

Positive, negative, and mixed emotions directed toward immigrants: differences between social, alternative and traditional media users

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Abstract This study examines how the use of different media types and platforms is associated with emotional responses toward immigrants. Using cross-sectional survey data from Germany ($n = 1511$), linear regression models were estimated to explore correlations between media use and both overall emotional valence (negative, positive, mixed) and a broad set of discrete emotions. The results show that social media use and use of alternative media is positively associated with stronger negative, positive, and mixed emotions toward immigrants, while use of traditional newspapers show no notable associations. Television and radio use, in contrast, are linked to more positive and fewer negative emotions. Platform-level analyses reveal distinct emotional profiles: Facebook use correlates with contempt, and disgust; YouTube with anger, contempt, disgust, joy and awe; Twitter/X—and to a even larger degree—TikTok, with a wide range of positive, negative, and mixed emotions; and Instagram with grief only. Overall, the findings highlight substantial variation across media environments in their correlational relationship with emotional responses toward immigrants. These results provide descriptive evidence that can guide future causal, experimental, or longitudinal research on mediated emotions and intergroup attitudes.

Keywords Social media · Alternative media · Traditional media · Emotions · Immigration

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Zusammenfassung Diese Studie untersucht, inwieweit die Nutzung unterschiedlicher Medientypen und Plattformen mit emotionalen Reaktionen gegenüber Migrant*innen zusammenhängt. Auf Grundlage von querschnittlichen Umfragedaten aus Deutschland ($n = 1511$) wurden lineare Regressionsmodelle geschätzt, um Zusammenhänge zwischen Mediennutzung und der allgemeinen emotionalen Valenz (negativ, positiv, gemischt) sowie einem breiten Spektrum diskreter Emotionen zu analysieren.

Die Ergebnisse zeigen, dass die Nutzung sozialer Medien und alternativer Medien positiv mit stärkeren negativen, positiven und gemischten Emotionen gegenüber Migrant*innen assoziiert ist, während die Nutzung traditioneller Zeitungen keine nennenswerten Zusammenhänge aufweist. Demgegenüber ist die Nutzung von Fernsehen und Radio mit positiveren und zugleich weniger negativen Emotionen verbunden. Plattformbezogene Analysen weisen auf unterschiedliche emotionale Profile hin: Die Nutzung von Facebook korreliert mit Verachtung und Ekel, YouTube mit Wut, Verachtung, Ekel, Freude und Ehrfurcht. Twitter/X – und in noch stärkerem Maße TikTok – ist mit einer breiten Palette positiver, negativer und gemischter Emotionen assoziiert, während Instagram ausschließlich mit Trauer zusammenhängt. Insgesamt verdeutlichen die Befunde erhebliche Unterschiede zwischen Medienumgebungen in ihrem korrelativen Zusammenhang mit emotionalen Reaktionen gegenüber Migrant*innen. Die Ergebnisse liefern damit deskriptive Evidenz, die als Grundlage für zukünftige kausale, experimentelle oder longitudinale Forschung zu medial vermittelten Emotionen und intergruppalen Einstellungen dienen kann.

Schlüsselwörter Soziale Medien · Alternativmedien · Traditionelle Medien · Emotionen · Immigration

1 Media users' emotional orientations toward immigrants

Public orientations toward minority groups, including the emotional tenor of these orientations, develop through a combination of personal experiences, ideological predispositions, social interactions, and mediated information environments (Park 2012; Abeywickrama et al. 2018). Because most individuals have limited direct interaction with immigrants in everyday life, mediated communication occupies a central role in shaping how they understand, evaluate, and ultimately feel about immigrant groups (McCombs and Reynolds 2009; Schemer 2012). People routinely encounter immigration-related information across multiple information environments, including news media, social media, and interpersonal networks. These information routines can shape how people evaluate social groups, not necessarily through discrete “effects” of isolated messages, but through the accumulated context they provide for making sense of political issues (Slater 2007; Stroud 2011). As such, patterns of media consumption may be associated with broader emotional orientations toward immigrants even when content exposure is not measured directly.

Research has traditionally focused on how specific media portrayals of immigration, such as crime frames, economic threat narratives, or humanitarian depictions,

influence attitudes or emotional reactions (e.g., Boomgaarden and Vliegenthart 2009; Schemer 2014). However, such studies assume exposure to well-defined messages, often within controlled experimental settings. These studies have been invaluable in demonstrating how discrete messages and frames elicit emotions such as fear, anger, compassion, or admiration. However, they assume standardized exposure to defined stimuli, which diverges from real-world media consumption. In contrast, real-world political information consumption is embedded in a highly fragmented and choice-driven media environment, where individuals select particular outlets, platforms, or genres aligned with their interests, motivations, identities, and emotional needs (Garrett 2009; Knobloch-Westerwick 2014). These choices and habits may reflect, reinforce, or coincide with preexisting emotional orientations toward social groups, including immigrants. In this sense, media use patterns may correlate with emotions not because the media directly shape these emotions, but because individuals gravitate towards media that resonate with their values, affective dispositions, or worldviews (Stroud 2011). Different types of media—traditional, alternative, and social media—may therefore be associated with distinct emotional orientations toward immigrants because they represent different communicative logics, editorial norms, audience compositions, and technological architectures. Therefore, this study sets out to analyse how patterns of political information use across traditional, alternative, and social media relate to a wide range of positive, negative, and mixed emotional orientations toward immigrants.

