

Echoes of War: How Reddit Narratives Shape Sectarian Views of the Israel-Hamas War

Ian McCulloh
Whiting School of Engineering
Johns Hopkins University
Baltimore, MD 21218
imccull4@jhu.edu

Ryan Bergamini
Whiting School of Engineering
Johns Hopkins University
Baltimore, MD 21218
rbergam1@jh.edu

Charles Mackey
Whiting School of Engineering
Johns Hopkins University
Baltimore, MD 21218
cmackey5@jhu.edu

Abstract— This paper investigates the complex dynamics of the Israel-Hamas war that began on October 7, 2023, focusing on its impact on sectarian attitudes as well as attitudes toward the conflict itself. The research employs a comprehensive methodology, including narrative analysis of Reddit discussions using term-frequency-inverse-document-frequency (TF-IDF) encoding, Word2Vec, and clustering techniques to identify distinct narrative perspectives. Additionally, we adapt a validated scale of Islamic sectarianism to measure antisemitism and Islamophobia, confirming its internal consistency in our study context.

A novel scale developed for this study measures general attitudes toward the Israel-Hamas war. Through item analysis, one of the eight questions was rejected due to inconsistency, with the remaining seven showing strong internal consistency. Our findings indicate no significant change in sectarian attitudes before and after exposure to social media content, as expected. However, general attitudes towards the conflict exhibited a significant shift ($T=6.8843$, $p<0.0001$) favoring Israel following exposure to specific Reddit narratives.

Interestingly, age emerged as a significant factor, with younger survey respondents showing a more substantial shift in general attitudes ($p < 0.05$). Narrative exposure and age combined explain approximately 20% of the attitudinal changes observed. Notably, only one Reddit narrative demonstrated a significant impact on shifting attitudes. This study also notes that the high proportion of Jewish respondents (40%) may influence the findings.

These insights underscore the complex role of online narratives in shaping public opinion during geopolitical conflicts and highlight the importance of nuanced measures in understanding these dynamics. The research contributes significantly to the discourse on conflict-related narratives and their broader social ramifications.

Keywords—Reddit, Israel, Hamas, Palestine, Online Influence, Social Media, Sectarianism

I. INTRODUCTION

On October 7, 2023, the longstanding conflict between Israel and Hamas escalated dramatically, marking a significant intensification of violence that has not only destabilized the region but has also captured global attention in unprecedented ways [1,2,3,4]. This resurgence of conflict began with a severe and unprecedented attack by Hamas militants, who infiltrated Israeli territory causing numerous casualties and taking hostages. This aggressive act triggered a robust military retaliation from Israel aimed at targeting Hamas positions and securing the release of hostages. The rapid escalation led to widespread fighting, severe implications for regional stability, and increased global

humanitarian concerns. This conflict, while severe, has paradoxically garnered more international media and public attention compared to other contemporary conflicts, such as those in Syria or Yemen, which have seen substantially higher casualties and human suffering.

This paper aims to delve into the impact of varying narratives surrounding the Israel-Hamas conflict on sectarian attitudes toward religious and political identities that are not directly involved in the war. By analyzing the portrayal of the conflict by different media outlets, political leaders, and social platforms, this study assesses the influence these narratives have on shaping public perceptions and broader societal attitudes. The focus is not just on the narratives but also on the intense reactions these narratives provoke within and across communities, potentially escalating or mitigating sectarian tensions.

The research is driven by the primary question: How do different narratives about the Israel-Hamas war impact sectarian attitudes towards religious and political identities not directly involved in the conflict? This question is critical in understanding the broader social ramifications of conflict-related narratives and their role in either exacerbating or alleviating tensions.

Interestingly, while the conflict itself involves direct violence affecting thousands, the narratives surrounding it have sparked extensive reactions worldwide. In the United States, for instance, there have been significant pro-Hamas protests in many major population centers, alongside reports of increased anti-Semitism. This phenomenon of heightened global engagement, especially compared to other conflicts with higher death tolls, suggests a unique pattern of public and media engagement that this paper seeks to explore.

