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Mapping Media Perceptions: Unveiling the Attitude Networks Toward News Media

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Abstract

This study introduces a novel approach to understanding audience attitudes toward news media by applying network analysis, conceptualizing them as interconnected networks of cognitive and affective evaluations. Using survey data ($N = 500$) from South Korea, this study examines attitude networks related to both general news media and specific outlets. Through pairwise comparisons, we identify distinct structural patterns and key relational links that reveal the complexity of audience responses. The results show that attitude networks vary qualitatively across news outlets, highlighting structural differences that might be overlooked by relying solely on aggregate scores. These insights offer a more nuanced perspective on audience-media interactions, enriching our understanding beyond traditional evaluation metrics.

Keywords

News media, audience response, attitude networks, network analysis, media trust

The media landscape is undergoing a rapid transformation, driven by constantly evolving technologies that have revolutionized the creation, dissemination, and consumption of news over recent decades. The rise of social media platforms, in particular, has empowered audiences not only to share information widely but also to influence editorial decision-making by signaling their preferences (Ferrer-Conill & Tandoc, 2018). These changes have blurred the boundaries of what constitutes "news," as the rapid spread of "fake news," the formation of insular filter bubbles that limit exposure to

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diverse viewpoints, and increasing political polarization collectively exert a profound impact on professional journalism and the broader media ecosystem (Katsaounidou et al., 2019; Lorenz-Spreen et al., 2023).

Amid the growing complexities of the digital media landscape, audiences' preexisting beliefs and attitudes toward news media significantly influence their ability to discern truth from fake news (Moravec et al., 2019). Emotions also play a key role in driving engagement and behavior in digital news consumption and sharing (Orgeret, 2020), and these effects vary across sociopolitical contexts—particularly depending on the degree of Internet freedom (Wu-Ouyang & Hu, 2025). These dynamics highlight the urgent need for systematic exploration of how individuals perceive and evaluate the quality of news sources they encounter in the digital media environment, especially across diverse sociopolitical contexts.

However, journalism research still lacks robust tools to measure audiences' attitudes toward news media (F. L. Lee & Yin, 2021; Weeks et al., 2017). Since the Yale Research Program led by Hovland et al. (1959), which focused on credibility and attitude change, the concepts of attitude and audience trust have often been used interchangeably in media studies (Tsfati, 2003). Institutions such as the Pew Research Center, a nonpartisan organization renowned for its analysis of societal and political dynamics, regularly conduct surveys on public trust in the media as an indicator of audience attitudes toward news media. On its website, the dedicated "Media Attitudes" section features "Trust in Media" as its sole category. The Reuters Institute's annual reports also assess public trust in news across various countries. In 2024, only 32% of respondents in the United States and the United Kingdom expressed trust (Reuter Institute, 2024). The public's lack of trust in journalism is considered the biggest threat facing journalism today (Fink, 2019). Although journalism faces numerous challenges, it is said that public distrust of the media "brings together the concerns in one" (Lewis, 2019, p. 44).

Despite the importance, however, attempts to measure the construct of trust in, or credibility of, news media have faced criticism for lacking theoretical and methodological consistency (Earle & Cvetkovich, 1995; Kohring & Matthes, 2007; Metzger et al., 2003). Pew Research Center asks, for instance, how much, if at all, respondents *trust* the information they get from national or local news organizations (Liedke & Gottfried, 2022). The General Social Survey, on the other hand, inquires about respondents' *confidence* in the press, a term whose interpretation can vary. Some might see it as questioning the press's ability to provide comprehensive and timely news, while others might view it as a probe into journalistic ethics (Daniller et al., 2017). The American National Election Studies (ANES) and Gallup employ a combined approach, assessing the level of trust and confidence in the media's ability to report news fully, accurately, and fairly (ANES 2020 time series study, 2021; Brenan, 2022).

Furthermore, trust in individual media outlets is often assessed with a single item, typically asking respondents how much trust they have in a particular news outlet, or through multiple items that are averaged to approximate audience attitudes (Gottfried, 2021; Liedke & Gottfried, 2022; Roper, 1985). These conventional "averaging" methods might not fully capture the complexity of attitudes toward the media, as they tend

to reduce a potentially multifaceted concept to a single averaged value, thereby overlooking its multidimensional characteristics. While some research has incorporated multiple items regarding more specific perceptions of journalism, such as accuracy and fairness, they too often revert to averaging responses. This practice hampers the examination of distinct dimensions of audience perceptions and their interplay; for example, how perceived accuracy can be influenced by perceived fairness, both of which contribute to the overall attitude toward a media outlet.

From this background, the present study aims to seek to offer an alternative way of understanding audiences' perceptions and evaluations of news media by examining the underlying network structure that shapes various facets of attitude. Within the field of journalism research, there is a notable lack of rigorous methodological investigations concerning the measurement of audience attitudes toward news media. This gap may partially stem from the perception that journalism has traditionally been more focused on the supply side of news, with comparatively less scholarly attention devoted to understanding and influencing audiences' attitudes toward news media. Given that the audiences' perceptions of and reactions to various news sources drive changes in the structural conditions of journalism (Lewis, 2019), it is essential to develop a deeper understanding of audience attitudes toward news media.