2 Emotions toward immigrants as general orientations

Emotions can be conceptualized both as *states* and *traits* (Eid et al. 1999; Spielberger et al. 1983). Whereas state emotions refer to momentary affective reactions triggered by specific situations or events (Frijda 2007), trait emotions reflect more stable patterns—recurrent emotional responses across similar situations that signal enduring affective dispositions (Spielberger et al. 1983). In the context of intergroup relations, such trait-like emotional orientations are particularly relevant, as they represent relatively stable attitudes and perceptions toward social groups, including immigrants. Emotions are fundamental to human judgment and behavior and play a central role in shaping evaluations of social groups (Abeywickrama et al. 2018; Frijda 2007). Negative emotions such as fear, anger, or contempt narrow cognitive and behavioral repertoires and are closely tied to threat perceptions and avoidance or hostility (Cottrell and Neuberg 2005; Fredrickson 2001). In contrast, positive emotions such as compassion, admiration, or gratitude broaden thought–action repertoires, facilitate empathy and inclusive identities, and enhance intergroup relations (Dovidio et al. 1995, 1998; Fredrickson 2001; Johnson and Fredrickson 2005). Consequently, emotional orientations toward immigrants are not fleeting reactions but reflect longer-term intergroup dispositions shaped by contact experiences, ideological beliefs, identity concerns, and perceived threats (Schlueter and Davidov 2013; Yitmen and Verkuyten 2020).

Because many individuals have limited direct interaction with immigrants, media forms a primary channel through which people encounter information about minor-

ity groups (Park 2012). Mediated portrayals—positive or negative—are associated with shifts in public sentiment: negative coverage heightens perceived threat and is linked to hostile emotions (Boomgaarden and Vliegenthart 2009; Schlueter and Davidov 2013), whereas positive coverage can foster empathy and tolerant attitudes (Boomgaarden and Vliegenthart 2007). Research has traditionally emphasized negative portrayals and discrete negative emotions (e.g., fear and anger), while positive and mixed emotions have received less attention (Lecheler et al. 2015; Stellar et al. 2017). To understand emotional orientations toward immigrants comprehensively, it is therefore necessary to consider a broader range of emotions and the diverse media environments in which they arise. Importantly, such orientations do not stem solely from individual messages but are embedded within habitual media use patterns: people select media sources that align with their values, identities, and affective needs (Garrett 2009; Knobloch-Westerwick 2014; Stroud 2011). Different media types thus create distinct affective environments that can reinforce or reshape stable emotional dispositions toward immigrants. The following chapters examine these connections in relation to social media, alternative media, and traditional media.

3 Social media and emotional orientations toward immigrants

Social media platforms such as Facebook, Twitter/X, YouTube, Instagram, and TikTok have become central environments for political information practices and public expression. Their defining characteristic is the combination of professionally produced content and user-generated contributions (Kaplan and Haenlein 2010). Political actors, news outlets, alternative media producers, influencers, and ordinary users share information that circulates through algorithmically curated feeds, creating a hybrid information environment with substantial overlap across media spheres (Hasell and Nabi 2023). Beyond simply distributing information, social media environments are structured around interpersonal visibility, interaction, and feedback mechanisms. Likes, comments, shares, and algorithmic recommendations create a socially embedded context for political information seeking, one in which affective expression is particularly salient (Papacharissi 2014). Emotions play a disproportionately large role in social media because platform architectures and algorithms are designed to amplify emotionally charged content. Research consistently shows that emotional content, regardless of topic, tends to travel farther and faster within networked media environments (Berger and Milkman 2012; Stieglitz and Dang-Xuan 2013; Trilling et al. 2017). Especially high-arousal expressions such as anger, awe, or outrage reliably generate engagement and are therefore prioritized in users' feeds (Berger and Milkman 2012; Brady et al. 2017, 2021). Social media affordances, such as likes, reactions, shares, and comments, further encourage quick, low-effort emotional expression, creating what Papacharissi (2014) terms "affective publics," in which users connect through shared sentiment. These dynamics are intensified by identity-related processes: digital environments sharpen ingroup–outgroup distinctions, making identity-relevant emotional content more powerful and more likely to spread (Brady et al. 2021; Suhay and Erisen 2018). Emotional information is also more memorable and contagious, contributing to the rapid diffusion of affect

across networks (Kramer et al. 2014; Ferrara and Yang 2015). Finally, the visual and audiovisual formats that dominate many platforms evoke stronger emotional reactions than text alone (Joffe 2008; Choi et al. 2021), while social rewards activate users' reward circuits and reinforce emotional posting (Sherman et al. 2016). These combined mechanisms create a communication environment in which emotional content is systematically amplified and sustained. This does not mean that social media *cause* emotional reactions about immigration specifically, but that the platforms' communicative logic is closely intertwined with affective expression and social cueing. Users who habitually rely on social media for political information are thus participating in environments where affective communication is common and often rewarded through visibility (Hsu et al. 2019). These routines may correlate with how individuals generally relate to political groups, including immigrants. For instance, users who feel strongly (positively or negatively) about immigration may be more inclined to seek information on platforms that facilitate expression or social validation. Likewise, exposure to peers' reactions, emotional discourse, or identity-based debates may reinforce already-existing orientations. Because the present study does not assess exposure to immigration-related content, the theoretical expectation is not that specific message features drive emotions, but that information-seeking on social media is embedded in affect-rich environments that may correlate with individuals' emotional orientations toward immigrants:

H1: The use of social media for political information seeking is associated with (a) negative, (b) positive, and (c) mixed emotional orientations toward immigrants.