Further complicating the public discourse are the attitudes shifted and shaped by social media platforms. As part of our comprehensive methodology, we have adapted a validated scale of Islamic sectarianism to measure antisemitism and Islamophobia, introduced a novel scale to assess general attitudes toward the war, and quantitatively analyzed these attitudes through sophisticated statistical tools. These methods have revealed critical insights, such as the lack of significant change in sectarianism after exposure to social media content, and a notable shift in general attitudes favoring Israel following engagement with certain narratives on platforms like Reddit.

By investigating these dynamics, this research contributes significantly to the discourse on how modern conflicts are perceived and reacted to globally, highlighting the powerful role of media and narrative in contemporary geopolitical conflicts.

II. BACKGROUND

The ongoing conflict between Israel and Hamas has not only profound geopolitical implications but also significant social impacts that ripple across the globe, particularly reflected through various media narratives. This conflict, with its deep-rooted historical, religious, and cultural dimensions, presents a unique case study for examining how narratives in digital platforms influence public perception and sentiments. Given the vast amount of unstructured data on social media platforms like Reddit, where diverse global audiences express opinions, analyzing these sentiments becomes both viable and essential. This study focuses on the Israel-Hamas conflict as discussed on Reddit, seeking to understand how different narratives potentially shape public attitudes toward Jews and Muslims and influence views on the conflict's related political and military actions.

III. METHODS

Data were collected from Reddit, specifically targeting threads and posts discussing the Israel-Hamas conflict. This platform was chosen due to its active user base and the wide range of opinions represented, making it a valuable resource for understanding public sentiment and narrative structure. Text analysis was performed to cluster and characterize the different conversations occurring related to the conflict. Exemplar narratives from each cluster were included in a survey along with validated scales to measure sectarian bias, attitudes toward the Israel-Hamas conflict, and demographic variables for context. It is important to note that we do not claim that Reddit is driving public opinion towards the conflict, however, we do posit that it may contain narrative discourse that is representative of those occurring in broader society and provides an objective way to sample public discourse. With this content obtained via social media, we can conduct primary research through a survey to understand how narratives may shape and change sectarian bias and general attitudes towards Israel and Hamas, while controlling for sectarianism.

A. Text Analysis

TF-IDF (Term Frequency-Inverse Document Frequency) was used to identify the importance of a word to a document in a collection, helping to highlight key terms that are frequently used in discussions about the Israel-Hamas conflict.

Word2Vec was used to understand the context within which terms are used, Word2Vec was employed to produce word embeddings that capture semantic meanings and relationships between words in Reddit posts.

Chat GPT 4 was utilized to automate the counting of posts by narrative cluster, summarize the prevailing narratives, and identify the most emblematic post for each narrative. This helped in categorizing the large volume of data into coherent themes for further analysis.

B. Survey Design

The survey designed for this study was developed to assess sectarian bias towards Jews and Muslims, and views on various aspects of the Israel-Hamas conflict, following exposure to specific narratives identified from the social media analysis. The survey incorporated demographic questions and a series of attitudinal statements, divided into two main categories: sectarian and general attitudes. Respondents provided their responses online via Qualtrics.

The first section of the survey collected demographic information from respondents, including race, gender, religion, education, and age. This data was essential to contextualize responses and analyze trends or differences in attitudes across various demographic groups.

