



Thematic Framing and Sentiment in Western Media Coverage of Xinjiang: An LLM-Based Analytical Study of UK and US Reporting (2013–2025)

Abidan Ainiwaer^{1*}, Jiang Liu² and Fei Wang¹

¹ School of Journalism & Communication Xinjiang University, Urumqi, China
aabida@xju.edu.cn

² School of Cyber Science and Engineering, Wuhan University, Wuhan, China

*aabida@xju.edu.cn

Abstract. This paper examines thematic framing and sentiment in Xinjiang reporting by mainstream media in the United Kingdom and the United States from 2013 to 2025. Based on a balanced corpus of 1,800 news articles drawn from six major media outlets, the study employs a large language model (LLM) to conduct article-level thematic analysis and sentiment analysis. Article-level topic labels are consolidated into six higher-order frames: human rights issues, security and social stability, ethnicity and cultural identity, international politics and diplomatic responses, governance and crisis events, and disasters and livelihood. The results show that negative sentiment remains dominant across the corpus, although the degree of negativity varies across outlets. The findings further suggest that evaluative orientation is closely associated with recurring thematic frames rather than distributed independently of them. By integrating thematic framing and sentiment analysis in a balanced comparative design, the study demonstrates the analytical value of LLM-assisted content analysis in journalism and communication research.

Keywords: Western media coverage of Xinjiang; Thematic framing; Sentiment analysis; Large language models; Comparative media research; analytical findings

1 Introduction

Xinjiang has become one of the most visible and contested China-related issues in international news discourse over the past decade. As a politically sensitive topic involving ethnicity, religion, governance, security, and human rights, Xinjiang-related reporting in Western mainstream media has attracted sustained scholarly and public attention. For international audiences with limited direct knowledge of the region, media representations often serve as a primary source of information, shaping how the issue is understood, evaluated, and debated. In this sense, Western media coverage of Xinjiang is not merely a matter of event coverage, but also a process of constructing interpretive

frames around China, ethnic minorities, state governance, and global human-rights politics.

Within journalism and communication studies, framing is a central concept for explaining how media define problems, foreground certain causal interpretations, and embed evaluative judgments in news discourse ^{[1]-[3]}. Existing studies on China-related international reporting suggest that Western media often rely on recurring interpretive patterns when covering issues involving ethnicity, security, and human rights. However, research on coverage of Xinjiang by Western media still faces two limitations. First, many studies rely on relatively small samples or qualitative case-based analysis, which makes systematic comparison across outlets difficult. Second, sentiment and evaluative orientation are often treated as secondary to thematic content, even though issue framing and evaluative tone are closely intertwined in news discourse.

Recent advances in large language models (LLMs) provide new opportunities for communication research. Compared with dictionary-based methods or keyword matching, LLMs are better able to capture contextual meaning, latent themes, and nuanced evaluative signals in long-form journalistic texts ^{[4], [5]}. Against this background, this study examines thematic framing and sentiment in Xinjiang reporting by mainstream media in the United Kingdom and the United States from 2013 to 2025. Drawing on a balanced sample of 1,800 news articles collected from six major media outlets, the study uses an LLM to conduct article-level thematic analysis and sentiment analysis.

This study addresses three research questions:

- RQ1: What are the dominant thematic frames in Xinjiang reporting by mainstream media in the UK and the US?
- RQ2: How do thematic framing patterns differ across media outlets?
- RQ3: How is sentiment distributed across outlets and thematic frames?

2 Literature Review

2.1 Framing in International News

Framing is one of the most widely used concepts in journalism and communication studies for analyzing how media define issues, foreground certain causal interpretations, and embed evaluative judgments in news discourse ^[1]. Later scholarship emphasizes that frames are not merely textual devices but socially and culturally embedded structures shaping how events become intelligible in public discourse ^{[3], [6]}. Frames function as organizing principles that guide both journalistic production and audience interpretation.

