

Post-Roe Public Discourse: A Temporal Analysis of Discussion on US Abortion Law Changes

Harisahan N. Venkata
University of Maryland, Baltimore
County
Baltimore, MD, USA
dr57338@umbc.edu

Varshitha Palakurthi
University of Maryland, Baltimore
County
Baltimore, MD, USA
vpalaku1@umbc.edu

Sree Sai Bindu Devalam
University of Maryland, Baltimore
County
Baltimore, MD, USA
fm65854@umbc.edu

Md Nazmus Sakib
University of Maryland, Baltimore
County
Baltimore, MD, USA
msakib1@umbc.edu

Saquib Ahmed
University of Maryland, Baltimore
County
Baltimore, MD, USA
saquiba1@umbc.edu

Sanorita Dey
University of Maryland, Baltimore
County
Baltimore, MD, USA
sanorita@umbc.edu

ABSTRACT

The "Post-Roe" refers to the period following the June 2022 Supreme Court decision to overrule *Roe v. Wade*, the 1973 abortion right law. Since this overturn of this law, substantial public discourse was noticed across the US and this controversial issue has trended on all news media agencies and social media platforms. Several studies have analyzed public opinion and the impact of this legal change on healthcare, economic challenges, and society. However, little work has been done to identify the shift in discussion over time. Our research analyzes YouTube and Reddit comments to perceive insights into the evolving spectrum of public opinion on abortion legislation by utilizing NLP techniques and opinion mining. By systematically categorizing comments to extract themes and employing a temporal analysis approach, we identify shifts in public sentiment across different phases of time, such as immediate reactions, peak debate, and long-term responses. Our preliminary findings show that different themes prevail at different phases and primary concerns shift over time. This study might help policymakers, activists, and social commentators understand these shifts to effectively address the evolving concerns of the public and take measures accordingly.

CCS CONCEPTS

• **Human-centered computing** → **Social networks**; • **Information systems** → **Information retrieval**; • **Computing methodologies** → **Information extraction**.

KEYWORDS

Post-Roe; Abortion Law; Reddit; YouTube; Temporal Analysis; Data Visualization

ACM Reference Format:

Harisahan N. Venkata, Varshitha Palakurthi, Sree Sai Bindu Devalam, Md Nazmus Sakib, Saquib Ahmed, and Sanorita Dey. 2024. Post-Roe Public Discourse: A Temporal Analysis of Discussion on US Abortion Law Changes.



This work is licensed under a Creative Commons Attribution International 4.0 License.

CSCW Companion '24, November 9–13, 2024, San Jose, Costa Rica
© 2024 Copyright held by the owner/author(s).
ACM ISBN 979-8-4007-1114-5/24/11.
<https://doi.org/10.1145/3678884.3685648>

In *Companion of the 2024 Computer-Supported Cooperative Work and Social Computing (CSCW Companion '24)*, November 9–13, 2024, San Jose, Costa Rica. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3678884.3685648>

1 INTRODUCTION AND RELATED WORK

In 2022, the U.S. Supreme Court overturned a fifty-year-old abortion rights law, igniting significant public debate nationwide and in various online forums [11, 14, 18, 24]. As a result, fourteen U.S. states have since made abortion illegal [6]. This legal shift has sparked intense discussions across online platforms such as YouTube, Reddit, TikTok and Facebook, where users have shared their views and engaged in debates [1, 10, 25]. Since the verdict, researchers conducted numerous studies concerning the reaction of people on social platform regarding this issue.

Many studies focused on the reaction on X (formerly known as Twitter) regarding the abortion law overturn 2022. For example, one study collected a large X dataset, paving the way for further research on this controversial topic [2]. Other works explored deeper insights into public opinion and online debate on X, such as how people's trust in healthcare professionals and the system might shift after the new law [21], how people reacted on X to major legal changes related to abortion, like the overturning of *Roe v. Wade* and new abortion law [12], and the discourse among the masses and the long-term effects on U.S. politics [4]. Additionally, previous research includes a thorough analysis of Reddit discussions about abortion, revealing that public opinions on abortion are very complex and varied, not just a simple "pro-choice" or "pro-life" stance as often portrayed in public conversations [23]. Further studies on reactions from the other social platform include an analysis of personal experiences and emotional impacts of individuals waiting for abortion services after the leak of a draft regarding the abortion ruling [15], an analysis of how financial barriers affect access to reproductive healthcare and the real-time consequences for abortion seekers [7], examining the impact of proposed anti-abortion legislation on clinical outcomes and healthcare practices from YouTube and TikTok data [9]. Another study on post-Roe TikTok video analysis regarding abortion showed that videos usually include political or personal opinions rather than health information [16].

