THE SENTIMENTAL FRAME OF THE MEDIA: ANALYZING THE NEWS HEADLINES ABOUT IMMIGRANTS AND REFUGEES IN ONLINE NEWS SOURCES THROUGH SENTIMENT ANALYSIS AND TOPIC MODELLING

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ABSTRACT

This research examines the representation of immigrants and refugees in Türkiye's online news media through published news headlines. A collection of headlines from four national news sources (TRT Haber, BirGün, Cumhuriyet, and Yeni Şafak) is examined using BERT-based sentiment analysis and BERTopic topic modeling. Negative feelings dominate news headlines across all media venues, while positive depictions are scarce. At the end of 2024 and mid-2025, time series analysis shows increased negativity. Topic modeling revealed border crossings, security, illegal immigration, mass deportation, and refugee discourses tied to national policy. Word cloud and co-occurring word pair studies show that "migrant caught", "irregular migrant", "detained", "migrant smuggling" and "illegal" are frequently repeated. These discursive tendencies primarily frame immigration as a security danger and control issue. Using computational social sciences, the study reveals how these discursive patterns function strategically within media texts, shaping communicative meanings and producing broader social and political effects.

Keywords: *Immigrant, Refugee, Media Framing, Sentiment Analysis, Topic Modelling, Migration Communication.*

JEL Codes: *F22, D83, C88, I31, Z13.*

1. INTRODUCTION

Migration can be considered a multidimensional phenomenon that generates political, economic, and social impacts at the global level. This phenomenon is not limited to the act of displacement; it also has profound sociopolitical consequences through the perceptions and representations migrants encounter in the societies they migrate to (Castles, de Haas and Miller, 2014). The media plays a central role in constructing these representations; the news media plays a significant role in determining how

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we view migrants, in what contexts we perceive them, and with what discourses we associate them (Eberl et al., 2018; Benson, 2013).

In the digital age, news and information about immigrants have gained great importance due to the rapidly spreading flow of information (Boyacı Yıldırım and Özgen, 2024). The rapid proliferation of online news outlets makes it possible for discourses about immigrants to reach wider audiences more quickly. In this environment, headlines stand out for their particularly attention-grabbing and guiding role. Headlines shape readers' first impressions of a news story and predetermine its context (Van Dijk, 1988). Furthermore, the fact that news in digital media is often consumed solely based on the headline makes headline analysis even more valuable in social perception studies (Ogan, Willnat, Pennington, and Bashir, 2014).

In Türkiye, the issue of migration has been high on the agenda for many years and is frequently presented in the media through frames of security, integration, social burden, or humanitarian crisis (Gezik, 2022; Lortoğlu, 2019). Frames used in media representation can influence public attitudes toward immigrants and even shape political decision-making processes (Boomgaarden and Vliegenthart, 2009). Therefore, elements such as the emotional tone, language use, and thematic focus of media content play a critical role in the social construction of migration.

In this context, the study seeks to answer the following research questions:

- **RQ1.** What emotional tones are used to represent migrants in online news headlines in Türkiye?
- **RQ2.** What thematic frameworks are used to structure the phenomenon of migration in news discourse?
- **RQ3.** How have the thematic structure and emotional tone of news reports changed over time?

In this analysis, conducted in line with these research questions, we examine news headlines about immigrants published in four online news sources with different ideological leanings in Türkiye (TRT Haber, BirGün, Cumhuriyet, and Yeni Şafak). We aim to analyze the emotional tone, thematic diversity, and evolution of these headlines over time. For this purpose, we utilize natural language processing-based sentiment analysis (BERT) and topic modelling (BERTopic) methods, and we detail the temporal and verbal dimensions of the representation using time-series graphs and word cloud visualizations.

In this context, the study aims to make an empirical contribution to the literature on the relationship between media and migration, develop a more holistic view of media representations in Türkiye, and provide a new data-based perspective on discourse analysis approaches at the intersection of communication sciences and migration studies.

2. LITERATURE REVIEW

Migration is a complex phenomenon encompassing social, political, economic, and cultural dimensions, beyond simply being a geographical movement. As defined by the TDK (n.d) and United Nations High Commissioner for Refugees -UNHCR (2010), migration encompasses both international and intra-state displacement. Karpat (2010) and Yalçın (2004) consider migration not only a physical movement but also a socio-cultural transformation. The reasons for migration range from economic hardship to war, terrorism, and natural disasters (Taşçı, 2009).

Researchers such as Richmond (1988) and Petersen (1958) categorise migration types according to various principles, including forced and voluntary, individual and mass, and regular and irregular migration. Bauman (2019), on the other hand, emphasises that migrants are used in political discourse as embodiments of uncertainty. Migration becomes both a cause and a tool of politics, serving as one of the few areas where governments can act against crises.