In the context of international news, framing becomes particularly important because audiences often lack direct experience with distant events and therefore rely heavily on mediated representations. Studies on global news flows and foreign reporting suggest that media coverage is shaped not only by event characteristics but also by institutional routines, editorial priorities, and geopolitical context ^{[7], [8]}. As a result, similar events may be framed differently across media outlets, leading to variation in how issues are constructed and interpreted.

Comparative research further shows that news organizations differ in their emphasis on problem definition, causal attribution, and moral evaluation, even when covering the same topic ^[9]. This makes framing analysis particularly suitable for examining cross-outlet variation in international reporting. In this study, framing is operationalized at the thematic level, focusing on how recurring issue categories structure the representation of Xinjiang.

2.2 Sentiment and Evaluative Orientation

Although sentiment analysis is often associated with social media or user-generated content, it is also highly relevant to journalism research. In news discourse, evaluation is rarely expressed through overt emotional language. Instead, it is embedded in narrative structure, source selection, headline emphasis, and event prioritization. This makes sentiment in news texts more implicit and context-dependent than in other forms of communication.

Traditional sentiment analysis methods have relied heavily on lexicon-based approaches, which classify texts based on the presence of predefined positive or negative words. However, such methods often struggle to capture the nuanced evaluative patterns of journalistic writing ^{[10],[11]}. More recent approaches treat sentiment as an article-level attribute, emphasizing the importance of context and discourse structure ^{[12],[13]}.

In international political reporting, certain issue categories—such as human rights issues, security concerns, and crisis events—are structurally associated with negative evaluation. This suggests that sentiment is closely linked to thematic framing rather than being independently distributed across texts. Accordingly, this study analyzes sentiment in conjunction with thematic frames to better understand how evaluation is embedded in news discourse.

2.3 LLMs in Journalism and Computational Social Science

Recent developments in large language models (LLMs) have significantly expanded the methodological toolkit available to communication and social science researchers. LLMs enable context-sensitive interpretation of large-scale textual data, making them particularly suitable for analyzing long-form journalistic texts ^[4]. Compared with traditional supervised learning or keyword-based methods, LLMs can capture latent semantic structures and provide more flexible text classification.

In journalism research, emerging studies show that LLMs can be effectively applied to tasks such as framing detection, topic classification, and content generation ^{[14],[15]}. These models perform especially well in zero-shot or few-shot settings, reducing the need for extensive labeled training data. At the same time, scholars have highlighted potential limitations, including issues of reliability, interpretability, and bias ^[16].

Another important methodological concern is the use of model-generated labels in downstream analysis. Recent work emphasizes that automatically predicted annotations should not be treated as error-free variables, as doing so may introduce bias into subsequent analysis ^[17]. Therefore, LLM outputs should be interpreted cautiously and situated within a clear analytical framework.

Building on this emerging literature, the present study employs an LLM for thematic and sentiment classification, while adopting a descriptive and comparative analytical strategy. Rather than making causal claims, the study focuses on identifying patterns of thematic framing and evaluative orientation across media outlets.

3 METHODS

3.1 Data Collection and Sampling

This study focuses on Xinjiang-related reporting published by six mainstream media outlets in the United Kingdom and the United States between 2013 and 2025: the BBC, *The Times*, *The Guardian*, *The New York Times*, the Associated Press, and ABC. News texts were collected from the Lexis-Nexis database, where the target media outlets were selected and the keyword “Xinjiang” was used for the search. The collected texts were then subjected to deduplication, relevance screening, and the removal of non-news items.

To ensure comparability across outlets, the study adopted an outlet-balanced sampling strategy. From the cleaned article pool, 300 articles were randomly selected from each outlet, resulting in a balanced analytical corpus of 1,800 articles. Within each outlet, articles were randomly sampled from the outlet’s full corpus published between 2013 and 2025. This design ensures equal representation across media outlets, although it does not fully eliminate potential period effects or event-driven clustering in coverage. This limitation is acknowledged in the discussion section. The unit of analysis is the individual news article. See Table 1 for detailed statistics.