Whenever a controversial issue arises, reactions on social media and other platforms evolve over time. Temporal analysis of these issues provide valuable insights into how perceptions shift and identify significant areas that capture public attention. For instance, one study analyzed the dynamics of news events, predicting sentiment and market shifts by modeling how media responses change over time [22]. Another study conducted a survey-based analysis to uncover the evolving attitudes toward the abortion rights law, highlighting how public opinion gradually changed and how the survey questions were adjusted accordingly [3]. Additionally, research has focused on sequential reactions and discussion topics on social media during trending events [5, 13]. Inspired by these studies, our research focuses on a temporal analysis of the abortion law controversy on social platforms and we aim to investigate the following research question,

RQ: How can we categorize the main themes of discussion on online social platform surrounding the overturn of the abortion right law? And how do the concerns and priorities of people towards this controversial issue change over time?

To conduct our study, we opted for Reddit and YouTube comment data to gain deeper insights of the post-Roe online discourse. We employed different NLP techniques and thematic analysis to investigate the public concern and priorities regarding abortion law. This approach allowed us to explore comments and categorize them based on recurrent themes such as ethical, social, legal and political. We also examined the temporal dynamics of public opinion on abortion regulations, distinguishing between instantaneous responses and long-term patterns. We divided our timeframe into three main phases: the immediate phase (six months post-amendment), the peak debate phase (frequent discussion), and the long-term phase (one year prior to writing this article). For the immediate phase, we focused on providing insights into how people responded right after these legal changes. The peak debate phase highlighted the period of frequent discussion when the 2022 abortion law overturn issue was trending. Finally, for the long-term phase, we examined the topics that prevailed for a longer period since the inception of the discourse surrounding this issue.

Our findings indicate that primary concerns shift over time. Initially, social and ethical issues dominate the discussion. During the peak debate phase, legal and political concerns become most significant. However, in the long term, ethical issues regain prominence. This suggests that while political and legal aspects are emphasized during peak debate, ethical considerations eventually overshadow other dimensions.

2 METHODOLOGY

This study focused on analyzing post-Roe era public perception and discussion on two social platforms, YouTube and Reddit. We initially considered two prominent Facebook groups for our study on the abortion debate but were unable to proceed due to lack of permission as they were private. Instead, we turned to Reddit for its extensive public discussions. To complement this, we also explored prominent YouTube news channels and gathered videos from the relevant period to understand how the topics were reported and

how public discussions evolved over time. As Reddit has discussion-centric groups or subreddits, it enabled us to collect relevant data on the 2022 abortion law overturn. For our study, we used one subreddit which is based on debates surrounding abortion rights law. From YouTube, we mainly collected comments as they represent public reactions to videos published by some prominent news agencies. After collecting our data, we processed and analyzed them using different text analysis techniques to gain thematic insights. In the following part of this section, we will discuss the methodology in detail, and we have shown the detailed architecture of our study in Figure 1.

2.1 Data Collection

To collect data, we utilized the APIs for both YouTube and Reddit, adhering to their terms and policies. For the temporal analysis, we gathered data from the overturn of the law in June 2022 until the writing of this article in May 2024 and categorized it into three distinct time frames: the immediate phase, the peak debate phase, and the long-term phase. Data for the immediate phase (Phase 1) captured reactions and responses immediately following the abortion law overturn in 2022. For the peak debate phase (Phase 2), we considered the timestamps to determine the frequency of comments on YouTube and posts on Reddit identified as controversial, providing a nuanced perspective on the polarizing discussions within the community. The long-term phase (Phase 3) included comments from the most recent year prior to writing this article, offering insights into ongoing discussions.