The distinction between migrants and refugees becomes crucial at this point. Refugees are individuals seeking protection due to fear of persecution, while migrants often move for economic or social reasons (IOM, 2009; UN, 1951). In this context, migration can be considered not only as a spatial phenomenon but also as a communication and political phenomenon that contributes to the transformation of social structures.

Media representations of immigrants are a significant research topic in the social sciences, particularly at the intersection of media studies, political science, and migration studies. The media presents immigrants as a discourse generator and, through these representations, shapes public perceptions of immigrants (Van Dijk, 2000; Fairclough, 1995). Therefore, how immigration is framed in the media, with what emotions it is presented, and what themes it is associated with have been extensively studied within the framework of media theory.

Research within the domain of media framing theory in international literature indicates that immigrants are frequently shown using frames such as "security threat," "burden," "victim," or "needy" (Esses, Medianu, and Lawson, 2013; Ibrahim, 2005). Benson (2013) performed comparative research on the portrayal of immigrants in the European and US media, highlighting the prominence of themes related to security, economy, and culture. Eberl et al. (2018) perform a thorough evaluation of media analysis across Europe, revealing the proliferation of anti-immigrant rhetoric in media discourse. Moreover, Van Gorp (2005) elucidates how immigrant representations are constructed through lexical tactics in news headlines and imagery.

Studies that focus on visual framing show that immigrants in southern European nations like Italy, Greece, and Spain are more commonly shown as crowded, frightening, and vulnerable. It is important to note that these images are in line with European Union border policies and repeat the crisis discourse (Vollmer and Karakayali, 2018). Recent research shows that there are also disparities in the way that

different groups of refugees talk about themselves. For instance, Ukrainian refugees are seen as more "legitimate" or "worthy of help" than Syrian refugees (Caporusso et al. 2024).

National literature also shows that the media usually portrays immigrants in a bad manner. Çakır and Köseliören (2022) look closely at how immigrants are talked about in the Yeni Şafak and Cumhuriyet newspapers. In the end, they show the differences between "threat" and "us/other." Uçak (2017) shows that immigrants are regularly shown in the press as "security threats," "illegal crossings," and "economic burdens." Livberber (2021) also utilises discourse analysis to show how television news makes immigrants look like "social threats" and "crisis factors."

When talking about immigrants, Turkish media often focuses on Syrian refugees. Doğanay and Çoban Keneş (2016) look at how immigrants are talked about in Turkish media and show that they are often shown as passive, objectified people. Erdoğan (2017) points out how similar media images and public attitudes are. Manap (2025) looks at anonymous posts on Syrian migrants on Ekşi Sözlük and groups them into three categories: "othering," "self-definition," and "mental hostility." This approach shows how social media may make people ignorant of the truth.

Studies on Afghans are another prominent area of interest for how the media portrays immigrants in Turkey. Erol and Yaylacı (2022) show that Afghan refugees are represented with negative stereotypes in the news and receive little coverage due to language deprivation and psychological effects. Cangoz and Wakili (2022), in their study on the representation of Afghan immigrants in local media, demonstrate the discursive patterns in these representations. Çakıcı (2024) focuses on the visual representation of Afghan immigration in the Turkish press in the post-Taliban era, offering definitions of representation based on ideological approaches, male dominance, and objectification. Keskin and Kömür (2023), in a content analysis conducted through Ekşi Sözlük, reveal that, unlike Syrians, the harsh marginalising discourses about young Afghan men, such as "terrorist" and "rapist," are shaped primarily by their "absence of women and children." Tiryaki (2022) compares the representation of Syrian, Afghan, and Ukrainian immigrant groups in non-mainstream newspapers in Turkey (Yeni Akit, BirGün, Habertürk); the study shows that Afghan groups are covered in fewer news items but are included in a more negative frame under the headings of "disturbance" and "political content".

In conclusion, studies in both international and domestic literature reveal that migrants are frequently presented in negative contexts in media representations, with themes such as "threat," "burden," and "crisis element" dominating. Media discourses differ even among migrant groups, with ideological and strategic distinctions prominent in the representation of Syrian, Afghan, and Ukrainian migrants. Furthermore, online platforms and social media platforms stand out as platforms where stereotypes in traditional media are reproduced or further amplified. In this context, critical analyses of media representations play a crucial role in transforming social perceptions and constructing a more inclusive public discourse.

The studies in question used traditional content and discourse analysis as research methods, and it is found that studies applying innovative approaches, such as sentiment analysis and topic modelling, are quite limited. This study contributes to the literature by analysing how representations of immigrants in Turkish news media are structured at both emotional and thematic levels. The study gives an interdisciplinary, data-driven view of the relationship between media and migration by merging information from both local and foreign research on discourse analysis, framing, and sentiment orientation with new text mining techniques.

3. METHODOLOGY

3.1. Research Process

This study aimed to analyse discourses about immigrants in online news outlets in Türkiye. The research was structured using a digital discourse analysis approach based on quantitative content analysis. Natural language processing (NLP) techniques were used to understand the linguistic and emotional structure of news headlines. Four online news sources with different ideological leanings were selected for the study: TRT Haber, Yeni Şafak, Cumhuriyet, and BirGün. A comparative analysis of the discourse differences among these media outlets constitutes one of the fundamental foundations of the research.