4 Alternative media and emotional orientations toward immigrants

Alternative media encompass a broad and heterogeneous range of outlets, including community media, citizen journalism, activist platforms, and hyperpartisan or ideologically driven sites that vary considerably in format, motivation, and political orientation (Downey and Fenton 2003; Haller et al. 2019; Freudenthaler and Wessler 2025). What broadly unites them is an oppositional stance toward mainstream journalism, often tied to declining trust in established media institutions and a desire to offer alternative interpretations of political issues (Newman et al. 2019; Krämer 2017). Many of these outlets focus on specific topics or political issue areas, cultivate distinct interpretive communities, or develop strong identity-based narratives. Importantly, alternative media are not uniform: some serve participatory, civic, or community-oriented functions, while others advance more partisan or populist discourses. Research demonstrates that hyperpartisan and populist outlets, particularly those on the political right, frequently employ confrontational language, strong evaluations, and identity-based boundary drawing (Hameleers et al. 2017; Rae 2021). These styles often rely on emotional storytelling, moralizing narratives, and dramatic framing (Theorin and Strömbäck 2020), and many such outlets construct moral boundaries between “the people” and perceived outgroups, including immigrants. This type of communication is known to evoke high-arousal negative emotions such as anger, contempt, and fear (Wirz et al. 2018), and is often intensified

by threat narratives, conspiratorial content, and depictions of cultural decline more prevalent in parts of the alternative media ecosystem (Haller et al. 2021; Humprecht et al. 2020). At the same time, other segments of the alternative media landscape, especially left-leaning activist or solidarity-driven outlets, highlight social justice, humanitarianism, and inclusion and may therefore foster more positive emotional orientations among their audiences. Because individuals often gravitate toward outlets that resonate with their pre-existing ideological and emotional predispositions (Stroud 2011), alternative media may attract users with strong emotional orientations toward political groups, including immigrants. As a result, correlations between alternative media use and particular emotional profiles may reflect self-selection into like-minded information environments rather than causal emotional influence. Nevertheless, even within the diverse landscape of alternative media, content portraying immigrants as a threat to national identity, social cohesion, or cultural values tends to be particularly prominent and emotionally engaging. In contrast, solidarity- or activist-oriented outlets are more niche and less widely circulated. Based on this rationale, the following hypothesis is posed:

H2: The use of alternative media for political information seeking is associated with (a) more negative, (b) fewer positive, and (c) fewer mixed emotional orientations toward immigrants.

5 Traditional media and emotional orientations toward immigrants

Traditional media, such as newspapers, radio, and television, have long been central institutions of public communication, operating on the basis of established journalistic norms including verification, editorial oversight, and factual reporting (Maras 2013; Porlezza 2019). Although this category encompasses substantial internal variation, ranging from, for example, quality newspapers to regional and tabloid outlets, as well as, amongst others, public and private TV channels, each with distinct professional standards, styles, and affective tones (Cushion 2015), traditional news organizations generally adhere to norms of objectivity, balance, and contextualization. These norms tend to constrain sensationalism and moderate emotional intensity, particularly in coverage of complex and sensitive issues such as immigration. Research shows that traditional media often incorporate policy detail, multiple perspectives, and human-interest narratives that can foster empathy and reduce hostility toward minority groups (Hopmann et al. 2012; Jacobs et al. 2017). Public service broadcasters, in particular, frequently emphasize societal integration, human stories, and broader social contexts, and have been linked to lower levels of prejudice and fear (Jacobs et al. 2017). At the same time, traditional media are not monolithic: while some outlets highlight humanitarian and contextualized reporting, others prioritize political conflict or episodic frames that may evoke more negative emotions. Nevertheless, compared with more sensational or ideologically driven media environments, traditional journalism's professional norms generally support more moderated and less polarized emotional orientations toward immigrants, even as meaningful variation persists within the broader category.

Because the present study does not differentiate among subtypes of traditional media nor measure exposure to immigration-related coverage, it cannot make claims about media-induced emotional reactions. Rather, the aim is to examine whether general reliance on traditional news for political information corresponds to distinct emotional orientations toward immigrants. Given the more institutionalized and less interaction-driven nature of these outlets, one might expect weaker associations between traditional media use and strong emotional orientations. Therefore, the following research question is posed:

RQ1: Is the use of traditional media (newspaper, tv and radio) for political information seeking associated with (a) negative, (b) positive, or (c) mixed emotional orientations toward immigrants?

6 Towards analyzing a broad variety of emotional orientations toward immigrants and specific social media channels

Existing research often focuses on selected emotions, such as fear or anger, or on aggregated indices of positive versus negative affect. However, individual emotions vary in their functional meaning and behavioral implications. For example, anger is associated with approach tendencies, whereas fear is associated with avoidance (de los Santos and Nabi 2019). Compassion may promote prosocial engagement, while contempt signals moral distancing. Understanding which *specific* emotional orientations correlate with different media information routines can therefore provide a more differentiated picture of intergroup emotion profiles. Because prior research has rarely examined broad emotional repertoires in connection with general media information routines, the present study adopts an exploratory approach, and, therefore, asks:

RQ2: Which specific negative, positive, and mixed emotional orientations toward immigrants are associated with the use of (a) social media, (b) alternative media, and (c) traditional media?