The sectarian questions are derived from a prior series of neuroscience experiments conducted by one of the authors to understand the effectiveness of counter-sectarian interventions in Iraq [5]. McCulloh's novel sectarianism scale was internally consistent with a Cronbach's alpha of 0.78 as measured across highly sectarian Iraqi Sunnis and Shia recruited for the study [5] as well as other public opinion polls of the Iraqi population [6]. For our purposes, we replace the portion of the question about feelings toward the "opposite sect" with feelings toward "Jew" or "Muslim." As such we convert McCulloh's sectarianism scale to either an antisemitism or islamophobia scale. The sectarian questions were as follows were responses are provided as a Likert scale of "strongly agree", "somewhat agree", "neither agree nor disagree", "somewhat disagree", "strongly disagree" and a high score indicating antisemitism or islamophobia:

1. I would not mind if a qualified Jew/Muslim were my boss.
2. I would marry - or support one of my children marrying - a Jew/Muslim
3. Jews/Muslims and the average person are different in the values they teach their children (Reverse Encoded)
4. Most politicians care too much about Jews/Muslims and not enough about the average person (Reverse Encoded)
5. You can never be really comfortable around Jews/Muslims (Reverse Encoded)
6. I have often felt admiration for Jews/Muslims living in the area.
7. Jews/Muslims are less trustworthy than the average person (Reverse Encoded)
8. I have everyday life experiences similar to those of Jews/Muslims.

The questions to measure general attitudes toward the Israel-Hamas conflicts are novel and created for this study. They are measured on the same Likert scale as antisemitism and islamophobia scales. The general attitude questions are:

1. The actions taken by Israel in response to the events of October 7th are justifiable.
2. Humanitarian aid should be increased to the civilian populations affected by this conflict.
3. Israel is engaging in action that could be classified as genocide against Palestinians (Reverse Encoded)
4. The United States should maintain its military support for Israel.
5. The state of Israel has a legitimate right to exist.
6. A two-state solution should be pursued by both parties as a resolution to the conflict.
7. Hamas' actions on Oct 7th were justified (Reverse Encoded)
8. The impact on civilians in this conflict is excessively severe. (Reverse Encoded)

The survey was administered online using Qualtrics, targeting a diverse population sample to ensure wide coverage of perspectives. Each respondent was randomly assigned to one of eight narrative groups identified in the preliminary analysis of social media discussions. They would complete the demographic questions. They would also complete half of the questions for either antisemitism or islamophobia and half the questions for general attitudes before and after reading the assigned narrative to allow measurement of change, without respondents realizing they are essentially answering the same questions. This design allowed the study to measure the immediate impact of narrative exposure on perceptions and attitudes. To further examine the effects of narrative exposure, four versions of the survey were employed, varying both the order of question presentation and the target group (Jew or Muslim). This factorial design allowed for a robust analysis of the interaction between narrative type and respondent bias based on the sequence and focus of questions.

Ethical guidelines were strictly followed, ensuring anonymity and confidentiality of the survey respondents. The research also adhered to ethical standards concerning the use of publicly available data from Reddit, with considerations for privacy and the non-identification of users.

C. Data Analysis

Responses were analyzed with the RStudio statistical software, using the base and 'psych' packages to compute descriptive statistics, two-sample t-tests, and multiple linear regression. Reliability analysis using Cronbach's alpha was conducted for each set of attitudinal statements to ensure internal consistency and validity of the survey instrument.

By employing this detailed and structured methodology, the study aims to provide significant insights into how different narratives can shape public opinions and attitudes towards complex international conflicts and the communities involved.

By integrating data-driven insights with traditional survey methodologies, this study aims to provide a comprehensive understanding of how digital narratives can influence public opinion and societal attitudes during geopolitical conflicts.

IV. RESULTS

The study initiated with a comprehensive data collection phase, where a search across various subreddits related to Israel, Hamas, or Palestine yielded a substantial amount of user-generated content, comprising 9,753 posts and 70,458 comments. Subsequent analysis using unsupervised learning techniques, specifically TF-IDF and Word2Vec, facilitated the identification of eight distinct narrative clusters. This unsupervised approach provided a nuanced understanding of the prevailing discussions and sentiments within the online community.