A Web Scraper was used to obtain data from news websites in the first step of the study process, and then the text went through several cleaning steps. A BERT (Bidirectional Encoder Representations from Transformers)-based sentiment analysis model was used to determine the emotional tone of the texts, and news headlines were classified as positive, negative, or neutral. In the second step, the BERTopic approach was used to determine themes, and time-series graphs were utilised to analyse how the media discourse has changed over time. In the final step, the obtained data were visualised and reported.

The Python software program was used for the research. Python is an interactive and object-oriented programming language with a simple and elegant syntax (Sanner, 1999). Apart from general use, it is one of the significant programming languages utilised particularly in artificial intelligence studies in recent years. Python has become increasingly popular in academic work due to being open source, not requiring an additional compiler, and having a structure that is very easy to learn and develop (Ala and Uğuz, 2021). Figure 1 shows the steps in the research process:

Figure 1. Research Process Steps
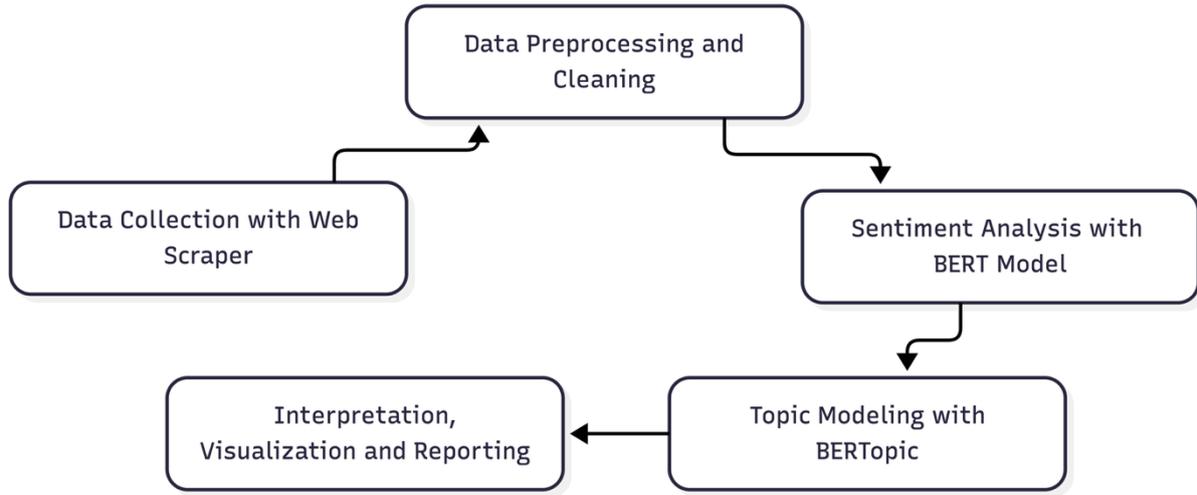
3.2. Method

The study used text mining approaches based on natural language processing. The multilingual BERT sentiment analysis model is the first of them. It is used to figure out the emotional tone of news headlines. BERT is a bidirectional language model that looks at how words relate to each other in context and can figure out what words mean in a text at both the local and sentence levels (Devlin, Chang, Lee, and Toutanova, 2019). This feature helps it provide more accurate sentiment analysis results, especially for news headlines that are brief and don't have much context. BERT stands out because it does very well on several open-source benchmark tests for tasks like text categorisation and sentiment analysis (Yıldız and Yıldırım, 2024; Rogers, Kovaleva and Rumshisky, 2020; Sun, Qiu, Xu and Huang, 2019). Unlike standard word-level methods, this study used BERT to obtain a more accurate picture of the emotional tone of immigrant depictions in the media.

The second method, identified as BERTopic, is new and uses contextual vectors made by BERT to do topic modelling (Grootendorst, 2022). Most classical modelling methods, such as Latent Dirichlet Allocation (LDA), just look at word frequency and don't take context into account. But BERTopic can break texts into more meaningful and consistent theme clusters while keeping the sense of each sentence. In addition, many tests that compare different methods have shown that BERTopic gives the same results even when there are only a few user-defined texts. It also does better than traditional models on short texts (Grootendorst, 2022; Angelov, 2020).

Also, BERTopic's ability to add visual analysis (such as time series, word clouds, etc.) to its classifications made it easier to understand the study's analysis results. The best thing about BERTopic is that it can show how conversations develop over time with its dynamic topic modelling feature (Nedungadi, Veena, Tang, Menon and Raman, 2025; Raman, Pattnaik, Hughes and Nedungadi, 2024; Wang, Chen, Chen and Chen, 2024).