Finally, social media platforms differ considerably in audience composition, affordances, and communicative cultures. Users may turn to platforms such as Facebook, YouTube, Instagram, TikTok, or Twitter/X for distinct political and social purposes, making platform-specific associations with emotional orientations plausible. Again, these associations cannot be interpreted as media effects but as reflections of differentiated information practices.

RQ3: Is the use of specific social media platforms (Facebook, YouTube, Instagram, Twitter/X, TikTok) for political information seeking associated with emotional orientations toward immigrants?

7 Method

To test the hypotheses and research questions, an online survey of a sample from the German population was fielded in November 2023 over the course of 2 weeks. A pretest was conducted before the survey. The sample consisted of 1511 participants who were selected using a quota procedure to match German-speaking Internet users living in Germany aged 18 to 74 concerning age ($M=48.62$; $SD=14.25$), gender (49.6% female), and level of education (43.4% with Abitur (college degree) or higher qualification). The participants were recruited through the online access panel of Dynata, an ISO-certified social research company often contracted for academic purposes. The data as well as the exact item wordings are made available in the projects OSF repository¹.

8 Measures

8.1 Media use for political communication seeking

Media use for political information seeking was assessed using a 7-point Likert scale ranging from *never* to *daily*. Respondents indicated their frequency of using television (TV; $M=5.42$, $SD=2.05$), radio ($M=4.64$, $SD=2.34$), traditional online and offline newspapers ($M=3.39$, $SD=2.34$), alternative online and offline newspapers ($M=2.22$, $SD=1.73$), as well as five social media platforms: Facebook ($M=2.85$, $SD=2.35$), YouTube ($M=2.85$, $SD=2.29$), Twitter/X ($M=2.09$, $SD=1.96$), Instagram ($M=2.40$, $SD=2.16$), and TikTok ($M=1.93$, $SD=1.84$). An index of average social media use was created to capture overall social media-based political information seeking ($M=2.46$, $SD=1.75$). Because media use constitutes a formative construct, internal consistency measures such as Cronbach's alpha are not required.

8.2 Emotions toward immigrants

Fifteen emotions toward “refugees and immigrants” were measured using the question “Which emotions do you feel toward refugees and immigrants living in Germany?”. Participants were assured of their anonymity and informed that there were no right or wrong answers, as the study was interested solely in their subjective feelings. Participants responded on a 7-point Likert scale ranging from *not at all* to *very strongly*, indicating the extent to which they felt each of the following emotions: fear ($M=3.45$, $SD=1.90$), anger ($M=3.06$, $SD=1.98$), contempt ($M=2.48$, $SD=1.80$), disgust ($M=2.31$, $SD=1.71$), envy ($M=2.01$, $SD=1.50$), malicious joy ($M=1.80$, $SD=1.43$), admiration ($M=2.79$, $SD=1.78$), hope ($M=3.27$, $SD=1.85$), gratitude ($M=2.54$, $SD=1.69$), compassion ($M=3.98$, $SD=1.83$), joy ($M=2.76$, $SD=1.72$), grief ($M=2.83$, $SD=1.72$), awe ($M=2.60$, $SD=1.67$), pity ($M=3.72$, $SD=1.79$), and guilt ($M=2.17$, $SD=1.55$).

¹ https://osf.io/ghwdn/overview?view_only=d2808302cc004f6982765143829cb993.

A mean index of negative emotions—fear, anger, contempt, disgust, envy, and malicious joy—showed high internal consistency ($\alpha=0.85$; $M=2.52$, $SD=1.30$). A mean index of positive emotions—admiration, hope, gratitude, compassion, and joy—also demonstrated excellent reliability ($\alpha=0.90$; $M=3.14$, $SD=1.51$). A mixed-emotions index—grief, awe, pity, and guilt—showed acceptable reliability ($\alpha=0.76$; $M=2.83$, $SD=1.28$).

8.3 Control variables

Control variables included age, gender, education, political left–right orientation, contact with immigrants, political interest, attitudes toward immigrants, and migration background.

Migration background was based on parental birthplace: both parents born in Germany (87.3%), one born outside Germany (5.5%), or both born outside Germany (7.2%). For analysis, a dummy variable was created (0=both parents born in Germany, 1=at least one parent born outside Germany).

Political orientation was measured on a 0–100 left–right scale ($M=51.07$, $SD=20.03$).

Contact with immigrants was assessed using a mean index of two items measuring frequency of personal and professional contact (1=*never*, 7=*very often*; $M=3.23$, $SD=1.74$).

Attitudes towards immigrants were measured with eight items covering positive and negative attitudes concerning threat perception of immigrants, such as security threat/benefit (e.g. “Immigrants and refugees in Germany are a threat to security in Germany.”), economic threat/benefit (e.g. “Immigrants and refugees in Germany want to live at the expense of German prosperity.”), social threat/benefit (e.g. “Immigrants and refugees in Germany strive for peaceful coexistence with Germans.”) and culture threat/benefit (e.g. “Immigrants and refugees in Germany enrich German culture and way of life.”), rated on a scale from 1 (*do not agree at all*) to 7 (*completely agree*). A mean index was created, with increasing values indicating increasingly negative attitudes toward immigrants and refugees ($\alpha=0.91$; $M=4.5$, $SD=1.45$).