Table 1. Overview of the balanced sample by outlet.

Outlet	Country	Articles
BBC	UK	300
The Times	UK	300
The Guardian	UK	300
The New York Times	US	300
Associated Press	US	300
ABC	US	300
Total	–	1800

The use of a balanced sample is particularly important in comparative media analysis. Since the original number of articles varies substantially across outlets, direct comparison based on the full corpus may overrepresent outlets with larger publication volumes. By standardizing the sample size across outlets, this study ensures that observed differences reflect variation in framing and sentiment rather than differences in data volume.

3.2 LLM-Based Thematic Analysis

This study used GPT-5 to support article-level thematic identification. For each news article, the full text was entered into the model using a standardized prompt instructing

it to identify the dominant issue or narrative focus of the article and to generate a concise topic label or keyword set summarizing its central frame. The prompt further instructed the model to assign the primary theme on the basis of the article's overall emphasis rather than secondary or passing references. The outputs were then consolidated into six broader thematic frames, as shown in Table 2.

To validate the LLM-assisted coding procedure, a subset of 50 articles was independently coded by three human coders and compared with the GPT-5 classifications. In cases where the human coders disagreed, the final human-coded label was determined through discussion and used as the reference for comparison. The percent agreement between the human coding results and the GPT-5 classifications reached 90%. Discrepant cases were reviewed and used to refine the thematic categorization scheme. These results suggest that the LLM-assisted classification achieved a reasonably high level of consistency with human judgment.

In addition, the consolidation of model-generated labels into higher-order categories helps reduce fragmentation and enhances interpretability. This step is particularly important when applying LLMs to open-ended text classification tasks, where raw outputs may vary in granularity.

Table 2. Thematic frames and representative keywords.

Thematic frame	Representative keywords
Human Rights Issues	detention camps, forced labor, surveillance, sterilization
Security Issues	terrorism crackdown, separatism, violent incidents, security control
Ethnic Issues	Uyghur identity, Islam, religious repression, cultural assimilation
Diplomatic Issues	sanctions, UN report, parliamentary debate, diplomatic criticism
Livelihood Issues	Urumqi fire, zero-Covid, lockdown protest, censorship
Natural Disasters Issues	earthquake, relief, reconstruction, hardship

3.3 Sentiment Analysis

The study also used an LLM to classify the sentiment orientation of each article at the whole-text level into three categories: positive, neutral, and negative. Sentiment here refers to the dominant evaluative tendency of the article rather than the polarity of isolated words or quotations.

This approach is particularly suitable for news discourse, where evaluative meaning is often implicit and embedded in narrative structure rather than explicit emotional vocabulary. By focusing on article-level sentiment, the analysis captures the overall orientation of the text toward the issue under discussion.

To ensure consistency, the model was prompted to evaluate the overall tone of each article based on its main narrative rather than isolated sentences. This helps reduce noise and improves the reliability of sentiment classification across the corpus.

4 Results

4.1 Overall Sentiment Distribution

Across the balanced sample of 1,800 articles, negative sentiment remains overwhelmingly dominant. Approximately 1,572 articles are classified as negative, compared with 160 neutral articles and 68 positive articles. In percentage terms, negative articles account for 87.3% of the sample, while neutral and positive articles account for 8.9% and 3.8%, respectively, as shown in Figure 1. However, the sentiment coding framework used in this study is limited to three broad categories—positive, neutral, and negative—and does not capture gradations in the intensity of negative evaluation. Consequently, mildly critical, moderately negative, and strongly condemnatory articles are all subsumed under the same negative label. Although this simplified scheme facilitates overall distributional comparison, it may reduce the analytical sensitivity needed to distinguish finer variations in evaluative tone across outlets and thematic frames. Future research could further refine this framework by incorporating ordinal or multi-level sentiment intensity categories in order to better capture differences in the strength of evaluative framing.