Using these methodologies together allows us to go beyond the problems of standard content analysis and delve deeper into both the emotional and thematic layers of media discourse. The study's unique strategy shows that advanced NLP approaches could be useful for analysing massive amounts of media discourse utilizing short sentences.

3.3. Data Set and Sample

The data set has news headlines from TRT Haber, BirGün, Cumhuriyet, and Yeni Şafak news websites that were published between April 1, 2024, and July 1, 2025, and that contain the phrases "migrant," "refugee," "asylum seeker," "Syrian," and "Afghan." A total of 6,542 news items, obtained directly from news portals using web scraping, were saved in an Excel spreadsheet. During the data preprocessing phase, special characters, HTML tags, and stop words were removed from the headlines, and all text was converted to lowercase to make it suitable for analysis. At the end of the data cleaning process, 5,486 news items were included in the analysis. According to the newspapers, these news items included 3,902 from Yeni Şafak, 809 from Cumhuriyet, 603 from TRT Haber, and 172 from Birgün.

The validity of the study was ensured by representing the ideological diversity in media sources in the sample, while its reliability was supported by the BERTScore values above 0.70 obtained by the BERT model used in sentiment analysis for positive, negative, and neutral classifications. A contextual evaluation score of 0.70 or higher is thought to show excellent semantic similarity and model reliability (Sellam, Das and Parikh, 2020; Zhang, Kishore, Wu, Weinberger and Artzi, 2020; Wang et al. 2018). The BERTScore values obtained in the study are shown in Table 1:

Table 1. BERTScore and Frequency Values

| Sentiment	BERTScore	Frequency
negative	0.823	4345
neutral	0.769	279
positive	0.843	862

4. FINDINGS

This section includes the findings of sentiment analysis, discoveries about how sentiment changes over time, insights from word clouds, topic modelling results with BERTopic, and comments on word pairings that appear together in news headlines.

4.1. Sentiment Analysis Findings

Across all newspapers, negative sentiment is highest at 79.20% (n. 4345). Positive content comes in second at 15.71% (n. 862), followed by neutral content at 5.08% (n. 279). The distribution of sentiment across all newspapers is shown in Graph 1.

Graph 1. General Sentiment Distribution
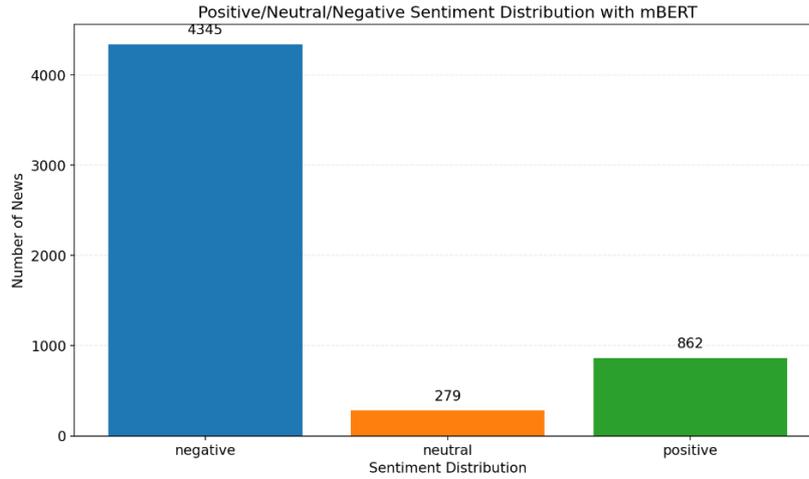
Based on the data obtained, the distribution of high sentiment across all newspapers is negative. In addition to the general sentiment analysis, Graph 2 shows the distribution of sentiment across newspapers.

Graph 2. Distribution of Sentiment by Newspapers
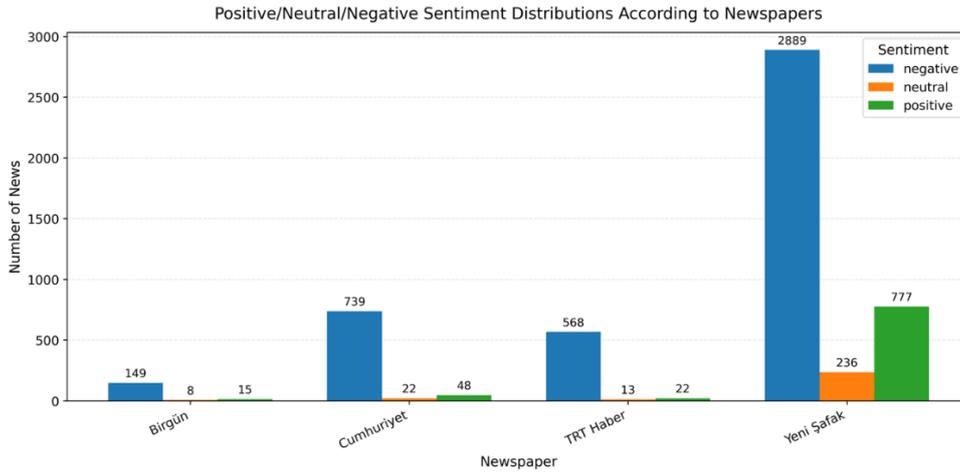
In addition to being the media outlet that produces the most news about immigrants, the Yeni Şafak newspaper stands out in producing both negative and positive content. A total of 2,889 negative headlines were identified, while 777 positive headlines were produced. This demonstrates that the newspaper can present contradictory representations in its news coverage of immigrants, simultaneously embracing both problematizing and humanitarian/rights-based approaches. The number of neutral headlines was found to be 236.