Political interest was measured with five items (e.g., “I’m generally very interested in political news”), forming a reliable index ($\alpha=0.92$; $M=3.16$, $SD=1.56$), rated on a scale from 1 (*fully agree*) to 7 (*do not agree at all*).

9 Results

To address the hypotheses and research questions, a series of multiple linear regression models was estimated with the statistical software R to examine how different information sources relate to participants’ emotional orientations toward immigrants (see Table 1, Figs. 1, 2). All models include the following covariates: age, gender, education, political orientation, migration background, contact with immigrants, and political interest.

Table 1 Standardized linear regression results for positive, negative, and mixed emotions directed toward immigrants and refugees

	Positive Emotions	Negative Emotions	Mixed Emotions
	Std. β (SE)	Std. β (SE)	Std. β (SE)
<i>Social media use</i>	0.09(0.03)***	0.17(0.03)***	0.16(0.03)***
<i>Alternative media use</i>	0.13(0.03)***	0.15(0.03)***	0.10(0.04)**
<i>TV use</i>	0.03(0.03)	-0.03(0.03)	-0.00(0.03)
<i>Radio use</i>	0.04(0.02)	-0.03(0.03)	0.05(0.03)
<i>Traditional newspaper use</i>	-0.01(0.02)	-0.02(0.03)	0.01(0.03)
Age	0.05(0.03)*	-0.03(0.03)	0.05(0.03)
Gender	-0.02(0.02)	-0.01(0.02)	-0.02(0.02)
Education	-0.06(0.02)**	-0.05(0.03)*	-0.07(0.02)**
Political orientation	-0.02(0.02)	0.17(0.03)***	-0.20(0.03)
Attitudes toward immigrants	-0.63(0.02)***	0.38(0.03)***	-0.38(0.03)***
Contact with immigrants	0.15(0.02)***	0.03(0.02)	0.10(0.03)***
Immigration background	0.02(0.02)	0.03(0.02)	0.07(0.02)**
Political interest	0.01(0.02)	0.05(0.03)*	0.03(0.03)
R^2	0.53	0.33	0.25

Note: $n = 1378$; Values are standardized linear regression coefficients. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$; Gender coded as: male–female; Education coded as: low–high; Political orientation coded as: left–right; Attitudes coded as: positive–negative; immigration background coded as: no–yes

Regarding H1, the findings (Table 1) indicate that political information seeking on social media is positively associated with (a) negative, (b) positive, and (c) mixed emotional orientations toward immigrants. Thus, H1a, H1b, and H1c are supported. For H2, the results (Table 1) show that the use of alternative newspapers is positively associated with (a) negative, (b) positive, and (c) mixed emotional orientations toward immigrants. Accordingly, H2a is supported, whereas H2b and H2c are not supported. Turning to RQ1, the analyses (Table 1) reveal no significant associations between the use of traditional newspapers, radio or TV and any of the three emotional orientation types.

Addressing RQ2, the models reported in Fig. 1 suggest differentiated associations across information sources and discrete emotions. For social media use, significant associations emerge with all assessed emotions except compassion. For alternative media use, the pattern is similar: significant associations appear for most emotions, except fear, compassion, and pity. Within the category of traditional media, TV and radio use show significant associations with specific emotions: TV use is linked to less contempt and disgust, and to more compassion. The use of radio for information seeking is associated with hope, grief, and pity. The use of traditional newspapers shows no associations with any specific emotions.

Finally, analyses for RQ3 (Fig. 2) reveal notable differences across social media platforms: Facebook use correlates with contempt and disgust; YouTube with anger, contempt, disgust, joy, and awe; Twitter/X use is associated with anger, envy, disgust, malicious joy, gratitude, pity, and guilt. TikTok use is associated with a broad range of emotions, including contempt, disgust, envy, malicious joy, admiration, hope, gratitude, joy, grief, and guilt. Instagram use is associated only with grief.