This pattern reflects the issue-specific nature of Western media coverage of Xinjiang (particularly U.S. and U.K). Topics such as human rights issues, security measures, and crisis events are inherently associated with conflict-oriented narratives. As a result, the predominance of negative sentiment may not solely reflect editorial bias but also the structural characteristics of the issue itself. Such as over representation of negative sentiment suggests that reporting on Xinjiang, especially from the U.S. and the U.K, is framed primarily as a site of conflict, repression, and crisis, rather than as a region of normalcy or development.

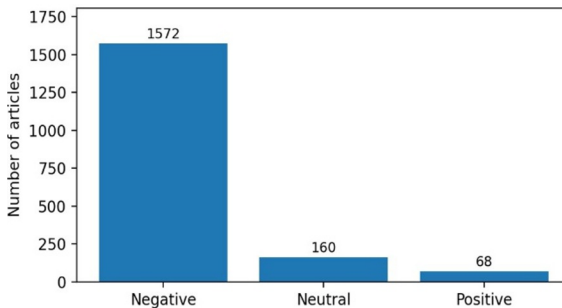


Fig. 1. Overall sentiment distribution in the balanced sample.

This finding supports existing scholarship, which argues that media coverage of contentious international issues tends to highlight negative aspects, especially when these issues are viewed through the lens of human rights violations, political repression, or security concerns^{[10], [12]}. It also suggests that news media may function as powerful agents in reinforcing negative stereotypes about regions associated with political turmoil or human rights abuses.

4.2 Cross-Outlet Differences in Sentiment

Figure 2 shows that although negative sentiment dominates across all outlets, the degree of negativity varies across media organizations. After standardizing the sample to 300 articles per outlet while preserving the original outlet-level sentiment proportions, ABC shows the highest proportion of negative reporting, with approximately 278 of 300 articles classified as negative. *The New York Times* follows with about 274 negative articles, while *The Guardian*, the Associated Press, and *The Times* record approximately 268, 264, and 257 negative articles, respectively. The BBC remains predominantly negative as well, but at a comparatively lower level, with about 231 of 300 articles classified as negative.

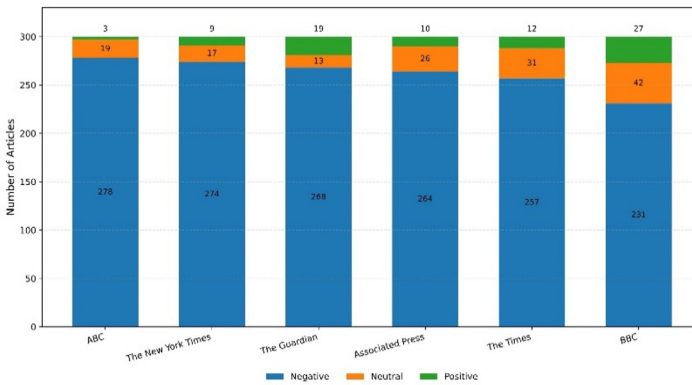


Fig. 2. Sentiment distribution across six UK and US mainstream media outlets in the balanced sample.

A similar pattern is visible in the neutral and positive categories. The BBC contains the largest share of non-negative reporting, whereas ABC remains the most negative outlet.

These differences may be related to variations in editorial positioning, reporting style, and source selection across outlets. Media organizations that rely more heavily on institutional or diplomatic sources may produce relatively more neutral coverage, while those emphasizing rights-related or investigative narratives may exhibit stronger negative orientation. This divergence also suggests that media organizations can influence public perception of international issues through editorial choices, framing techniques, and the sources they choose to highlight or downplay. As previous research has indicated, the framing of global issues such as human rights abuses or political repression can lead to significant differences in the tone and direction of coverage across different media outlets [3], [9].