While the Cumhuriyet newspaper attracted attention with a total of 739 negative news items, it only contained 48 positive and 22 neutral items. This distribution suggests that the newspaper more heavily adopts a critical and negative framework in its news coverage of immigrants. Despite being a public broadcaster, TRT News published only 22 positive and 13 neutral news items, compared to 568

negative ones. This result suggests that, despite claiming impartiality in its news coverage, discourse reflecting a negative emotional tone predominates.

BirGün newspaper published the fewest news items about immigrants. A total of 149 negative, 15 positive, and 8 neutral items were identified. Although the negative tone was dominant here, the low volume of news necessitates a more limited assessment of these results.

4.2. Findings of Sentiment Change According to Time Series

The results of the research's sentiment analysis over time reveal significant fluctuations in news narratives about immigrants throughout the year. The findings are visualised in Graph 3:

Graph 3. Sentiment Distribution Graph by Time
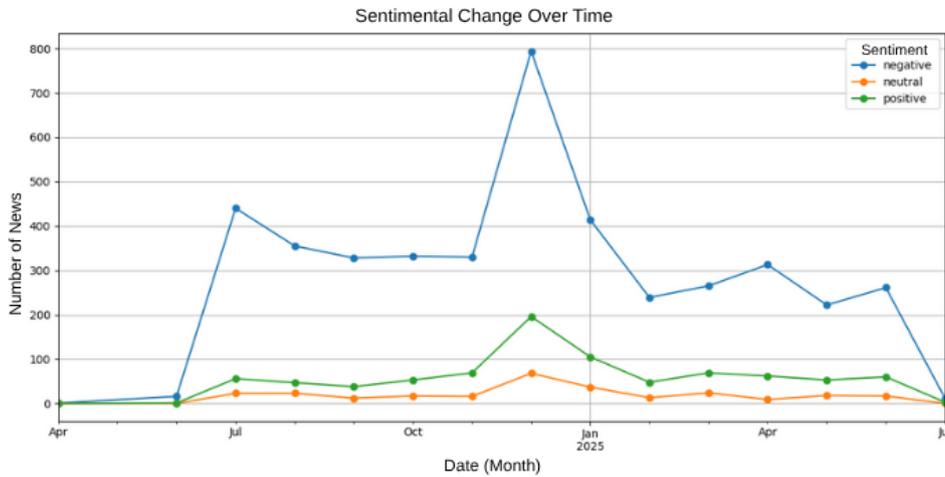
According to the graph findings, negative sentiment consistently dominated the representation throughout the year, with significant increases particularly in July and December 2024. News headlines containing negative sentiment peaked in December 2024, reaching a peak of approximately 800. This increase can be attributed to increased irregular migration news during the winter months, border security debates, and harsh rhetoric from political actors.

Positive content has also seen a significant increase since the first months of 2024 (especially June-July). The peak period for positive news was December 2024, with the number of positive headlines reaching approximately 200 in that month. This finding suggests that, in parallel with the negative events that occurred during the same period, empathetic humanitarian narratives were also produced in the media. A relative increase in positive news was observed again in the spring of 2025 (March-April). This period can be interpreted as a phase in which the media visibility of integration projects, individual success stories, and social cohesion themes coinciding with holidays increased.

Neutral content, on the other hand, exhibits a more limited but regular distribution. Temporary increases in neutral discourse are observed, particularly in December 2024 and January 2025. This

increase can generally indicate periods of increased information-based news, such as official statements, legislative discussions, or statistical reports.

In general, immigrant narratives are presented in a strongly negative framework during the 2024-2025 period. However, this negative tone is occasionally offset by humanitarian and positive content. This trend, revealed by time-series analysis, demonstrates that media discourse is sensitive to political and social agendas, reactive, and cyclically variable. It is also noteworthy that event-centric news production leads to emotional ups and downs in the representation of immigrants.

4.3. Word Cloud Findings

The analysis results, based on word clouds and frequency tables, reveal a distinct pattern of negative framing in news discourse about immigrants and refugees. The most frequently used words across all news items examined are shown in Figure 2. On the other hand, Table 2 shows the most frequently used ten words by emotional state.