Measuring Attitude Toward News Media: A Network Approach

Attitude, a complex construct, has been rigorously examined across various disciplines, particularly in the study of persuasive communication (Eagly & Chaiken, 1993; Fazio & Olson, 2007; Haugtvedt & Kasmer, 2008). It is commonly conceptualized as a multidimensional construct, often encompassing tripartite dimensions, such as cognitive (beliefs or evaluations), affective (emotions or feelings), and behavioral (actions or intentions) facets (Eagly & Chaiken, 1993; Fabrigar et al., 2005; Fazio, 2007; Fishbein & Ajzen, 1975). Drawing from this multidimensional framework, scholars have ventured to measure attitude by using a series of correlated questions aimed at unveiling the underlying dimensions, a method known as the latent variable approach (Jöreskog, 1971). The popularity of this approach can be largely attributed to its statistical harmony with empirical data. However, the assumptions anchoring this approach may border on the unrealistic, failing to capture the authentic mechanics of attitude (Dalege et al., 2016; Monroe & Read, 2008).

One foundational premise of the latent variable approach is the presumed independence of the underlying dimensions of attitude from one another (Borsboom, 2008). Dalege et al. (2016) explain this concept using the analogy of measuring an invisible object's temperature with three separate thermometers. The analogy suggests that the consistency observed among the thermometers, which operate independently, indicates the existence of a latent object. This mirrors the way in which the tripartite dimensions independently yet collectively inform the latent construct of attitude. However, when applied to attitude measurement, this assumption suggests that the

tripartite dimensions are independent of one another, implying that cognitive evaluations of an attitude object are unaffected by emotions or behaviors, and vice versa. This notion is somewhat detached from the complex reality where these dimensions are often deeply interwoven.

For example, suppose a situation where you like a product's design, but are not satisfied with its price. According to the latent variable approach, the liking for the design (affective dimension) should operate independently of the discontent with the price (cognitive dimension), and neither should impact your behavioral inclination toward making a purchase. This compartmentalization contradicts the well-established psychological principles of internal consistency, a tendency to seek a harmonious alignment among cognitions, emotions, and behaviors, often leading individuals to modify their attitudes or perceptions to resolve any dissonance (Festinger, 1957; van Harreveld et al., 2000). The discrepancy between the assumptions underlying the latent variable approach and the actual interactions among cognitive, affective, and behavioral dimensions calls for a more holistic approach that can adequately capture the complex interplay among these dimensions in attitude measurement.

We take the conceptualization of attitude as a network of interdependent evaluative judgments formed using feelings or perceptions most accessible at the time of judgments (Conrey & Smith, 2007; Gawronski & Bodenhausen, 2007). This network-centric approach, representing a marked shift from traditional compartmentalized models, posits that attitude functions as a psychologically activated network within one's mind, where elements either harmonize or conflict with others. Within this approach, a positive correlation between two elements suggests a synergistic relationship, where the activation of one element is likely to trigger the other. Conversely, a negative correlation suggests that activating one element might suppress or deactivate the other, highlighting the dynamic interplay within the attitude system (Monroe & Read, 2008).

When elements within a network harmonize, activating and sustaining the network becomes more effortless, while a network with conflicting elements demands more psychological energy. This concept echoes the often-overlooked fact in social sciences that thinking is an energy-centric process (Hirsh et al., 2012). This, namely the free energy principle, partially elucidates why human brains process information in a manner that minimizes the probability of surprise, or information entropy (Friston et al., 2006). This energy conservation tendency can be formally depicted using the Hamiltonian function, wherein the total energy fluctuates based on the harmony or discord among the elements as follows:

$$H(\chi) = -\sum_{i} \tau_i \chi_i - \sum_{i,j} \omega_{ij} \chi_i \chi_j \tag{1}$$

where χ_i is a node's state, τ_i denotes the strength or intensity of that node's state, and ω_{ij} represents the weight or strength of the relation between a pair of nodes. Harmonious relations occur when connected nodes align in a manner consistent with their current states and the strength of their connections, effectively lowering the

system's energy. Conversely, the total energy $H(\chi)$ increases if there are more pairs of conflictual relations, the states of connected nodes being misaligned. Consequently, the probability of a particular network's occurrence can be expressed as a function of the total energy—as the required energy decreases (increases), the likelihood of the network's presence increases (decreases) as follows:

$$P(X = \chi) = \frac{e^{-H(\chi)}}{\sum_{\cdot} e^{-H(\chi)}} \tag{2}$$

Building on these concepts, van Borkulo et al. (2014) devised a method to estimate a network from binary data, integrating Ising models from physics with logistic regression. In this approach, known as *eLasso*, each attitude element is regressed on all other elements, with the relationships modeled using logistic regression. To ensure the network remains interpretable, L_1-regularization (Lasso) is applied, shrinking weaker connections to zero and retaining only statistically significant links. This establishes connections between the variables, represented as nodes, with relationships defined by the edges in a network graph, weighted by the regression coefficients to delineate the interconnected structure of attitudes.[1] This novel approach facilitates the extraction of a network from a series of binary question items in a survey, thereby enabling an exploration of the interdependent relationships among attitudinal elements captured in the data. The nodes encapsulate various evaluative reactions—such as beliefs, feelings, and behaviors—related to the attitude object. This repositions attitudes as complex psychometric systems, the structure of which is open to empirical analysis (Dalege et al., 2016, 2018).