For our study, Reddit served as the primary source for textual discourse, providing insights into community perspectives on abortion-related topics. We focused on the subreddit *r/AbortionDebate*, which has around nine thousand members and represents both sides of the debate. This subreddit facilitated in-depth discussions on abortion, allowing users to engage in varied levels of perception and argument exchange. Collecting data in different phases allowed us to capture evolving discussions and viewpoints within the *r/AbortionDebate* community over time. Leveraging PRAW (Python Reddit API Wrapper), we accessed content from this subreddit to analyze and understand the diverse array of viewpoints and arguments presented in abortion discourse. The volume and depth of discussions on Reddit provided a richer dataset compared to YouTube.

YouTube played a complementary role in our data collection. Using YouTube Data API v3, we targeted news channels (e.g., CNN, BBC, ABC News) to ensure relevance to current events and societal discourse. We extracted comments from 27 videos from these news channels, with an average of 2250 comments per video, excluding nested comments. We only included videos with frequent discussions on the subject, which allowed us to understand how topics were reported and how public discussion shifted over time.

2.2 Data Processing and Analysis

Before analyzing our data, we pre-processed all the comments collected from YouTube and Reddit. Initially, comments from both platforms were screened to confirm the language, retaining only

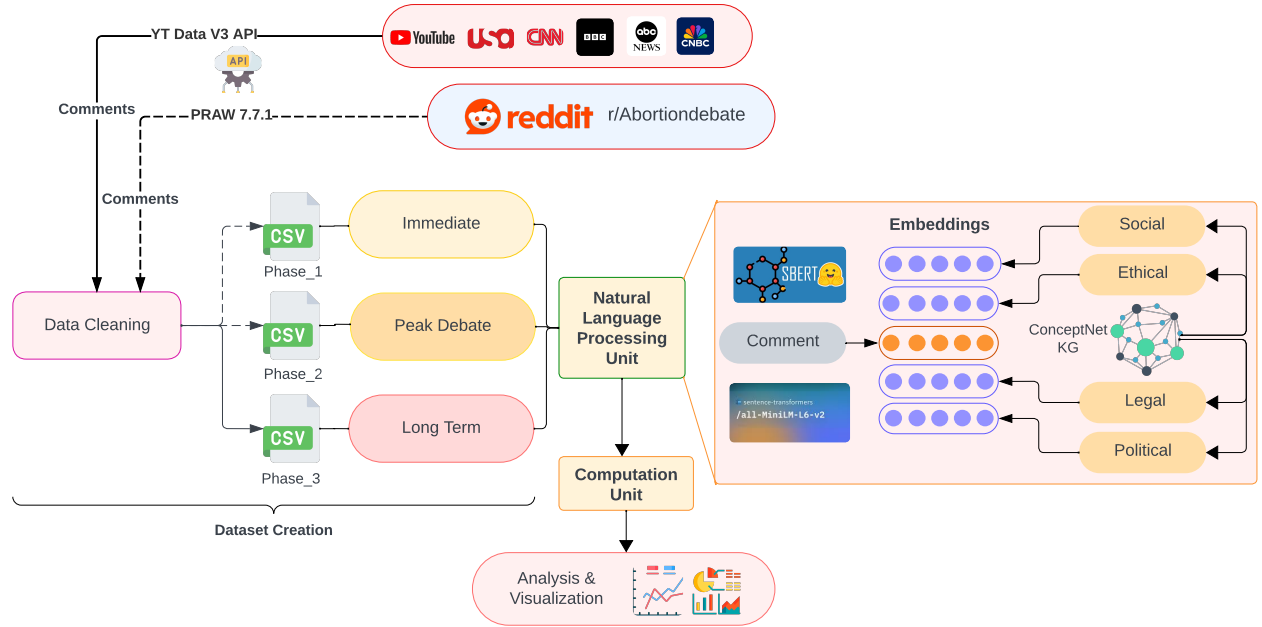


Figure 1: The architecture designed for analyzing public reactions to abortion law changes emphasizes comprehensive data processing and leverages diverse computational units for in-depth analysis and visualization, covering thematic dimensions such as social, ethical, legal, and political aspects.

those in English for further analysis. Next, we removed all nested comments to maintain a consistent level of discourse and prevent the analysis from being disproportionately influenced by lengthy, threaded discussions. Finally, we converted all the text to lowercase and removed URLs, punctuation marks, emojis, special characters, and numeric digits. We started with approximately 189K comments in our raw data across all three phases. After the pre-processing phase, we had around 22K comments, which we used for further analysis. Though our final dataset reduced to a smaller size than the original one, removing nested comments often improves data quality by eliminating noise, redundancy, and irrelevant information [8]. Focusing on core discussions can provide sufficient insights for many research objectives. Table 1 shows comparison of the data count before and after data processing across all three phases.