Figure 2. Word Cloud of News

Table 2. Frequency Values of the Most Frequently Used Words According to Sentiment States

Positive Word	Frequency	Negative Word	Frequency	Neutral Word	Frequency
new	69	migrant	1254	Syria	19
Syrian	42	caught	799	foreign affairs	14
first	37	irregular	766	Fidan	13
Türkiye	33	Israel	388	Syrian	13
migrant	32	offshore	304	new	12
Syria	32	illegal	274	minister	12
in Syria	24	Syrian	267	migrant	10
aid	23	rescued	183	Turkey	10
Turk	20	external	170	Gaza	8
president	19	by roads	161	life	7

Among the most frequently occurring words across all news items, concepts such as "migrant" (n. 1,304), "caught" (n. 802), "irregular" (n. 784), "illegal" (n. 277), "detained" (n. 154), and "deported"

stand out. These words are often associated with themes of security, crime, and control, suggesting that migrants are framed as a "problem" or "crisis." This discourse structure aligns with the tendency in the literature to "represent migrants through a criminal lens" (Wodak, 2015; Esses, Medianu and Lawson, 2013).

The sentiment-based word frequency graph further corroborates this discursive pattern. For example, the word "migrant" was associated with negative emotions 1,254 times, and terms like "caught" (799), "irregular" (766), and "illegal" (274) also carry high levels of negativity. The recurrent application of this terminology alongside security forces and unlawful crossings results in a neglect of the individual and humanitarian dimensions of migrants.

Conversely, terms associated with positive sentiment ("new," "first," "president," "aid," "Turkey") are hardly encountered and predominantly confined to formal declarations or humanitarian settings. The presence of the term "Syrian" in both positive and negative classifications underscores the duality and inconsistencies in narratives around immigrants.

The findings indicate that representations of immigrants in Turkish media are predominantly negative, exclusionary, and objectifying, with the language of news often influenced by security-centric storylines such as "capture," "detention," and "illegal crossing." Therefore, as media discourse possesses the ability to influence public views of immigrants, the ramifications of such linguistic patterns can be substantial, affecting both news content and society dynamics.

4.4. BERTopic Topic Modelling Findings

This study employed topic modelling analysis to discern themes in news headlines concerning immigrants and refugees. After preprocessing using natural language processing (NLP), the analysis employed Latent Dirichlet Allocation (LDA) and BERTopic methods. The LDA approach is a probabilistic model that facilitates the identification of latent semantic structures in documents using document-topic and topic-word distributions (Blei, Ng and Jordan, 2003). In this scenario, LDA discerned five principal subjects, each characterised by 10 highly indicative terms. BERTopic serves as an option that seeks to generate more contextual and significant topic clusters by integrating transformer-based word embedding methods (e.g., Sentence-BERT) with density-based clustering algorithms (HDBSCAN) (Grootendorst, 2022). The results derived from these two methodologies were analysed comparably, and the significant topic frameworks in the news texts were examined comprehensively.

Table 3. Topics Determined by LDA (Top 10 Words)

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
1. Word	migrant	Syrian	Israeli	Israel	Syrian
2. Word	caught	in Syria	president	refugee	outside
3. Word	irregular	present	lost	West	thousand
4. Word	offshore	Turkey	life	first	homeland

5. Word	illegal	absent	murderer	occupier	roads
6. Word	rescued	to Syria	Palestinian	became	entered
7. Word	district	dissident	person	army	determined
8. Word	detained	US	Israel	murderer	law
9. Word	security	began	Erdoğan	Gaza	minister
10. Word	coast	conflict	Syria	camp	president

The five thematic clusters identified through the topic modeling results in Table 3—Topic 1 (*Irregular Migration and Security-Oriented Enforcement Discourse*), Topic 2 (*Syria-Centered Political Instability and Conflict-Driven Migration Frame*), Topic 3 (*Conflict-Driven Migration and Geopolitical Context*), Topic 4 (*Humanitarian Crisis, Forced Displacement, and War-Narrative Cluster*), and Topic 5 (*Origin-Country and Legal-Administrative Migration Narrative Cluster*)—provide important insights into how immigration and refugee issues are framed within media discourse.

Topic confidence scores obtained in the BERTopic model allow for the evaluation of the reliability of topic classification by indicating the probability of each document being assigned to a specific topic. These probability values are considered an indicator of classification confidence, reflecting the extent to which the model can consistently group documents under specific thematic clusters (Grootendorst, 2022). The fact that the confidence scores of the five topics obtained in this study ranged from 0.72 to 0.89 shows that the news headlines clustered under the determined themes with a relatively high level of confidence and that the topic modeling presents a semantically consistent structure. Therefore, these scores indicate that the emerging themes represent meaningful discourse patterns rather than random clusterings.

Topic 1 (*Irregular Migration and Security-Oriented Enforcement Discourse*) includes terms such as "migrant," "caught," "irregular," "illegal," "detained," and "rescued," revealing that news coverage is predominantly shaped by a security-focused and criminalising narrative. This discourse foregrounds irregular border crossings, law-enforcement interventions, and the depiction of migrants as threats to public order. Such representations align with Wodak's (2015) and van Dijk's (2006) analyses of "othering" and the negative construction of migrant identities within media texts.