In this study, we apply this method to extract and estimate the attitude networks related to news media in South Korea, where low trust in the news (i.e., 28% in 2023) is considered a major characteristic of its media ecosystem (H. Lee & Park, 2023). First, we construct an attitude network representing how Koreans collectively perceive the overall news media landscape. Then, we develop attitude networks for specific news outlets and compare them to the general news media network as a baseline. To explore the various dimensions of audience attitudes toward South Korean news media, the following research questions are proposed:

RQ1. What are the key structural characteristics of audience attitude networks toward the general news media in South Korea?
RQ2. What structural differences emerge in attitude networks for specific news outlets?
RQ3. How do the attitude networks for specific news outlets differ from those of the general news media?

Portraying attitudes toward news media as a psychological network unveils a pathway to not only scrutinize how attitude networks differ based on the characteristics of news media but also help identify prominent elements exerting influence within each network.

Method

As the research context, we chose South Korea. Data for this study were collected between August 24 and 29, 2023, through the services of Hankook Research, a South Korean research firm. A total of 500 individuals from its online panel voluntarily participated in the survey for a small monetary reward after reading the online consent form. A hundred people were recruited for each age group, from those in their 20s to those in their 60s or older ($M = 44.55$, $SD = 14.10$), with half (50%) being male for each age group.[2]

First, participants were requested to mark their positions on a seven-point scale between *strongly disagree* (1) to *strongly agree* (7) regarding a set of 21 statements about South Korean news media and South Korean news reports in general. The statements were designed to measure their perceptions (e.g., "South Korean news media pursue public interests" "South Korean news reports are accurate" "South Korean news reports are sensational" "South Korean news reports represent diverse opinions") as well as mood or emotions about news they receive from the media (e.g., "South Korean news reports are interesting" "South Korean news reports make me angry" "South Korean news reports are boring" "South Korean news reports make me uncomfortable").

Next, with the same set of 21 statements, participants were asked about individual news outlets instead of news media in general, starting from major national newspapers that represent the conservative voice (the Chosun Ilbo) and the liberal voice (Hankyoreh), followed by public broadcasting network owned by the government (KBS) and another network that has mixed characteristics of both public and commercial broadcasting (MBC), and two pay television networks (TV Chosun and JTBC). Finally, the same questions were asked about the online content platform Naver and the global video-sharing platform YouTube. Although Naver and YouTube are not news organizations, they were included in the list because they play significant roles in disseminating news, and many South Koreans recognize the platforms as news media. Naver, which is equivalent to Google in South Korea, is the outlet that three out of four (74.2%) South Koreans receive news at least once a week (Lee & Park, 2023). It even ranked as the second most credible news media, following KBS, in a survey conducted by Korea Press Foundation (2022). YouTube was selected by 96.8% as their news source in the same report.

After the set of attitude questions regarding various media outlets, participants were asked to indicate their use of traditional news media such as newspapers and television news ($M = 4.92$, $SD = 1.16$) and online news ($M = 5.30$, $SD = 1.13$) on a seven-point scale from 1 (*almost never*) to 7 (*almost always*). Their use of social media was assessed on the same scale ($M = 4.88$, $SD = 1.68$). Political interest was measured by asking "What is your usual level of interest in politics?" on a seven-point scale from 1 (*very low*) to 7 (*very high*) ($M = 4.65$, $SD = 1.37$). Political identity was measured by asking participants to indicate their political leaning on a seven-point scale from 1 (*very liberal*) to 7 (*very conservative*) ($M = 3.86$, $SD = 1.19$). These measures aimed at capturing the respondents' media use behaviors alongside political engagement and stances, serving as potential covariates for further analysis within the study.

Questions for demographic information were also included. Education was measured with seven choices (1: graduated from middle school or lower, 2: graduated from high school, 3: vocational school or 2-year college degree, 4: 4-year college degree, 5: some grad school, 6: Master's degree, 7: Doctoral degree). The average participant's highest education level fell between a vocational school/2-year college degree and a four-year college degree ($M = 3.45$, $SD = 1.10$). The average household income range was between 4,000,000 and 5,000,000 Korean won (3,000–3,700 US dollars) on a 1 (1,000,000 won or lower) to 9 (9,000,000 won or higher) scale ($M = 5.35$, $SD = 2.53$).