	Raw Data	After Data Preprocessing
Phase 1	127,659	15,765
Phase 2	11,902	4,101
Phase 3	50,154	2,277
Total	189,715	22,143

Table 1: Comparison of Data Count Before and After Pre-processing

In order to extract the insights from the textual data, we have opted for thematic analysis. To achieve this goal, we have utilized text data analysis to discover the context of those discussion. We have employed transformers, such as, Sentence Transformers (SBERT) model [17], specifically the 'all-MiniLM-L6-v2' variant which encoded textual data, including individual comments and thematic descriptions, into high-dimensional vector representations. These embedding captured the semantic meaning of the text, facilitating subsequent similarity-based analysis.

To adjust our thematic descriptions to the legal context of the overturn of abortion law [11], we utilized ConceptNet [20], a semantic network encoding common-sense knowledge. ConceptNet helped extract keywords relevant to ethical, political, social, and legal themes within the framework of abortion legislation. These keywords formed the basis of our thematic descriptions, ensuring they were specific to the discussions surrounding abortion laws.

Subsequently, we developed a pipeline to assign comments to thematic categories. This algorithm compared the embeddings of each comment to those of the predefined thematic descriptions, determining the closest theme, based on semantic similarity scores. By integrating ConceptNet-derived keywords specific to abortion law, our thematic approach captured the nuances of the discussions surrounding the 2022 abortion law overturn within the legal context. ConceptNet stands out for its extensive, organized network

of everyday human knowledge. This comprehensive knowledge graph allows for more sophisticated language comprehension and logical reasoning than conventional approaches can provide [19]. Applied to comments from YouTube and Reddit across various time-frames, our NLP-driven thematic analysis provided deep insights into prevalent topics and perspectives within the discourse. By systematically categorizing comments using ConceptNet-derived keywords, we discerned evolving trends and key concerns within the online community.

3 PRELIMINARY RESULTS AND DISCUSSION

We analyzed the findings from our analysis based on different time-frames related to the discussion. The findings reveal the complexities of the discourse around abortion in those two social media spaces. The thematic analysis outlined distinct patterns of discourse across the four dimensions, ethical, political, social and legal. Table 2 provides a few examples of comments which were categorized into different themes. Our analysis extracted keywords which helped us with our thematic analysis. For a better visualization we have used a knowledge tree shown in Figure 2. In the following part of this section, we will discuss each dimension in detail.

- **Ethical Dimension:** Comments reflecting moral principles and values surrounding abortion rights and access predominated this dimension. Keywords such as "morality," "ethics," and "compassion" were frequently encountered, indicating a strong emphasis on ethical considerations in discussions.
- **Political Dimension:** Discussions in this dimension primarily centered around the role of government and policy-making in regulating reproductive rights. Keywords like "legislation," "government," and "civil liberties" were prominent, reflecting debates on the legal framework and governmental intervention.
- **Social Dimension:** Societal norms, cultural attitudes, and grassroots movements related to abortion emerged as key themes in this dimension. Keywords such as "community," "equality," and "activism" underscored discussions on social dynamics and collective action regarding reproductive rights.
- **Legal Dimension:** Debates on the legal framework and judicial interpretations of abortion laws constituted the core of this dimension. Keywords like "Supreme Court," "constitutional," and "legal system" highlighted discussions on legal precedents and constitutional rights.

The presented visualization in Figure 3 offers insights into various dimensions of these discussions, analyzed across three distinct time frames: Phase 1, Phase 2 Peak, and Phase 3. Each pie chart illustrates the relative proportions or percentages associated with four main dimensions – Social, Ethical, Legal, and Political – during these specific time periods. The line graph visually tracks the evolution of four key dimensions across three phases. Along the y-axis, the graph represents the percentage of total comments in each time frame, indicating the intensity or magnitude of these dimensions, while the x-axis defines the three different time frames.