	Negative Emotions										Positive Emotions										Mixed Emotions				
	Anger	Fear	Contempt	Disgust	Envy	Malicious Joy	Admiration	Hope	Gratitude	Compassion	Joy	Grief	Pity	Guilt	Awe										
Social media use	0.08(0.03)**	0.11(0.04)**	0.16(0.03)***	0.16(0.03)***	0.14(0.03)**	0.18(0.03)***	0.06(0.03)*	0.08(0.03)**	0.12(0.03)***	0.00(0.03)	0.09(0.03)**	0.12(0.03)***	0.09(0.03)**	0.15(0.03)***	0.12(0.03)***										
Alternative media use	0.08(0.04)**	0.04(0.04)	0.07(0.03)*	0.15(0.03)*	0.21(0.04)**	0.22(0.03)***	0.13(0.03)***	0.10(0.03)**	0.17(0.03)***	0.00(0.03)	0.13(0.03)***	0.09(0.04)*	-0.03(0.03)	0.14(0.04)***	0.10(0.04)**										
TV use	-0.02(0.03)	0.04(0.03)	-0.08(0.03)**	-0.09(0.03)**	0.00(0.03)	0.00(0.03)	-0.01(0.03)	0.03(0.02)	0.01(0.03)	0.09(0.03)***	-0.00(0.03)	-0.02(0.03)	0.03(0.03)	0.01(0.03)	-0.03(0.03)										
Radio use	-0.02(0.03)	-0.03(0.03)	-0.04(0.03)	-0.02(0.03)	0.01(0.03)	-0.05(0.03)	0.04(0.03)	0.05(0.02)*	0.01(0.03)	0.02(0.02)	0.05(0.02)	0.06(0.03)*	0.07(0.03)**	-0.02(0.03)	0.03(0.03)										
Traditional newspaper use	0.00(0.03)	-0.02(0.03)	-0.01(0.03)	-0.00(0.03)	-0.04(0.03)	-0.04(0.03)	0.00(0.03)	0.01(0.03)	-0.05(0.03)	-0.01(0.03)	-0.02(0.03)	-0.01(0.03)	0.03(0.03)	-0.01(0.03)	0.01(0.03)										
age	-0.06(0.03)*	-0.01(0.03)	-0.07(0.03)*	-0.03(0.03)*	0.02(0.03)	0.03(0.03)	0.01(0.03)	0.10(0.02)***	0.00(0.03)	0.05(0.02)	0.02(0.02)	0.06(0.03)*	0.04(0.03)	-0.04(0.03)	0.06(0.03)*										
gender	-0.01(0.02)	-0.05(0.02)*	0.06(0.02)*	-0.02(0.02)*	0.05(0.02)*	0.01(0.02)	-0.03(0.02)	0.00(0.02)	-0.03(0.02)	-0.01(0.02)	-0.03(0.02)	-0.02(0.02)	-0.01(0.02)	0.00(0.02)	-0.04(0.02)										
education	-0.04(0.02)	-0.04(0.03)**	-0.02(0.02)	-0.04(0.03)	-0.01(0.03)	-0.07(0.03)**	-0.09(0.02)***	-0.04(0.02)	-0.08(0.02)***	-0.01(0.02)	-0.04(0.02)	-0.04(0.03)	-0.05(0.02)	-0.04(0.03)	-0.07(0.03)**										
political orientation	0.10(0.03)***	0.07(0.03)***	0.16(0.03)***	0.16(0.03)***	0.16(0.03)***	0.14(0.03)***	0.00(0.02)	-0.02(0.02)	0.04(0.02)	-0.11(0.02)***	-0.00(0.02)	0.01(0.03)	-0.09(0.03)***	0.04(0.03)	-0.01(0.03)										
attitudes	0.54(0.03)***	0.47(0.03)***	0.33(0.03)***	0.27(0.03)***	0.02(0.03)	-0.06(0.03)*	-0.52(0.02)***	-0.60(0.02)***	-0.49(0.02)***	-0.53(0.02)***	-0.54(0.02)***	-0.24(0.03)***	-0.41(0.03)***	-0.15(0.03)***	-0.34(0.03)***										
contact with immigrants	-0.00(0.02)	-0.05(0.03)	-0.03(0.03)	-0.02(0.03)	0.08(0.03)*	0.06(0.03)*	0.12(0.02)***	0.13(0.02)***	0.10(0.02)**	0.13(0.02)***	0.13(0.02)***	0.10(0.03)**	0.08(0.03)**	0.04(0.03)	0.07(0.03)**										
immigration background	0.01(0.02)	0.02(0.03)	0.02(0.02)	0.03(0.03)	-0.00(0.03)	0.09(0.02)**	0.02(0.02)	0.01(0.02)	0.03(0.02)	-0.00(0.02)	0.02(0.02)	0.09(0.03)**	0.04(0.02)	0.03(0.03)	0.04(0.03)										
political interest	-0.03(0.03)	-0.01(0.03)	0.02(0.03)	0.04(0.03)	0.14(0.03)***	0.12(0.03)***	0.02(0.03)	0.03(0.02)	0.04(0.03)	-0.07(0.03)	0.01(0.03)	0.04(0.03)	-0.04(0.03)	0.06(0.03)*	0.03(0.03)										
R ²	.37	.27	.25	.25	.14	.17	.35	.46	.34	.41	.40	.12	.26	.11	.18										

Note: n = 1378; Values are standardized linear regression coefficients. * p ≤ .05; ** p ≤ .01; *** p ≤ .001; Gender coded as male = female; Education coded as low = high; Political orientation coded as left = right; Attitudes coded as positive = negative; Immigration background coded as no = yes

Fig. 1 Standardized linear regression results (Std. β(SE)) for positive, negative, and mixed emotions directed toward immigrants and refugees