Following the procedure delineated by Dalege et al. (2016), attitude networks were estimated for a total of nine different media outlets, while controlling for covariates such as respondents' gender, age, and political identity. Using the *eLasso* proposed by van Borkulo et al. (2014), each variable of the k attitude variables ($k = 21$) was regressed on $k - 1$ variables in turn. The best fitting regression function for each variable was selected based on the extended Bayesian Information Criterion. This iterative procedure was applied to all k variables, resulting in an attitude network where each variable is statistically linked to others based on the selected regression functions. To characterize the structural properties of the estimated attitude networks, several key structural measures commonly used in the network analysis literature were computed. These measures, along with their descriptions, are summarized in Table A1 (see Appendix).

It is important to note that the attitude networks presented here are not estimated at the individual level but rather at the collective level, representing collective patterns of attitudes rather than those of a single individual. However, this does not imply that these networks cannot be used to explain or predict individual behaviors. In fact, the centrality and connectivity of attitude networks have been shown to outperform simpler methods, such as averaging attitudes, in explaining and forecasting individual voting behaviors in presidential elections (Dalege et al., 2017). In addition, this network approach has been applied to examining job satisfaction, where it demonstrated superior performance in predicting future voluntary turnover compared to structural equation models (Carter et al., 2020). These findings further validate the network approach's effectiveness in understanding and predicting behaviors.

Results

One of these networks pertains to the general news media in South Korea, serving as a baseline model for comparison with networks for each specific news media outlet. The remaining eight networks encompass selected news media, including national newspapers, broadcasting stations, and online media. Table 1 presents the descriptive statistics of the nine causal attitude networks (see Table A1 in the Appendix for more details of each descriptive measure). The first column, *network density*, represents the proportion of existing connections in each network, indicating that, for instance, approximately 37% of all possible pairs among the 21 nodes had statistically meaningful relationships in the attitude network for general news media. The second column, *clustering*, represents the extent to which closed triangles (where three nodes relate to

Table 1. Descriptive Statistics of Attitude Networks.

News Media	Network density (%)	Clustering (%)	Distance	Entropy
The Chosun Ilbo	33.81	49.66	4.64	4.09
Hankyoreh	36.67	51.15	6.08	4.21
KBS	33.33	49.17	5.49	4.09
MBC	33.81	43.98	4.31	4.07
TV Chosun	33.81	43.94	4.64	4.13
JTBC	32.38	49.04	5.28	4.04
Naver	32.86	42.45	5.83	4.04
YouTube	34.29	43.60	5.41	4.06
General News Media (baseline)	37.14	46.40	5.14	4.15

one another) exist in the network, indicating the potential spreading of activity through the network. Hankyoreh, a progressive newspaper, was found to exhibit the highest degree of clustering, while Naver had the lowest. The higher degree of clustering suggests the presence of a denser interconnectedness among the evaluative factors in some parts of the network, implying that perceptions or evaluations regarding one aspect are likely to influence those regarding others.

Distance, shown in the third column, indicates how closely the nodes in a network are connected, often represented by the shortest average path length among all nodes in the network. A shorter distance between nodes implies a more coherent network structure, allowing any node to reach another with a shorter travel time. In an attitude network, shorter distances between nodes, which correspond to closely linked attitude elements, indicate stronger attitudes. This is because tightly connected nodes are more stable and less prone to change (Dalege et al., 2016). Our data shows that MBC, a public broadcasting station, had the shortest average path length, indicating the highest attitude strength, followed by Chosun Ilbo and TV Chosun, while Hankyoreh had the longest average path length, indicating the lowest attitude strength.

For validation purposes, the relationship between the average path distance in extracted attitude networks and the rankings of Korean news media based on brand power (perceived trust and social influence) was assessed using a Spearman rank-order correlation with a permutation test (1,000 trials). The analysis revealed a positive correlation (Spearman's $\rho = .76, p \leq .05$), suggesting that closely connected evaluative attitudes within a network are associated with perceptions of media trustworthiness and social power.[3] This implies that the strength of one's attitude, which can be measured by the shorter distances between nodes, might be correlated with the perceived prominence and trust audiences have for news media. However, one should be cautious when interpreting shorter distances in attitude networks as a direct indicator of higher trust. Attitude strength and trust are two distinct concepts—attitude strength can intensify in both positive and negative directions, while trust tends to shift unilaterally, either increasing or decreasing based on consistent signals of credibility and reliability.