- **Initially, during "Phase 1",** we observed higher intensities in the Social (34%) and Ethical (33%) dimensions, suggesting Phase 1 and emotionally charged reactions to the

legal change. Conversely, the Legal (23%) and Political (9.9%) dimensions were less pronounced at this stage, indicating initial public focus on emotional and moral issues rather than legal or political aspects.

- **As the "Phase 2 peaked,** the graph revealed a notable spike in the Legal dimension (32.3%) with political discussion (31.5%) being second, likely reflecting heightened political debates and legal discussions surrounding the changed abortion laws. This spike coincided with a decrease in the Ethical dimension (16.6%), suggesting a shift in public discourse towards legal and political concerns rather than purely ethical considerations.
- **In "Phase 3",** the Ethical dimension regained prominence with the highest intensity with 46.7%. This resurgence highlights a sustained emphasis on ethical implications and moral viewpoints regarding the abortion legislation over an extended period. Meanwhile, the Political dimension remained relatively subdued, suggesting that political discourse surrounding the Phase 2 may not have been as dominant or enduring compared to social, ethical, and legal considerations.

The data indicates that the primary concerns shift over time. Initially, social and ethical issues are most prominent. During the second phase, legal and political concerns become the most significant, but in the long term, ethical issues again take precedence. This suggests that while political and legal aspects are highlighted when the topic is most trendy, eventually, ethical considerations overshadow other dimensions. This indicates that sustained and controversial situations elevate ethical considerations, and over time, regulatory and governance factors become less important. This progression implies a need for adaptive strategies that address different types of concerns at each phase.

4 CONCLUSION AND FUTURE RESEARCH

This paper presents a preliminary study of online discourse on two social media platforms, Reddit and YouTube, surrounding the controversial overturn of abortion rights law in 2022. We investigated comments on these platforms since the verdict to understand the context of the discussions and debates. Additionally, we conducted a temporal analysis of the comments across three different phases: immediate, peak debate, and long-term. We identified four recurring themes—ethical, social, legal, and political—prevailing in these discussions. Our analysis revealed that political and legal aspects dominated during the peak debate, but ethical considerations gained long-term prominence. These findings can help policymakers, activists, and social commentators understand public opinion shifts, leading to more effective communication, policy formulation, and advocacy efforts. However, these results need to be examined in larger settings for more robust claims in future work.

One of the limitations of our study was the lack of pre-2022 information relevant to the 1973 law [18], resulting in a simplified historical analysis. Consequently, our focus was primarily on post-Roe era or current occurrences, which may have limited the range of perspectives on changes in public opinion over time. Additionally, we only focused on Reddit and YouTube, and our dataset is not