It is also worth noting that while negative sentiment predominates in all outlets, the BBC's relatively higher proportion of neutral or positive coverage suggests that some media outlets may provide more balanced representations or emphasize aspects of the Xinjiang issue that focus on international diplomacy, development aid, or other neutral topics. This could indicate a more restrained editorial approach compared to out-lets

like ABC, which shows the most pronounced negativity. These variations across media outlets highlight the importance of comparative analysis in understanding how global issues are framed differently across various news organizations.

4.3 Dominant Thematic Frames

The thematic coding results show that coverage of Xinjiang in UK and US media is organized around a limited set of recurring issue frames rather than a dispersed range of unrelated topics. Across outlets, the most salient themes cluster around human rights issues, ethnicity and religion, security and social stability, international diplomatic responses, governance-related crises, and local disasters or livelihood issues.

This pattern indicates that Xinjiang is not represented as a neutral geographical topic, but rather as a politically mediated issue embedded in broader narratives of governance, identity, and international relations. Each of these thematic categories carries distinct evaluative implications that shape the way audiences understand the issue. The prominence of human rights-related frames suggests that Media reporting on Xinjiang in the UK and the US is heavily influenced by Western media concerns with political repression, state violence, and religious freedom.

At the outlet level, thematic emphasis differs in meaningful ways. *The New York Times* strongly foregrounds governance crisis, the Urumqi fire, protest events, censorship, and rights-related allegations. *The Times* places stronger emphasis on ethnicity, religious repression, separatism, terrorism, and security control. *The Guardian* centers heavily on detention camps, forced labor, and other human-rights-related concerns, resulting in a distinctly rights-oriented frame. The Associated Press shows a relatively stronger presence of earthquake, relief, reconstruction, and livelihood-related keywords, while the BBC presents a broader mix of human-rights, diplomatic, and public-affairs themes.

These thematic differences highlight the importance of considering the editorial priorities of individual outlets. For example, *The Guardian* gives relatively greater attention to human rights issues, while *The New York Times* and *The Times* incorporate a broader combination of security- and governance-related themes. The Associated Press, meanwhile, shows relatively greater emphasis on livelihood-related topics and natural disasters, including local development and disaster response. Such variation suggests that differences across outlets lie not only in evaluative tone but also in the selection and prioritization of issue categories.

4.4 Theme-Sentiment Association

The relationship between thematic framing and sentiment is one of the most important patterns observed in the corpus. Articles categorized under *Human Rights Issues*, *Security*, *Terrorism*, and *Social Stability*, and *Governance*, *Protest*, and *Crisis Events* are most frequently associated with negative evaluative orientation. These thematic categories are closely tied to allegations of abuse, coercion, crisis, conflict, and state control, and therefore tend to produce strongly adverse narrative structures in international reporting.

By contrast, *International Politics and Diplomatic Responses* includes a relatively larger share of neutral reporting, while *Disasters, Livelihood, and Local Development* shows a more mixed evaluative profile. Articles under these latter themes often focus on relief efforts, economic development, and international diplomatic responses, which allow for more neutral or positive coverage. This pattern suggests that the tone of reporting is closely tied to the issue being discussed, with topics related to political repression or violent conflict tending to be framed in a more negative light, while issues related to international cooperation or humanitarian aid are more likely to produce neutral or positive evaluations.

From a framing perspective, these findings suggest that evaluative orientation is not independent of thematic selection. Instead, sentiment is embedded within the structure of issue framing itself, reflecting how different types of topics inherently carry different evaluative implications. In the case of Reports on Xinjiang by UK and US mainstream media, the emphasis on human rights violations, security threats, and political crises is strongly linked to negative evaluative orientations, while themes of diplomacy, development, and international cooperation tend to be associated with more neutral or positive sentiment.