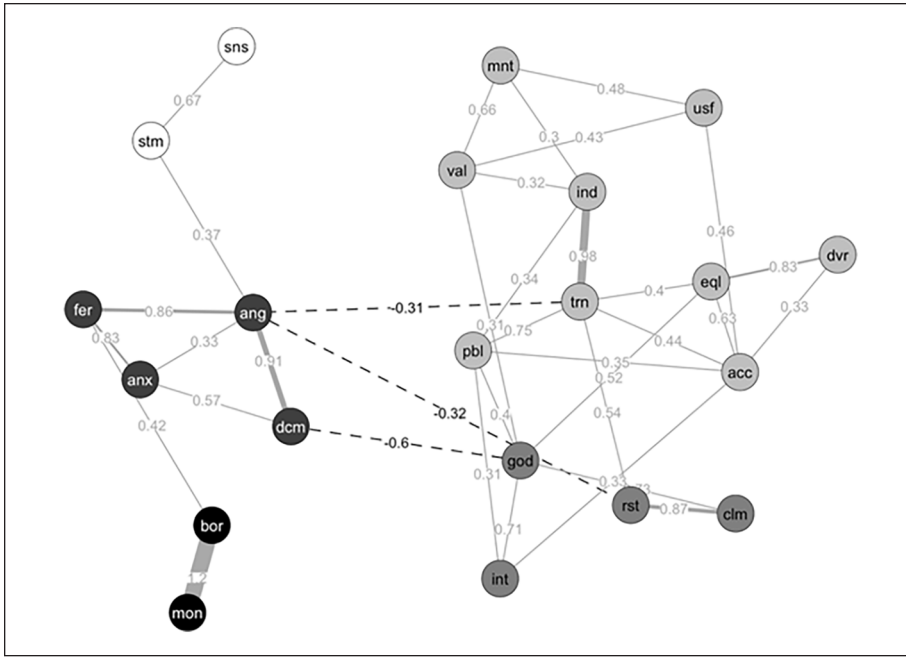

Figure 1. Attitude Network of the General News Media in South Korea.
Note. Covariates, such as gender, age, and political ideology, are controlled, but not displayed. Node labels and their full forms are as follows: acc = accuracy; ang = angry; anx = anxious; bor = boring; clm = calm; dcm = discomfort; dvr = diversity; eql = equality; fer = fear; god = feeling good; ind = independence; int = interesting; mon = monotonic; mnt = social monitoring; pbl = public interest; usf = useful; rst = restful; sns = sensational; stm = stimulating; trn = transparency; val = news value.

Lastly, entropy measures the structural complexity of a network.[4] Higher entropy indicates a more dispersed distribution of edges in a network, while lower entropy suggests a more centralized or concentrated distribution of edges. Given a network with 21 nodes, the maximum possible entropy is 5.347, and all the attitude networks were around 4.1, indicating they possess moderately dispersed structures.

Figure 1 depicts the attitude network of general news media, displaying only connections with a regression weight exceeding .3. The network comprises five densely tied local areas, each represented by a different shade. For instance, four nodes labeled "interesting," "restful," "calm," "feeling good" are colored dark gray, forming a dense local network, while other four nodes labeled "angry," "discomfort," "fear," "anxiety" are forming another cluster. Typically, similar perceptions and emotions are more closely connected than dissimilar perceptions and emotions. Solid gray edges indicate excitatory influence, and dashed black edges indicate inhibitory influence between the nodes. Thicker edges represent higher weights of the edges. A point of interest in this graph is the negative association between "angry" with "transparency." This implies that the issues of transparency, rather than other aspects such as "accuracy" or

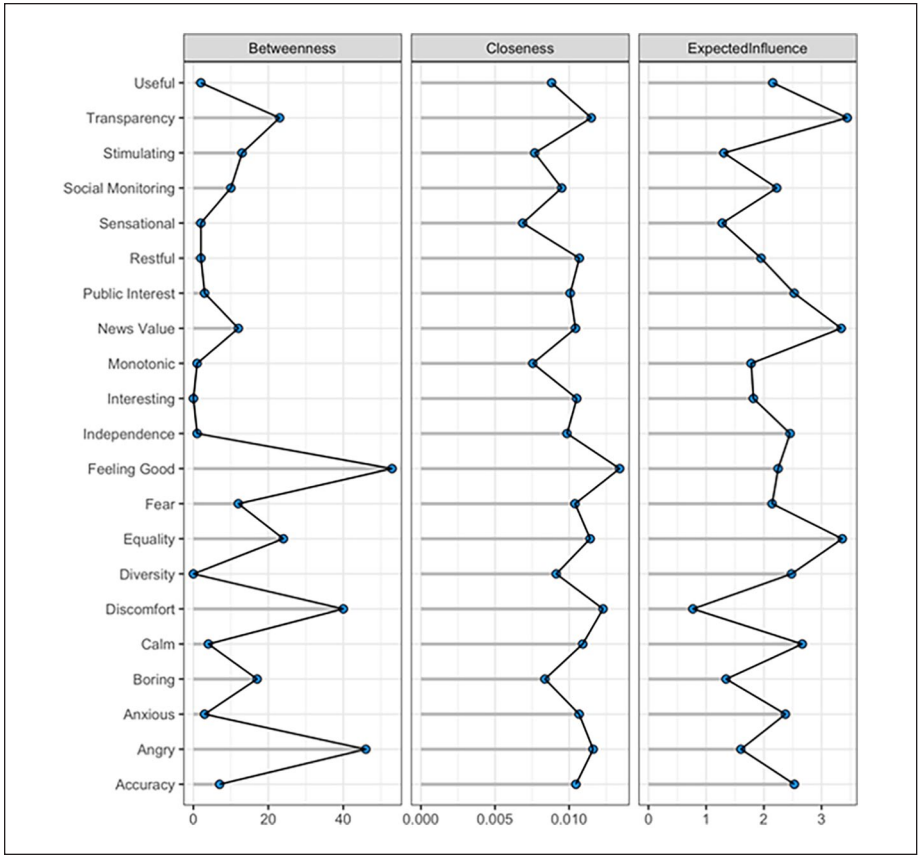

Figure 2. Centrality Analysis of Attitude Network of the General News Media in South Korea.