A. Survey Data Integrity and Reliability

The survey aimed to measure changes in antisemitism, Islamophobia, and general attitudes towards the Israel-Hamas conflict. However, during the process, it was discovered that one of the four respondent groups became contaminated due to cognitive testing of the survey instrument, necessitating the exclusion of this data set from further analysis. The reliability of the scales for the remaining groups was confirmed through Cronbach's alpha, yielding scores of 0.725, 0.6794, and 0.6511 for the antisemitism and Islamophobia scales, and

0.689, 0.7539, and 0.7846 for the general attitude scales. These results affirm the internal consistency of the instruments used.

B. Findings

Analysis of the pre- and post-exposure measures revealed no significant change in antisemitism or Islamophobia among respondents, with correlations of 0.9892 and 0.9552 respectively, indicating that the narratives viewed did not substantially alter these sentiments. This is not unexpected as peoples' values tend to remain stable, especially during the short duration of this study. However, the correlation for general attitudes toward the Israel-Hamas conflict was 0.4416, suggesting a potential shift in attitudes due to exposure to the subreddit narratives. This was particularly evident in responses to one specific narrative, which was shown to significantly influence the general attitude towards a more pro-Israel stance (p -value = 0.0164, R^2 = 5.12%).

Using ChatGPT 4, we ask it to summarize the narratives in the cluster of subreddit posts and comments to create a representative theme. The theme returned was "Critiques of activism, questioning the authenticity and effectiveness of pro-Palestinian protests viewed as superficial or performative." These narratives were not addressing the issue of Israel, nor was it addressing Hamas or Palestine. Instead, it was focused on the protests and questioning the motives and objectives of protesters.

We also ask ChatGPT 4 to extract an exemplar comment from the cluster. The exemplar comment was, "How is any of this free mixing, dancing, playing the annoying dammi falastini song helping the people in Palestine? These 'protests' are just a cesspool for killing time and a break from their monotonous lives. And they think they'll get Allah's help by doing so. What a bunch of libtards." It can be seen that the arguments are not necessarily presenting purely rational points, rather they appear to invoke a more emotional response.

Further analysis using multiple linear regression indicated that age played a significant role in the change of general attitudes, with younger respondents showing a greater likelihood of shifting towards a pro-Israel perspective, especially after exposure to the narrative identified as significant. The interaction effect of age and narrative exposure was statistically significant, with the combined model achieving a p -value of 0.0006 and explaining 20% of the variance (R^2 = 20%).

These findings suggest that while specific narratives can influence public opinion concerning the Israel-Hamas conflict, the effects vary widely based on both the content of the narratives and the demographic characteristics of the audience. This underscores the complexity of narrative influence and the importance of considering demographic factors in the analysis of attitude changes in conflict-related contexts.

V. DISCUSSION

This study underscores the potential role of social media in shaping public opinion on geopolitical conflicts, specifically the Israel-Hamas conflict. By sourcing narrative content from Reddit, we were able to gather a broad spectrum of viewpoints that reflect the complexity and diversity of global opinions. Social media platforms offer a real-time, dynamic arena for the exchange of ideas, making them fertile

ground for analyzing shifts in public sentiment. Our approach highlights the viability of using social media content as representative narrative samples in public opinion research, providing insights that are both timely and relevant to current events.

The use of validated scales for antisemitism, Islamophobia, and general attitudes towards the Israel-Hamas conflict was crucial in lending rigor and precision to our analysis. These scales ensured that the attitudinal measurements were reliable and consistent across different demographic groups. The internal consistency of these scales, as evidenced by the Cronbach's alpha scores, confirms that they effectively captured the nuanced aspects of respondents' sentiments. This methodological approach reinforces the importance of robust measurement tools in conducting social research that aims to capture complex emotional and cognitive responses.