	Negative Emotions						Positive Emotions						Mixed Emotions					
	Anger	Fear	Contempt	Disgust	Envy	Malignant Joy	Admiration	Hope	Gratitude	Compassion	Joy	Grief	Pity	Guilt	Awe			
Facebook use	0.04(0.03)	0.04(0.03)	0.11(0.03)**	0.09(0.03)**	0.01(0.03)	0.06(0.03)	-0.03(0.03)	0.03(0.03)	0.01(0.03)	-0.05(0.03)	-0.01(0.03)	0.01(0.03)	0.04(0.03)	0.03(0.03)				
YouTube use	0.06(0.03)*	0.03(0.03)	0.08(0.03)*	0.09(0.03)**	0.03(0.04)	0.06(0.03)	0.03(0.03)	0.05(0.03)	0.03(0.03)	0.00(0.03)	0.07(0.03)*	-0.01(0.04)	-0.02(0.04)	0.07(0.04)*				
Twitter/X use	0.06(0.03)*	-0.00(0.03)	0.01(0.03)	0.05(0.03)	0.11(0.03)**	0.09(0.03)**	0.04(0.03)	0.00(0.03)	0.07(0.03)*	0.03(0.03)	0.03(0.03)	0.01(0.04)	0.07(0.03)*	0.05(0.03)				
TikTok use	0.00(0.03)	0.03(0.03)	0.08(0.03)*	0.11(0.03)**	0.17(0.04)**	0.19(0.04)**	0.11(0.03)**	0.09(0.03)**	0.09(0.03)**	-0.01(0.03)	0.11(0.03)**	0.07(0.04)*	0.13(0.04)**	0.15(0.04)**				
Instagram use	-0.00(0.03)	0.04(0.04)	-0.04(0.04)	-0.04(0.04)	-0.02(0.04)	-0.06(0.04)	0.03(0.04)	0.01(0.03)	0.04(0.04)	0.03(0.03)	0.01(0.03)	0.03(0.04)	0.02(0.04)	0.05(0.04)				
age	-0.08(0.03)**	0.00(0.03)	-0.11(0.03)**	-0.07(0.03)*	0.00(0.03)	-0.00(0.03)	0.01(0.03)	0.11(0.02)**	-0.00(0.03)	0.08(0.02)**	0.02(0.02)	0.06(0.03)*	-0.05(0.03)	0.06(0.03)*				
Gender	-0.01(0.02)	-0.05(0.02)*	0.06(0.02)*	-0.01(0.02)	0.05(0.02)	0.01(0.02)	-0.03(0.02)	0.01(0.02)	-0.03(0.02)	-0.01(0.02)	-0.03(0.02)	-0.01(0.02)	0.01(0.02)	-0.04(0.02)				
Education	-0.03(0.02)	-0.04(0.02)	-0.02(0.02)	-0.03(0.02)	-0.01(0.03)	-0.07(0.03)**	-0.09(0.02)**	-0.03(0.02)	-0.08(0.02)**	-0.01(0.02)	-0.04(0.02)	-0.03(0.03)	-0.04(0.02)	-0.07(0.03)**				
political orientation	0.11(0.02)**	0.07(0.03)**	0.15(0.03)**	0.15(0.03)**	0.16(0.03)**	0.15(0.03)**	0.00(0.03)	-0.02(0.02)	0.04(0.03)	-0.11(0.02)**	0.01(0.02)	0.02(0.03)	0.05(0.03)	-0.01(0.03)				
attitudes	0.53(0.02)**	0.47(0.03)**	0.34(0.03)**	0.28(0.03)**	0.02(0.03)	-0.06(0.03)*	-0.51(0.03)**	-0.60(0.02)**	-0.48(0.03)**	-0.53(0.02)**	-0.54(0.02)**	-0.23(0.03)**	-0.41(0.03)**	-0.15(0.03)**				
contact with immigrants	0.01(0.02)	0.06(0.03)*	-0.01(0.03)	-0.01(0.03)	0.09(0.03)**	0.07(0.03)**	0.13(0.02)**	0.14(0.02)**	0.11(0.02)**	0.13(0.02)**	0.14(0.02)**	0.11(0.03)**	0.08(0.03)**	0.04(0.03)				
immigration background	0.01(0.02)	0.02(0.02)	0.03(0.02)	0.03(0.02)	-0.01(0.03)	0.09(0.02)**	0.02(0.02)	0.03(0.02)	-0.01(0.02)	-0.01(0.02)	0.02(0.02)	0.08(0.03)**	0.03(0.02)	0.03(0.03)				
political interest	-0.02(0.02)	-0.01(0.03)	0.06(0.03)*	0.07(0.03)*	0.12(0.03)**	0.12(0.03)**	-0.01(0.02)	-0.01(0.02)	0.02(0.02)	-0.10(0.02)**	-0.08(0.02)**	0.02(0.03)	-0.07(0.03)**	0.01(0.03)				
R	.37	.27	.24	.22	.12	.16	.34	.46	.33	.41	.40	.12	.25	.10				

Note: n = 1378; Values are standardized linear regression coefficients. * p < .05; ** p < .01; *** p < .001; Gender coded as: male = female; Education coded as: low = high; Political orientation coded as: left = right; Attitudes coded as: positive = negative; immigration background coded as: no = yes

Fig. 2 Standardized linear regression results (Std. β (SE)) for specific social media channels and specific emotions directed toward immigrants and refugees

10 Discussion

This study set out to explore how different information sources relate to emotional orientations toward immigrants. Across the full set of analyses, the results indicate that social media use and alternative media use are associated with a wide range of emotional responses—negative, positive, and mixed—whereas within the category of traditional media, only television and radio use show notable associations with emotional orientations. Traditional newspapers show no meaningful links to either the general emotional indices or the specific emotions.

The pattern found for social media use aligns with expectations that these platforms are highly affective environments, but the present study cannot determine whether social media *produce* emotional responses. The associations observed here may instead reflect the broader communicative conditions on social platforms, such as high levels of interpersonal visibility, algorithmic recommendation systems, and the prevalence of expressive or sentiment-laden content, which may attract individuals with strong emotional orientations or amplify expression among those already inclined toward emotionally charged engagement. Because the measurement did not capture exposure to immigration-related content, the results are best interpreted as correlations between social media information-seeking and general emotional orientations toward immigrants, rather than platform-specific emotional effects.