Note. Expected influence is a measure of the degree of centrality of a weighted network.

"diversity," directly incite feelings of anger toward news media, which in turn can prompt other negative emotions such as discomfort, fear, and anxiety. "Interesting" and "equality" were directly linked to "feeling good," a positive mood that can reduce "discomfort."

The network approach offers a distinct advantage by enabling the examination of the relative importance or prominence of nodes within a network. Figure 2 presents the results of three different centrality analyses: betweenness, closeness, and expected influence. *Betweenness centrality* measures the extent to which a node is situated between pairs of other nodes within the same network. A node with higher betweenness centrality signifies that it occupies a bridging or brokerage position. It signifies how important a node is in the flow of information. Whether a change that takes place in a cluster spreads to other clusters depends on the high-betweenness nodes that connect the clusters.

Closeness centrality quantifies the average shortest path length from a node to all other nodes within the same network. On the other hand, *expected influence*, while related to degree centrality in the context of weighted networks, typically incorporates not just the number of connections a node has, but also takes into account the strength or weights of those connections. If change occurs in a node of high closeness and high expected influence, it will bring more impact than when it happens in a node of low closeness and low expected influence.

The results of the analyses revealed that, while all nodes in the attitude network for general news media did not exhibit significant differences in terms of closeness or expected influence, they were quite varied in terms of betweenness centrality. Notably, "feeling good" and "angry" were found to have the highest betweenness centrality scores. This suggests that these basic emotions occupy pivotal positions that can determine the extent to which changes in a node can propagate throughout the entire network. In other words, they act as gatekeepers of emotional processing—people's cognitive evaluations of various elements of news media are initially linked to the degree to which they feel anger, which subsequently influences other emotions like discomfort. Considering the pivotal role of high-betweenness nodes, inducing feelings of anger or happiness is consequential as it can activate numerous cognitive and emotional evaluations within the attitude network.

Next, attitude networks for two specific news media, the conservative Chosun Ilbo and the progressive Hankyoreh, were extracted and visually analyzed, as depicted in Figure 3. Contrary to the attitude network for general news media, the attitude networks for these specific media outlets were found to comprise two local areas, suggesting that the network is less partitioned and leans toward a more integrated, single-component structure. As indicated in Table 1, the Chosun Ilbo exhibited higher connectivity than Hankyoreh, with the latter having the lowest closeness. This suggests that people tend to hold stronger attitudes toward the Chosun Ilbo than toward Hankyoreh. This difference in network structure is also evident in Figure 3. In the attitude network of Chosun Ilbo, two local networks, represented by black and white areas, are interconnected through nodes such as "public interest" and "useful." In contrast, the network for Hankyoreh consists of two separate components with only one relatively weak connection between "equality" and "angry."

Interestingly, in the case of the Chosun Ilbo, the issue that elicited anger toward the media was identified as "public interest." Considering that "transparency" prompted anger in the baseline network, this result suggests that the specific issues provoking anger may vary across different media outlets. Chosun Ilbo, arguably acknowledged as the most influential newspaper in South Korea (Kim, 2018), may evoke negative responses from people when it appears to prioritize private interests over public ones. Conversely, Hankyoreh appears to lack significant connections between its two partitioned areas, indicating that individuals may find it challenging to link their various emotions to their cognitive evaluations. The only exception is the node representing "equality," the absence of which could potentially trigger anger among Hankyoreh readers, given its separated structure.

Figure 4 presents another example of a pairwise comparison, showcasing the attitude networks for two broadcasting stations: KBS, a public station, and TV Chosun, a