4.5 Chi-Square Test of Theme-Sentiment Association

To examine whether thematic framing is statistically associated with sentiment orientation, a Chi-square test of independence was conducted based on the balanced sample of 1,800 articles. Each article was assigned a single dominant thematic frame and a sentiment label (negative, neutral, or positive). The observed frequency distribution is presented in Table 3.

Table 3. Observed frequencies of thematic frames and sentiment categories.

Thematic Frame	Negative	Neutral	Positive
Human Rights Issues	275	49	33
Security Issues	414	25	14
Ethnic Issues	228	11	16
Diplomatic Issues	393	43	11
Livelihood Issues	147	23	2
Natural Disasters Issues	108	7	1

The results of the Chi-square test are as follows:

- Chi-square value: 67.52
- Degrees of freedom: 10
- P-value: 1.33×10^{-10}

If the P-value is far below the conventional significance threshold of 0.05, the null hypothesis of independence is rejected. This suggests that thematic framing and sentiment orientation are not independent, but systematically related in Xinjiang-related news reporting in the UK and the US.

More specifically, frames such as *Human Rights Issues* and *Security Issues* are strongly associated with negative sentiment, while *Diplomatic Issues* and *Livelihood*

Issues exhibit relatively higher proportions of neutral reporting. The *Natural Disasters Issues* show a comparatively mixed distribution, although still dominated by negative sentiment.

These findings provide statistical support for the argument that the evaluative orientation is embedded within thematic framework. Rather than being randomly distributed, the sentiment is structured by the types of issues emphasized in news reporting.

4.6 Expected Frequencies and Observed Differences

Table 4 presents the expected frequencies for each thematic frame and sentiment category under the null hypothesis that thematic framing and sentiment are independent.

Table 4. Expected frequencies of thematic frames and sentiment categories (balanced sample, N=1800).

Thematic Frame	Expected Negative	Expected Neutral	Expected Positive
Human Rights Issues	310.39	31.34	15.27
Security Issues	393.86	39.76	19.38
Ethnic Issues	221.71	22.38	10.91
Diplomatic Issues	388.64	39.24	19.12
Livelihood Issues	149.54	15.10	7.36
Natural Disasters Issues	100.86	10.18	4.96

A comparison between the observed and expected frequencies reveals several notable deviations. In particular, *Human Rights Issues* show substantially higher observed counts in the neutral and positive categories than expected, while *Security Issues* exhibit a higher-than-expected concentration of negative articles. *Diplomatic Issues* also display a stronger negative tendency than expected under the assumption of independence. By contrast, *Natural Disasters Issues* and *Livelihood Issues* contribute relatively less to positive coverage than would be expected under a random distribution.

These deviations indicate that sentiment is not randomly distributed across thematic frames. Instead, certain themes are systematically associated with particular evaluative orientations, which further supports the rejection of the null hypothesis.

4.7 Visualization of Theme-Sentiment Association

To further illustrate the relationship between thematic frames and sentiment, Figure 3 presents a heatmap of the observed frequency distribution. The color intensity corresponds to the frequency of each frame–sentiment combination, with darker shades indicating higher frequencies.

The heatmap visually reinforces the findings of the Chi-square test. To determine which frame–sentiment combinations drove the overall association, adjusted standardized residuals were examined for each cell, and post hoc pair-wise comparisons were conducted with multiple-comparison adjustment. The residual analysis showed that *Security Issues* and *Diplomatic Issues* were particularly overrepresented in the negative category, while *Human Rights Issues* also displayed a negative tendency but with comparatively more neutral and positive coverage than expected for the most strongly

negative frames. *Natural Disasters Issues* and *Livelihood Issues* remained predominantly negative, although their lower frequencies reduced their contribution to the overall effect size. Overall, the visual pattern, together with the residual and post hoc analyses, confirms that thematic framing and sentiment are systematically associated rather than independently distributed.