Terms such as "Syrian," "in Syria," "dissidents," "U.S.," and "conflict" in Topic 2 (*Syria-Centered Political Instability and Conflict-Driven Migration Frame*) indicate that Syrian migrants are primarily contextualised through references to their country of origin and the political conditions that shape displacement. This cluster reflects narratives focused on the Syrian conflict, opposition movements, and geopolitical tensions. The emphasis on violence and instability suggests that media explanations for migration are frequently restricted to conflict-driven causes and security-oriented interpretations.

Topic 3 (*Conflict-Driven Migration and Geopolitical Context*) captures discourse surrounding the Israeli Palestinian conflict, with terms such as "Israel," "president," "lost," "murderer," "Palestinian,"

"person," and "Syria." Although not directly addressing migration, this cluster demonstrates how reporting on immigrants and refugees is interwoven with broader geopolitical crises. Such framing underscores that migrant narratives are often subordinated to global political conflicts rather than approached through the lived experiences and agency of migrants themselves.

Topic 4 (*Humanitarian Crisis, Forced Displacement, and War-Narrative Cluster*) centers on conflict, violence, and displacement, drawing on terms such as "Israel," "refugee," "occupier," "army," "murderer," "Gaza," and "camp." This thematic pattern reflects a humanitarian-crisis framing that frequently portrays refugees as passive victims of war. As Esses et al. (2013) argue, this form of representation risks reducing refugees to objects of empathy or pity, thereby obscuring their individuality, resilience, and decision-making capacity.

Terms such as "Syrian," "outside," "homeland," "entered," "law," and "minister" in Topic 5 (*Origin-Country and Legal-Administrative Migration Narrative Cluster*) highlight the legal-administrative dimension of migration, focusing on state policy, border control, and regulatory frameworks. This cluster frames migration through distinctions between legal and illegal entry, reflecting an institutionalised perspective in which migrants are categorised primarily by their legal status. Such portrayals contribute to the construction of migrants not as individuals but as populations to be monitored, classified, and regulated.

These topic modelling findings indicate that the media often portrays migrants in the context of security, conflict, and law, focusing on their structural/problematic aspects rather than their human aspects. This discourse pattern can play a decisive role in shaping public perception and contribute to the reinforcement of prejudices against migrants.

4.4.1. Findings Regarding the Most Frequently Used Word Pairs

As a complementary step in the topic modelling process, the most frequently occurring word pairs (bigrams) within the corpus were analysed. This analysis revealed which concepts were mentioned together in news headlines, allowing for a clearer identification of thematic frameworks. These findings are presented in Graph 4.

Graph 4. Qualitative Discourse Patterns
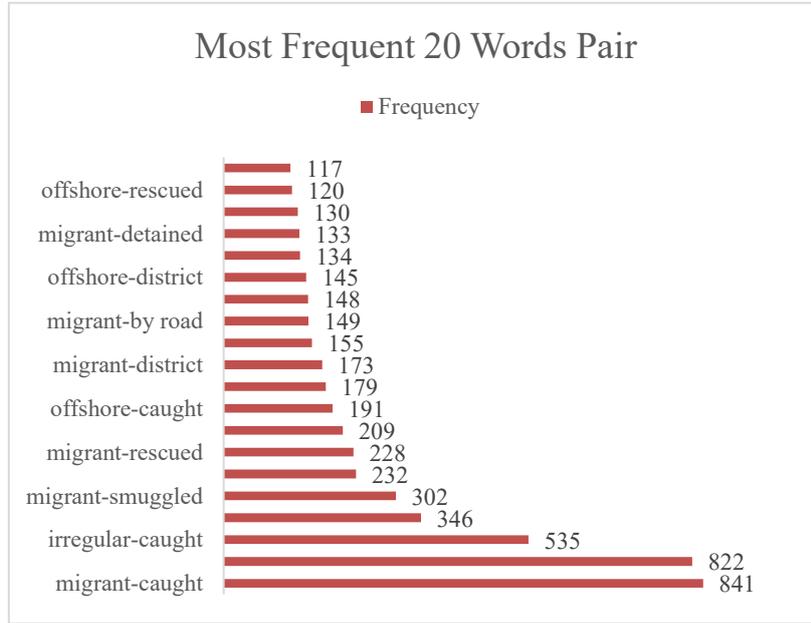
According to the results, word pairs such as "migrant—caught," "irregular—migrant," and "irregular—caught" indicate that the phenomenon of immigration is presented more often within the framework of security and illegality themes. Furthermore, the frequent use of expressions such as "illegal—caught," "migrant—smuggling," and "migrant—detained" suggests that migrants are frequently presented through a discourse pattern associated with crime. These findings overlap with the words in the thematic clusters identified through LDA and support the notion that migrants are frequently associated with crime, surveillance, and control practices, particularly in terms of "security," "fugitive," "rescued," and "detained" identified in Topic 1. In this respect, the analysis of word pairs used together contributes significantly to understanding the ideological aspects of media discourse.