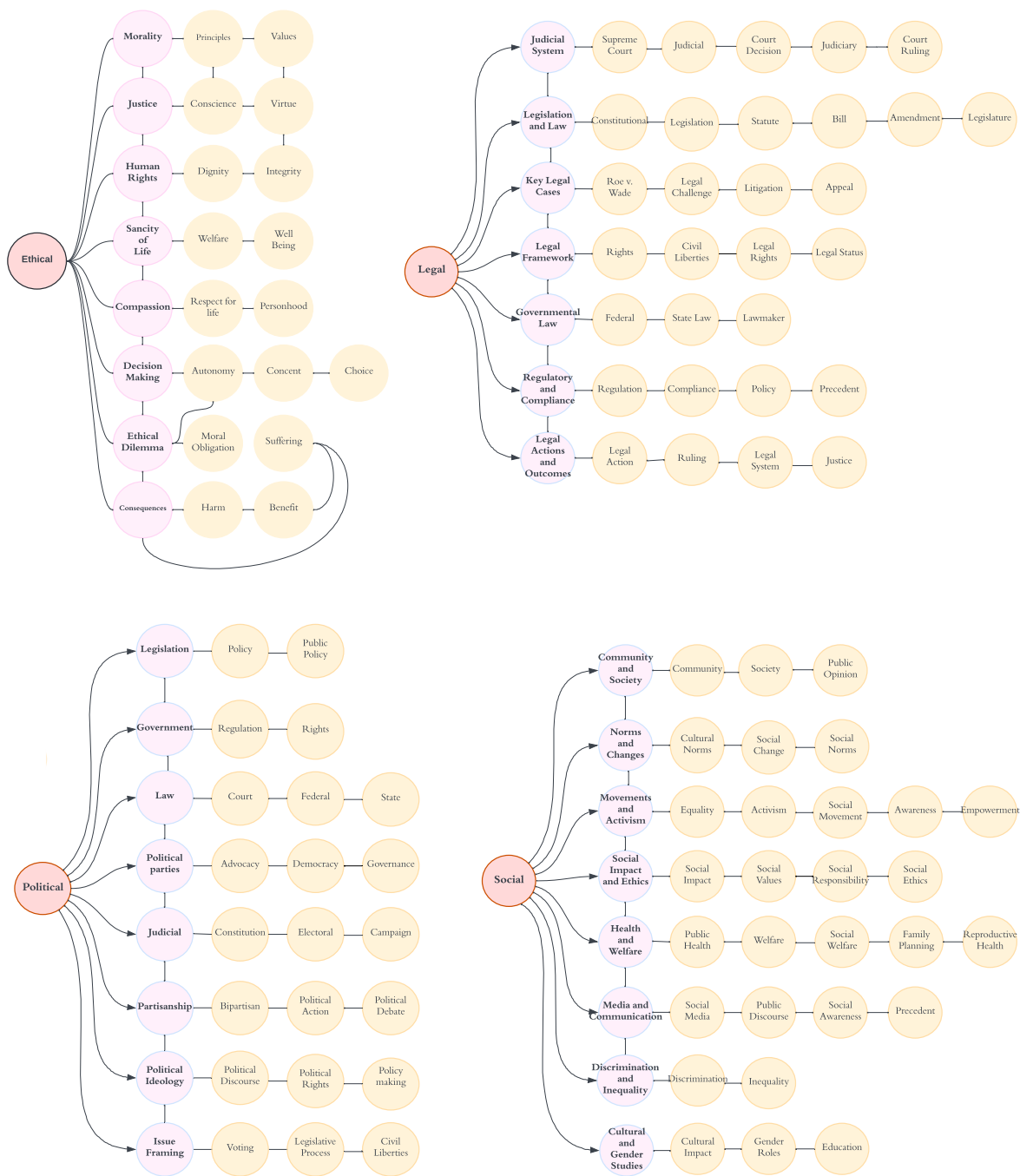


Figure 2: A knowledge tree representing hierarchical structure for analyzing ethical, legal, social, and political themes

very large. This may affect the diversity and representativeness of the data, potentially limiting the generalizability of our findings to broader online communities. In future work, we will include more social platforms (e.g., Facebook, Twitter, TikTok) and conduct our

analysis on a larger dataset, which might provide us with more comprehensive results. Additional future work could involve sentiment analysis to gauge public sentiment more accurately. As well

Theme	Example
Ethical	"abortion should only be allowed if the mother's life is in danger"
Political	"people of Texas can only blame themselves for choosing the wrong candidate; hopefully when it's time for the election, they will not forget all these things and pick the right qualified candidate"
Social	"more people are killed each year by abortion than by cancer"
Legal	"it should have always been a state's issue; overturn from the Supreme Court was the right thing to do"

