (Buder et al. 2021); therefore, extremity (extreme positive or negative position towards a religion) to any religion is considered religious polarisation. The study found out that tweets become affectively polarised, whereas on social media platforms WhatsApp and Facebook, depolarisation happens over time. Hong & Kim (2016) also proves that politically polarised messages by politicians get more readership on Twitter, suggesting that they may be motivated to deliver a polarizing discourse to increase the reach of their opinions. The extant literature is concentrated on political polarisation diffusion on social media, whereas religion-based nationalism highly impacts politics and political control (Poruthiyil, 2020). We propose to study the diffusion of religiously polarised messages on social media by measuring the religious polarity of tweets and exploring its impact on tweet diffusion.

3 Theoretical Background and Hypothesis Development

3.1 Diffusion of Innovation Theory

Diffusion of innovation theory (DOI) was introduced by Rogers (1962), where he defined diffusion by four main elements as the process by which an **innovation** is communicated through specific **channels** over **time** among the members of a **social system**. Innovation is an idea, practice, or object perceived as new by an individual where perceived newness is not drawn from just new knowledge but persuasion or a decision to adopt the innovation. DOI is vastly used in a myriad of domains of Information systems research, such as the adoption of technological innovation, message diffusion on Twitter (J. Lee et al., 2015), and the influence of virtual community interactions on innovations (Stanko, 2016). The practice of sharing or forwarding messages (posts, links) via social media or email can be understood as information diffusion or innovation adoption (Weber, Garimella, & Batayneh, 2013). Also, the diffusion of messages associated with social issues is akin to the diffusion of innova-

tion (J. Lee et al., 2015). Religiously polarised messages are high in emotion and connected with social issues. Therefore, this essay examines the diffusion of religiously polarised messages by applying DOI by considering retweets, Twitter, and the public affected by message diffusion, communication channel, and social system, respectively. The context of our study is a congregation event in Delhi, India. The controversial congregation amid the pandemic was a unique type of extreme event as the world was facing a pandemic after more than a decade. We used diffusion innovation theory as a lens to study diffusion by retweets and replies.

This essay explores the difference between religiously polarised and religiously non-polarised information diffusion. According to Stieglitz & Dang-Xuan (2013), emotionally charged messages get faster retweets than neutral messages, and negative sentiment travels faster than positive sentiment. Polarisation means extreme opinion towards an issue, group, or agenda (Buder et al. 2021); therefore, extremity to any religion is considered religious polarisation. The extremity in attitude implies polarisation (Weber, Garimella, & Batayneh, 2013); therefore, in our context, aggressive support for religion and blatant unkind remarks toward religion are considered polarised tweets and rest as non-polarised tweets. This extremity is measured by emotions in the tweets, implying that the religiously polarised tweets have a higher emotion charge than non-religiously polarised tweets.

Therefore, we developed hypothesis 1 as follows:

Hypothesis 1: Religiously polarised messages diffuse more than non-religiously polarised messages.

3.2 Negativity Bias

Human beings give weight to negative entities compared to positive entities because of their innate disposition and experience (Rozin & Royzman, 2001). This human behaviour is called negativity bias. People feel more impact of an equivalent negative entity than the positive entity (negative potency). Stieglitz & Dang-Xuan (2013) state and prove that negative sentiment travels faster and more than positive sentiment on social media. People's bias to negativity contributes to more diffusion of

negatively religiously polarised tweets than positively religiously polarised ones. Therefore, we propose:

Hypothesis 2: Negatively religiously polarised tweets diffuse more than positively religiously polarised tweets.

4 Proposed Methodology

The data for the study will be collected by using Twitter API for a hashtag that was regarding a religious congregation occurred in Delhi, India in March 2020. After collecting and cleaning the data we plan to extract dependent variable, religious polarisation from every tweet. Each tweet will be encoded using modified guidelines provided by Yardi and Boyd (2010) and Kelly, Fisher, and Smith (2005) to annotate polarity. The independent variable, message diffusion will be measured by number of retweets of a tweet (Oh et al. 2013). The diffusion of messages on twitter is positively influenced by number of followers, presence of hashtags, and presence of URL(s) in the tweet (Stieglitz & Dang-Xuan, 2013). In our research model (figure1) we plan to control for all three variables to test our hypotheses.

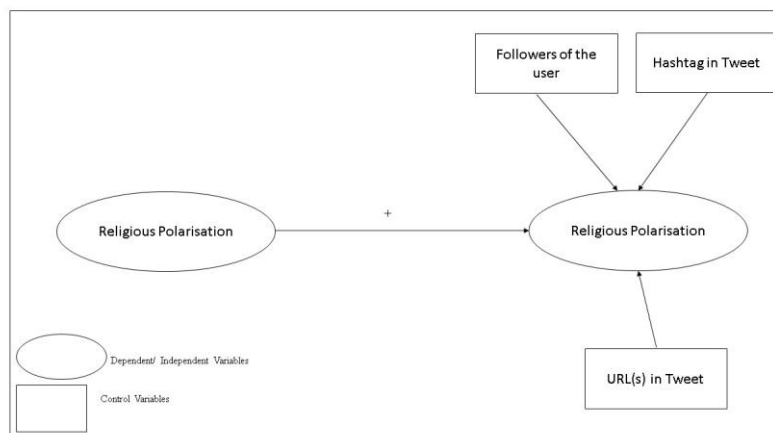


Fig. 1. Research Model

5 Concluding Remarks

In this paper, we intend to address the problem of diffusion of religiously polarised messages on social media. We plan to use Twitter data (tweets and other features of tweets) to examine the hypotheses mentioned earlier. This work aims to understand the role of religious polarisation on message diffusion on social media, which can be helpful for policymakers and governing bodies to mediate the spread of hatred and communal messages on social media. This study provides a model to test the role of religious polarisation on social media message diffusion and can be a stepping stone for future researchers to test the relationship in different contexts. We plan to extend the study to one more context of religious polarisation to increase the generalizability of the model used in the study.

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