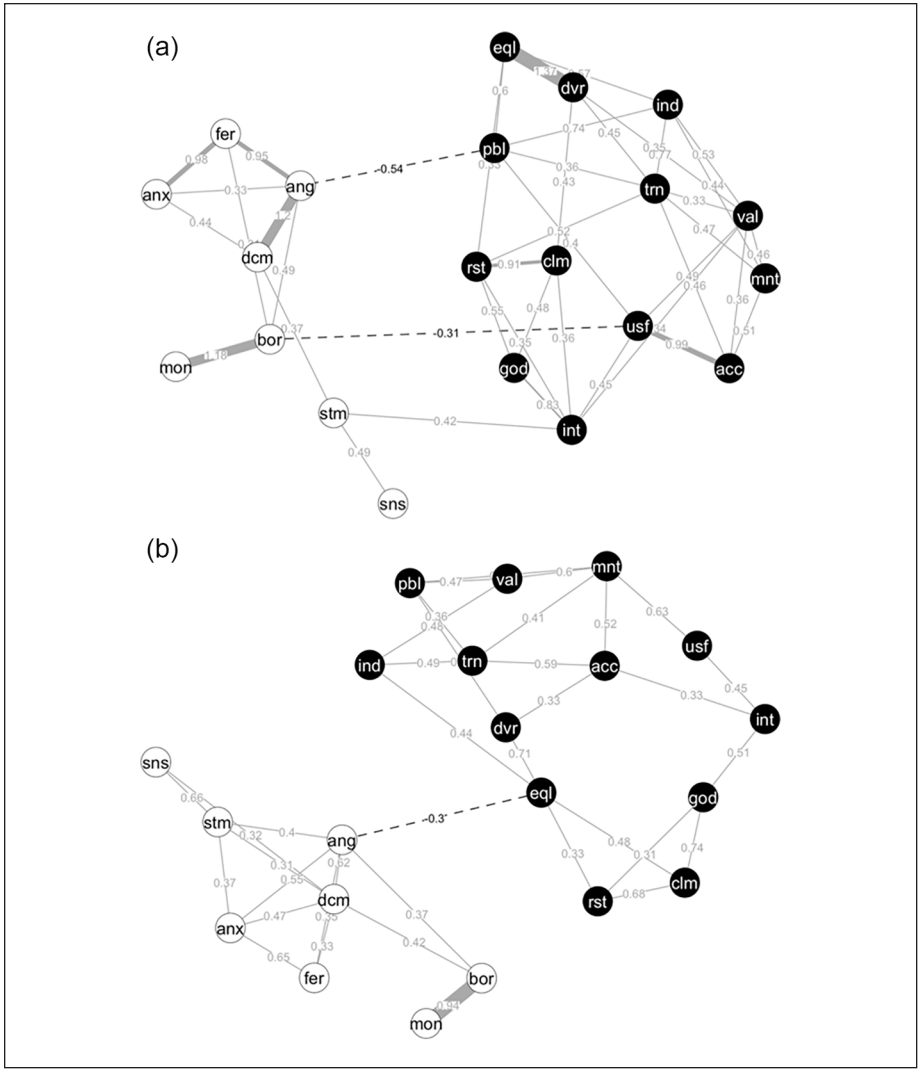

Figure 3. Attitude Networks of Newspapers (Conservative Vs. Progressive). (a) Conservative (the Chosun Ilbo). (b) Progressive (Hankyoreh).
Note. Covariates, such as gender, age, and political ideology, are controlled, but not displayed. Node labels and their full forms are as follows: acc = accuracy; ang = angry; anx = anxious; bor = boring; clm = calm; dcm = discomfort; dvr = diversity; eql = equality; fer = fear; god = feeling good; ind = independence; int = interesting; mon = monotonic; mnt = social monitoring; pbl = public interest; usf = useful; rst = restful; sns = sensational; stm = stimulating; trn = transparency; val = news value.

private station. The attitude network for KBS was discovered to encompass two local areas that were largely disconnected, suggesting that, akin to Hankyoreh, individuals might have difficulties in linking emotional responses to their cognitive appraisals.