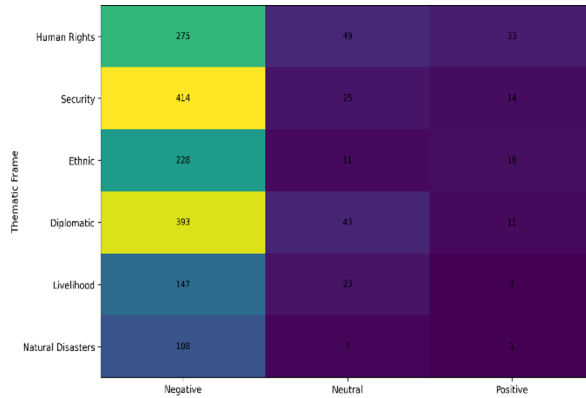


Fig. 3. Heatmap showing the association between thematic frames and sentiment categories in the balanced sample.

5 Discussion

The findings show a clear pattern: Xinjiang reporting in UK and US mainstream media is dominated by negative evaluative orientation, but this negativity is not uniform across outlets nor independent of issue selection. Instead, it is structured through recurring thematic frames, indicating that media representation is shaped by recognizable issue templates rather than neutral event reporting.

The Chi-square test and heatmap analysis further confirm that thematic framing and sentiment are significantly associated. Evaluative orientation is not randomly distributed but systematically linked to specific issue categories. In particular, *Human Rights Issues* and *Security Issues* are strongly associated with negative sentiment, whereas *Natural Disasters Issues* and *Livelihood Issues* exhibit relatively more neutral or mixed profiles. This suggests that the predominance of negativity is partly a consequence of thematic selection.

First, the results highlight differences in comparative framing. Although the six outlets operate within similar Anglo-phone media environments, they emphasize different issue dimensions, including human rights, security, identity, and diplomacy. These differences contribute to variation in evaluative intensity across outlets.

Second, sentiment appears to be embedded within thematic framing rather than operating independently. Topics related to conflict, security, and human rights are more likely to produce negative evaluations, while diplomacy and development allow for more neutral reporting. This reinforces the idea that sentiment is a structural outcome of framing choices.

Third, methodologically, the study demonstrates the value of combining LLM-based annotation with statistical testing. LLMs enable scalable, context-sensitive classification, while the Chi-square test provides evidence for the robustness of observed patterns.

Several limitations should be noted. The balanced sample improves comparability but simplifies the broader reporting landscape. Assigning a single dominant frame may under-represent multi-layered articles, and LLM-based classification depends on prompt design and model behavior. Future research may incorporate manual validation or alternative methods to improve robustness.

6 Conclusion

This study examined thematic framing and sentiment in Xinjiang reporting by six mainstream media outlets in the United Kingdom and the United States between 2013 and 2025. Using a balanced sample of 1,800 articles and an LLM-based analytical pipeline, the study identified six higher-order thematic frames and compared their distribution across outlets together with article-level sentiment orientation.

Three broad conclusions may be drawn from the present analysis. First, coverage of Xinjiang in UK and US media in the selected corpus is overwhelmingly negative in evaluative orientation. Second, despite this shared tendency, the six outlets appear to differ in the thematic frames they foreground. These cross-outlet differences are evident at the descriptive level, although the present study does not subject all such differences to formal significance testing; they therefore should not be interpreted as definitive evidence of statistically significant outlet-level divergence. Third, thematic framing and sentiment are closely connected: articles framed around human rights issues, security, and crisis-related events are substantially more likely to carry negative evaluative meaning than those framed around diplomacy or livelihood-related events. Future research could strengthen this comparison by applying formal cross-outlet tests, such as proportion tests or multinomial regression models, to assess whether observed thematic differences remain significant after accounting for sampling variability.

Acknowledgments

This work was supported by the Xinjiang Uygur Autonomous Region Tianchi Talent Recruitment Program for Young PhD Holders (Grant No. 5105260184m).

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