Table 2: Examples of comments used to categorize the themes

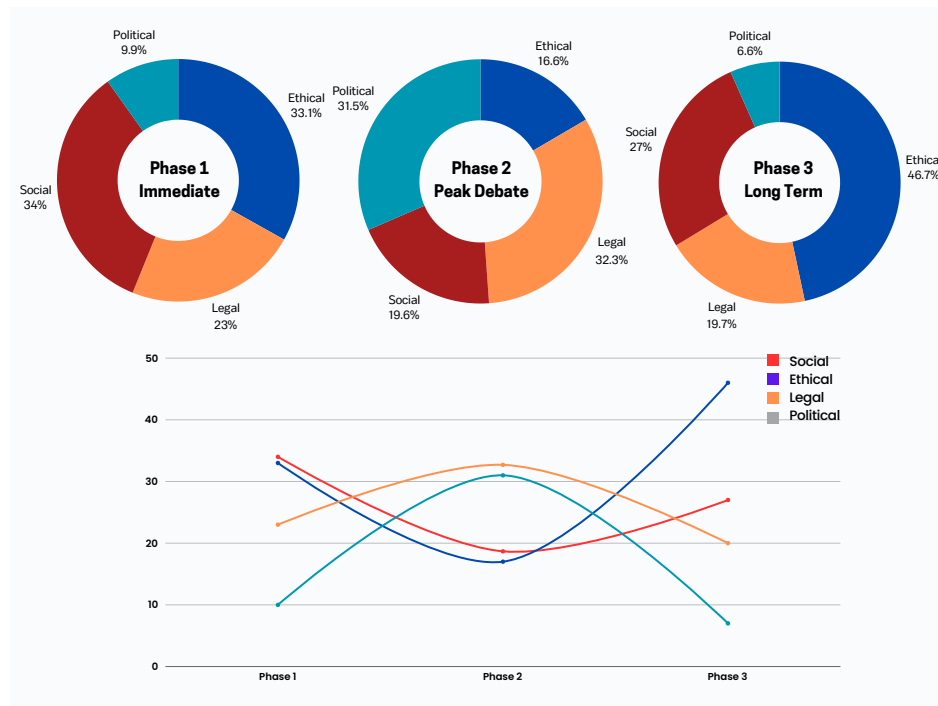


Figure 3: The distribution of social, ethical, legal, and political concerns across three phases: Immediate (Phase 1), Peak debate (Phase 2), and Long Term (Phase 3). Phase 1 shows social and ethical concerns as the most prominent. In Phase 2, legal and political concerns become significant. By Phase 3, ethical concerns regain prominence, indicating a sustained emphasis on moral viewpoints, while legal and political concerns diminish over time.

as, exploring sub-themes within each main theme would provide deeper insights into the nuances of the abortion debate.

REFERENCES

- [1] JESSIE BLAESER. 2023. How abortion coverage changed in the media, according to the data. <https://www.politico.com/news/2023/12/27/politics-rules-abortion-coverage-00131080>
- [2] Rong-Ching Chang, Ashwin Rao, Qiankun Zhong, Magdalena Wojcieszak, and Kristina Lerman. 2023. #RoeOverturned: Twitter Dataset on the Abortion Rights Controversy. In *Proceedings of the International AAAI Conference on Web and Social Media*, Vol. 17. 997–1005.
- [3] Sarah K Cowan, Michael Hout, and Stuart Perrett. 2024. Updating a time-series of survey questions: The case of abortion attitudes in the general social survey. *Sociological Methods & Research* 53, 1 (2024), 193–234.
- [4] Zehui Dai and Cory Higgs. 2024. Social Network and Semantic Analysis of Roe v. Wade's Reversal on Twitter. *Social Science Computer Review* 42, 1 (2024), 186–200.
- [5] Alexander Dunkel, Gennady Andrienko, Natalia Andrienko, Dirk Burghardt, Eva Hauthal, and Ross Purves. 2019. A conceptual framework for studying collective reactions to events in location-based social media. *International Journal of Geographical Information Science* 33, 4 (2019), 780–804.
- [6] Center for Reproductive Rights. 2022. After Roe Fell: Abortion Laws by State. <https://reproductiverights.org/maps/abortion-laws-by-state/>
- [7] Jenny A Higgins, Madison Lands, Taryn M Valley, Emma Carpenter, and Laura Jacques. 2021. Real-time effects of payer restrictions on reproductive healthcare: a qualitative analysis of cost-related barriers and their consequences among US abortion seekers on Reddit. *International Journal of Environmental Research and Public Health* 18, 17 (2021), 9013.
- [8] Chiao-Fang Hsu, James Caverlee, and Elham Khabiri. 2011. Hierarchical comments-based clustering. In *Proceedings of the 2011 ACM Symposium on Applied Computing*. 1130–1137.
- [9] Julia P Latchana. 2023. *Roe v. Wade Overturned: An Analysis of Themes in Reddit Posts and Public Interviews*. Master's thesis. Florida Atlantic University.
- [10] St. Ambrose University Library. 2024. Hot Topics: Abortion. <https://libguides.sau.edu/>