5. CONCLUSION AND EVALUATION

While migration is as old as human history, it has become a multilayered phenomenon, encompassing political, social, economic, and cultural dimensions, particularly today. Migration processes, manifesting in various forms such as displacement, border crossings, asylum claims, or voluntary mobility, directly impact the identities, policies, and public opinion of both the migrants and the countries they migrate to. In this context, migration should be considered not merely a demographic phenomenon but also a multifaceted issue situated at the intersection of state policies, media representations, social perceptions, and international relations.

This study examines discourses on immigrants, asylum seekers, and refugees in online news environments in Turkey using multidimensional natural language processing techniques such as sentiment analysis, word frequencies, co-occurrence pairs, and topic modelling. The findings reveal that immigrants are often represented in the media using security-focused and criminalising concepts such

as "irregular," "caught," "illegal," and "detained." This finding largely aligns with international media studies that frequently frame migrants as a security threat or economic burden (Eberl et al., 2018; Greussing and Boomgaarden, 2017; Berry, Garcia-Blanco and Moore, 2016). Similarly, studies in the Turkish context show that migrants are often associated with categories such as "threat," "economic burden," or "security problem" in the media (Doğanay and Çoban Keneş, 2016; Pandır, Efe and Paksoy, 2015). In this respect, the present study supports, with quantitative data, the observation that digital news headlines in Turkey also exhibit similar securitization trends.

Sentiment analysis has shown a predominance of negative expressions in news headlines, with a significant increase in these negative narratives, particularly in 2024 and 2025. These increases are closely linked to regional crises (e.g., developments in Gaza and Syria), geopolitical tensions, and domestic political discourse. Studies in the literature showing that media discourse becomes more security-focused and negative during periods of crisis support this finding (Heidenreich, Lind, Eberl and Boomgaarden, 2019; Greussing and Boomgaarden, 2017). It has also been previously shown that media representations of migrants become more negative, particularly during periods of increased political intensity such as migration crises, geopolitical conflicts, or election periods (Berry et al., 2016). The way migration is reported not only informs the narrative but also serves to shape public opinion, generate support for border policies, and legitimise anti-immigrant sentiment. In this respect, the study demonstrates the continuation of this trend in the literature by presenting data relevant to the current period.

Topic modelling findings indicate that news content is largely structured around themes related to illegal crossings, border security, international crises, and political figures. It was observed that much less coverage is given to individual migrant stories, social cohesion, or humanitarian aspects. This is consistent with studies indicating that migration news is often addressed from a political and security perspective rather than a humanitarian one (Eberl et al., 2018; Greussing and Boomgaarden, 2017). This leads the media to reproduce migrants in the public sphere as mere statistics or "problems," and these representations indirectly shape public policy.

The word pair analyses obtained in the study also support this trend. High-frequency phrases such as "immigrant-caught," "irregular-immigrant," and "illegal-caught" indicate that news texts formally exhibit a discourse structure focused on security and control. These findings parallel research showing that associating migrants with discourses of crime and illegality is a common pattern in international media studies (Klocker and Dunn, 2003; Lynn and Lea, 2003). Furthermore, studies based on metaphor analysis have revealed that migrants are frequently represented using metaphors such as "burden," "threat," or "a mass to be controlled" (Bozdag, 2024). This discursive pattern is not unique to Turkey but part of a broader structure reflecting the interaction between media and migration policies globally.

The findings demonstrate that the frameworks of securitization, criminalization, and economic burden, widely cited in the international literature, remain strongly present in digital news headlines in Turkey. Furthermore, the study reveals that these frameworks intensify, particularly in conjunction with current political developments, offering new empirical evidence for the discussions of crisis-based media discourse in the literature. This study takes a broad look at how migration is shown in the media, linking insights from communication studies to both national and international politics. Media representation of migration is not merely a matter of news content; it also plays a key role in shaping public perception, deepening social polarisation, and legitimising state migration policies.

This study also offers some original contributions to the literature. First, this study used big data-based natural language processing techniques to look at a larger news corpus than many previous studies, which used critical discourse analysis or manual content analysis methods. Additionally, the contemporary nature of the analysis period provides a temporal contribution to the literature by revealing the reflections of increasing geopolitical tensions in recent years in media discourse.

This research was conducted solely on online news headlines. The lack of full news content, visual elements, or user comments can be considered a significant limitation. Future research could provide a more holistic framework for media representations of migration by comparatively analysing different media types (TV, social media, news portals, etc.). Furthermore, including data sources containing the narratives of migrants themselves could allow for a more comprehensive assessment of the representation imbalance frequently highlighted in the literature.

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