The platform-level analyses reveal substantial variation. Facebook use is associated only with the negative emotions contempt and disgust, and YouTube, additionally, with anger, joy, and awe, whereas TikTok use is linked to a very wide array of both negative and positive emotions. Twitter/X shows a mix of predominantly negative emotions, but also positive and mixed emotions, while Instagram use is associated only with grief. These divergent patterns likely reflect the different communicative norms, content formats, and user communities across platforms. Yet the study did not measure platform-specific content exposure; thus, the findings may reflect self-selection based on pre-existing emotional orientations or political attitudes, rather than platform-driven change. The results highlight the need for future work that differentiates more precisely between structural platform characteristics, content audiences actually encounter, and individual motivations for using each service.

For alternative media, the finding that use correlates not only with negative but also with positive and mixed emotions departs from expectations. This likely mirrors the broadness of the alternative media category used in the survey, which combined left-leaning and right-leaning outlets. These audiences differ strongly in attitudes toward immigration, and thus aggregating them into a single measure may obscure divergent emotional orientations. Rather than interpreting the associations as the result of alternative media content, it is equally plausible that individuals with established emotional positions gravitate toward ideologically congenial outlets. This underscores the importance of separating alternative media by political orientation in future research.

Across all models, traditional newspapers show no significant associations with any emotional outcomes. This finding is consistent with the institutionalized norms of professional journalism but may also be due to the undifferentiated measurement of traditional media in this study. Television, by contrast, is associated with fewer

negative and more positive emotions, including higher compassion and lower contempt, and disgust, and the use of radio is positively associated with hope, grief and pity. Although this may point to unique features of TV and radio—such as narrative formats or parasocial exposure—these associations must be interpreted cautiously. Given the absence of content measures and the cross-sectional design, the results could equally reflect the characteristics of TV and radio audiences, differential genre preferences, or the relative prominence of public broadcasting in Germany. Future work should disentangle these possibilities by distinguishing between public and private broadcasters and between news and entertainment formats.

Overall, we find surprisingly high explained variances, solidifying the significance and importance of the findings. The results show that different media types relate differently to emotional orientations toward immigrants. Importantly, however, these findings should not be interpreted as evidence of media *effects*. Rather, they highlight systematic associations that may arise from a combination of audience self-selection, platform or outlet characteristics, and broader communication ecologies. It is also important to note that other variables, especially attitudes toward immigrants, left–right political orientation, and contact with immigrants, seem to play a significant role in shaping emotional responses toward immigrants and refugees (compare Table 1, Figs. 1, 2). Especially the correlation of underlying attitudes and emotions directed toward immigrants should be explored in more detail in future studies. Pre-existing attitudes likely influence both media consumption and emotional responses, as individuals with strong positive or negative views may preferentially select media that aligns with their perspectives or interpret content in ways that reinforce their emotional orientations. Controlling for these attitudes allows researchers to disentangle the independent contribution of stable emotional dispositions, enhancing explanatory power and providing a more nuanced understanding of how cognitive and affective factors jointly shape responses to refugees. Without accounting for attitudes, the findings cannot clearly distinguish between emotions linked to media routines and those stemming from underlying predispositions.

11 Limitations and conclusion

This study has several important limitations that must guide the interpretation of its findings. First and foremost, the cross-sectional design does not allow causal inferences about whether media use shapes emotional orientations or whether individuals with specific emotional orientations prefer particular media. While the results reveal clear patterns of association, the direction of influence remains uncertain.

Second, the measurement of media use was imprecise in several respects. The study did not assess exposure to immigration-specific content, nor did it capture the sentiment or tone of material participants encountered. As a result, the observed associations may reflect general information routines rather than content-driven emotional responses. Similarly, broad categories—such as “established newspapers” or “alternative media”—combine diverse outlets, genres, and communicative practices. For example, within traditional media, the study did not differentiate among public and private TV channels or between quality newspapers and tabloid outlets. Existing

research shows substantial differences in immigration coverage across these media types, making finer-grained distinctions crucial. Similarly, alternative media should be disaggregated by political orientation, as left- and right-leaning outlets likely cultivate very different emotional climates, especially concerning the topic of immigration. This aggregation reduces conceptual precision and may obscure meaningful differences between outlets with distinct political orientations, editorial styles, or audience communities. The platform-level analyses go some way toward addressing this issue, but even there, content exposure remains unknown.

Finally, the survey does not capture individual motivations for media use, the role of incidental exposure, or the extent to which emotions are expressed rather than experienced. These distinctions are particularly important for social media, where affective expression may be performative, strategic, or socially reinforced.

Despite these limitations, the study provides a systematic comparison of emotional orientations associated with traditional, alternative, and social media use in Germany. By analyzing not only positive and negative emotions but also mixed and discrete emotions, the study offers a nuanced map of emotional profiles across different information environments. These results serve as a foundation for future research aiming to better understand how emotions, media use, and attitudes toward immigrants interact—whether as antecedents, consequences, or reciprocal influences in the broader communication ecology surrounding immigration.

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Competing interests

The authors declare no competing interests.

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