- [11] Adam Liptak. 2022. In 6-to-3 Ruling, Supreme Court Ends Nearly 50 Years of Abortion Rights. <https://www.nytimes.com/2022/06/24/us/roe-wade-overturned-supreme-court.html>
- [12] Heran Mane, Xiaohe Yue, Weijun Yu, Amara Channell Doig, Hanxue Wei, Nataly Delcid, Afia-Grace Harris, Thu T Nguyen, and Quynh C Nguyen. 2022. Examination of the Public's Reaction on Twitter to the Over-Turning of Roe v Wade and Abortion Bans. In *Healthcare*, Vol. 10. MDPI, 2390.
- [13] Miles Osborne, Sean Moran, Richard McCreadie, Alexander Von Lunen, Martin Sykora, Elizabeth Cano, Neil Ireson, Craig Macdonald, Iadh Ounis, Yulan He, et al. 2014. Real-time detection, tracking, and monitoring of automatically discovered events in social media. In *Proceedings of 52nd annual meeting of the association for computational linguistics: system demonstrations*. 37–42.
- [14] Planned Parenthood. 2022. Roe v. Wade Overturned: How the Supreme Court Let Politicians Outlaw Abortion. <https://www.plannedparenthoodaction.org/issues/abortion/roe-v-wade>
- [15] Elizabeth Pleasants, Lindsay Parham, Karen Weidert, Emma Anderson, Eliza Dolgins, Ndola Prata, Ushma D Upadhyay, and Cassandra Marshall. 2024. Waiting to start abortion: A qualitative exploration of narratives of waiting shared in a Reddit community for abortion post-Dobbs leak in 2022. *Social Science & Medicine* 349 (2024), 116877.
- [16] Zoe H Pleasure, Andréa Becker, Dana M Johnson, Kathleen Broussard, and Laura Lindberg. 2024. How TikTok is being used to talk about abortion post-Roe: A content analysis of the most liked abortion TikToks. *Contraception* (2024), 110384.
- [17] Nils Reimers and Iryna Gurevych. 2019. Sentence-BERT: Sentence Embeddings using Siamese BERT-Networks. arXiv:1908.10084 [cs.CL]
- [18] Cornell Law School. [n. d.]. Roe v. Wade (1973). [https://www.law.cornell.edu/wex/roe_v_wade_\(1973\)](https://www.law.cornell.edu/wex/roe_v_wade_(1973))
- [19] Robyn Speer, Joshua Chin, and Catherine Havasi. 2017. Conceptnet 5.5: An open multilingual graph of general knowledge. In *Proceedings of the AAAI conference on artificial intelligence*, Vol. 31.
- [20] Robyn Speer, Joshua Chin, and Catherine Havasi. 2018. ConceptNet 5.5: An Open Multilingual Graph of General Knowledge. arXiv:1612.03975 [cs.CL]
- [21] Karl Swanson, Akshay Ravi, Sameh Saleh, Benjamin Weia, Elizabeth Pleasants, and Simone Arvisais-Anhalt. 2023. Effect of recent abortion legislation on Twitter user engagement, sentiment, and expressions of trust in clinicians and privacy of health information: content analysis. *Journal of Medical Internet Research* 25 (2023), e46655.
- [22] Mikalai Tsytarau, Themis Palpanas, and Malu Castellanos. 2014. Dynamics of news events and social media reaction. In *Proceedings of the 20th ACM SIGKDD international conference on Knowledge discovery and data mining*. 901–910.
- [23] Danny Valdez, Lucrecia Mena-Meléndez, Brandon L Crawford, and Kristen N Jozkowski. 2024. Analyzing Reddit Forums Specific to Abortion That Yield Diverse Dialogues Pertaining to Medical Information Seeking and Personal Worldviews: Data Mining and Natural Language Processing Comparative Study. *Journal of Medical Internet Research* 26 (2024), e47408.
- [24] Georgia Warnke. 2023. *Legitimate differences: Interpretation in the abortion controversy and other public debates*. Univ of California Press.
- [25] Rachel Wilson-Lowe. 2023. *Talking about abortion online: A qualitative exploration of how and why women use the Internet to seek social support around abortion*. Ph. D. Dissertation. University of Glasgow.