The findings from this study highlight a critical distinction between values and attitudes. While values such as antisemitism or islamophobia are deeply ingrained and evolve over a longer time, attitudes, especially those towards fluid situations like the Israel-Hamas conflict, can change relatively quickly in response to new information and perspectives. This rapid shift can be significantly influenced by the narratives encountered on social media platforms. In this context, our research observed that specific narratives could sway general attitudes toward the conflict, suggesting that exposure to particular types of content can lead to perceptible changes in public opinion.

An intriguing aspect of our findings is the suggestion that attacking the source of information and casting doubt on their motives may be a more effective strategy for influencing public opinion. This approach to 'source discrediting' aligns with theories of persuasion and communication, which emphasize the role of source credibility in the acceptance of information. By challenging the integrity or underlying intentions of information sources, individuals or groups can shape the narrative in a way that aligns with their strategic goals. This tactic is especially pertinent in the age of social media, where information proliferation can both clarify and obfuscate the truth.

This study has advanced our understanding of how narratives on social media influence public attitudes toward geopolitical conflicts, illustrating the dynamic nature of public opinion in the digital age. Our investigation into the ongoing Israel-Hamas conflict, which erupted on October 7, 2023, highlights the fluidity of public perceptions, shaped continuously by emerging events and information. While we have captured a snapshot of the discourse at a crucial moment, the evolving nature of this conflict underscores the necessity for continuous, real-time analysis to keep pace with rapid shifts in the landscape of public opinion.

Our findings are particularly relevant for policymakers, media analysts, and scholars at the intersection of technology, media, and international relations, providing insights into how digital platforms act as arenas for narrative battles that can sway public sentiment significantly. This is especially pertinent in contexts where geopolitical stakes are high, and where the rapid dissemination of information—and misinformation—can profoundly impact international peace and security.

Future research should focus on the real-time analysis of events to capture the immediate impacts on public attitudes and explore the differential effectiveness of sectarian scales when focusing on Jews versus Muslims. Additionally, understanding the role of social media in shaping and spreading these narratives demands deeper investigation. The 'echo chamber' effect prevalent on many digital platforms can amplify certain narratives while marginalizing others, influencing public perception in ways that are not yet fully understood. As the Israel-Hamas conflict continues to unfold, so too will the narratives surrounding it, necessitating a vigilant and responsive research agenda that can adapt to the real-time nature of geopolitical crises.

In conclusion, while our study contributes valuable insights into the complex interplay between narratives and sectarian attitudes in the context of the Israel-Hamas conflict, it also highlights the ongoing need for research that can flexibly respond to new developments. This continuous approach is vital for providing the nuanced understanding required to effectively address and potentially mitigate the sectarian tensions that such conflicts exacerbate.

REFERENCES

- [1] Oct. 7: Hamas terrorists burst through border, slaughter Israelis in their homes | The Times of Israel. The Times of Israel. 2023. <https://www.timesofisrael.com/liveblog-october-7-2023/>
- [2] I. Kershner. Israel shows raw footage from Hamas attacks on Oct. 7. *The New York Times*. 2023. <https://www.nytimes.com/2023/10/23/world/middleeast/israel-hamas-attack-video.html>
- [3] Al Jazeera. What happened in Israel? A breakdown of how Hamas attack unfolded. *Al Jazeera*. 2023. <https://www.aljazeera.com/news/2023/10/7/what-happened-in-israel-a-breakdown-of-how-the-hamas-attack-unfolded>
- [4] Israel/Palestine: Videos of Hamas-Led attacks verified. *Human Rights Watch*. 2023. <https://www.hrw.org/news/2023/10/18/israel/palestine-videos-hamas-led-attacks-verified>
- [5] M. Oler, A. Johnson, ... Reforming sectarian beliefs in Iraq: Winning the peace. *Communication, Society and Media*. 2021 4(1), 8-25. <http://dx.doi.org/10.22158/csm.v4n1p8>
- [6] M. Dagher K. Kaltenthaler ... ISIS in Iraq: The Social and Psychological Foundations of Terror. Oxford University Press; 2023.