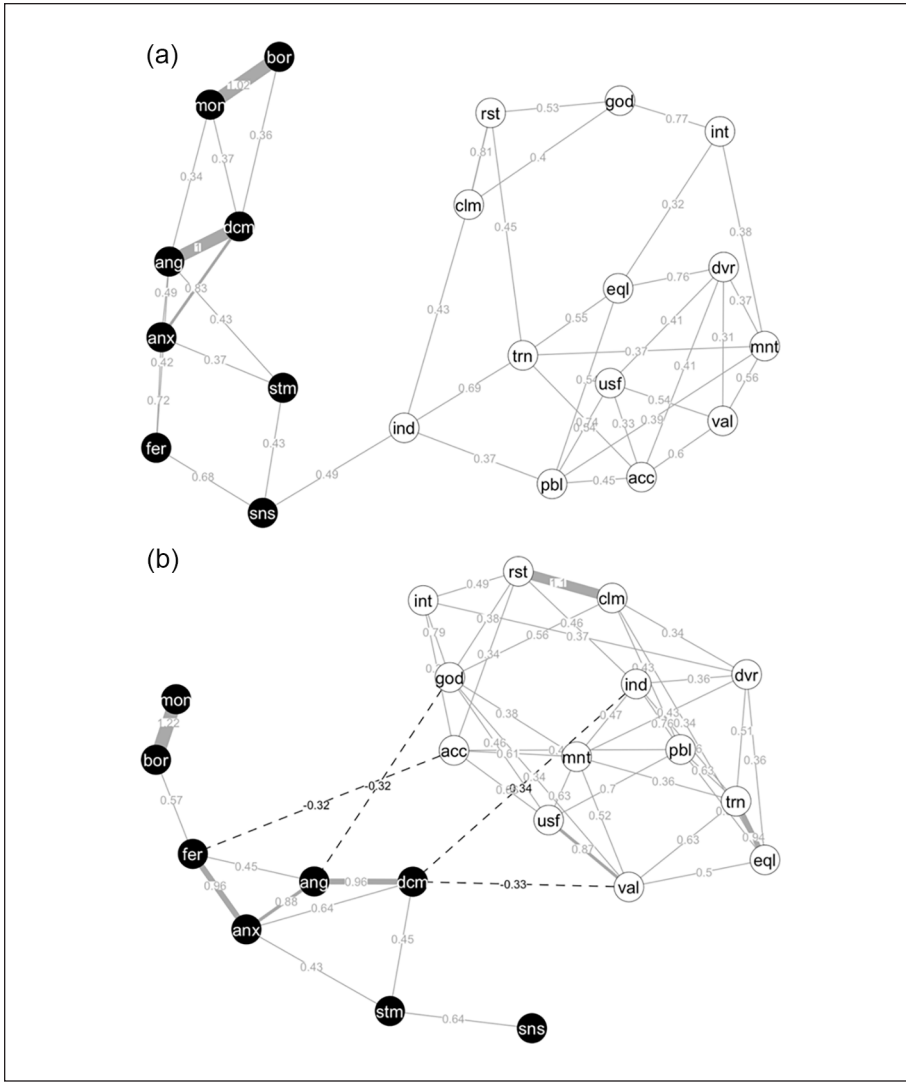

Figure 4. Attitude Networks of Broadcast News (Public Vs. Private). (a) Public (KBS). (b) Private (TV Chosun).

Note. Covariates, such as gender, age, and political ideology, are controlled, but not displayed. Node labels and their full forms are as follows: acc = accuracy; ang = angry; anx = anxious; bor = boring; clm = calm; dcm = discomfort; dvr = diversity; eql = equality; fer = fear; god = feeling good; ind = independence; int = interesting; mon = monotonic; mnt = social monitoring; pbl = public interest; usf = useful; rst = restful; sns = sensational; stm = stimulating; trn = transparency; val = news value.

Conversely, the attitude network for TV Chosun, a commercial cable television station, shows a distinct pattern, with the two local partitions exhibiting mostly negative associations. Particularly, "independence" and "news value" were found to be negatively correlated with "discomfort." This implies that viewers tend to feel discomfort when commercial television such as TV Chosun appear to lack independence or broadcast content with low news value. These feelings of unease can lead to anger and anxiety, and subsequently trigger fear through the pathway of anger.

In addition to the visual and descriptive inspection of each attitude network, we employed the network permutation method[5] to conduct pairwise statistical comparisons between each of the four media outlets examined above and the general news media, which served as the baseline or the average. Among the four media outlets, the Chosun Ilbo, $d = 13.31$, $p < .001$, and TV Chosun, $d = 12.51$, $p < .001$, were found to have attitude networks that significantly deviated from the general news media in terms of global network strength. As indicated in Table 1, these two attitude networks exhibited a significantly shorter average distance than the baseline, indicating more coherent attitude networks. This shows that Koreans tend to exhibit significantly more coherent and robust attitude networks toward the two specific news outlets compared to the baseline.

While no significant difference was found among all media outlets from the baseline in terms of global network structure (i.e., link weight distribution), some specific edge weights were identified as significantly different. Figure 5 illustrates four cases of link-by-link comparisons between two selected attitude networks, displaying only links with statistically significant differences. In the network, links are represented as black dashed lines when their connection strength is weaker than that of the baseline network and as solid gray lines when it surpasses the baseline. The baseline attitude network is assumed to represent the collective expectation of node associations. Accordingly, solid gray links indicate stronger-than-average associations, while black dashed links denote weaker-than-average connections.

Notably, regarding Chosun Ilbo, "equality" displayed significantly stronger link weights toward "independence," "diversity," and "restful," compared to general news media. This suggests that improving the perception of balanced reporting in a newspaper like Chosun Ilbo could boost perceptions of its independence, diversity, and the relaxation it provides to readers. This is based on observed stronger associations among these elements compared to general news media, suggesting a strategic focus on balance may enhance overall audience perception. In addition, by bolstering its image as a source of useful information, the paper can enhance perceptions of "accuracy" and "public interest," while simultaneously reducing the perception of being boring (Figure 5a).

For Hankyoreh, emphasizing "equality" might not be the most effective strategy, as its links to "feeling good" and "social monitoring" were found to be weaker compared to the baseline model. It is possible that Hankyoreh's perceived equality does not effectively strengthen readers' positive feelings about its news reports because it is already seen as a progressive citizen-owned paper. However, emphasizing "equality" holds value, as it is strongly linked to "independence" and "restful" feelings (Figure 5b).

When it comes to KBS, the national public broadcaster may convey a commitment to public interest, which strengthens the perception that it provides useful information, $d = 0.98$, $p < .01$. However, this commitment does not seem to align with the perception

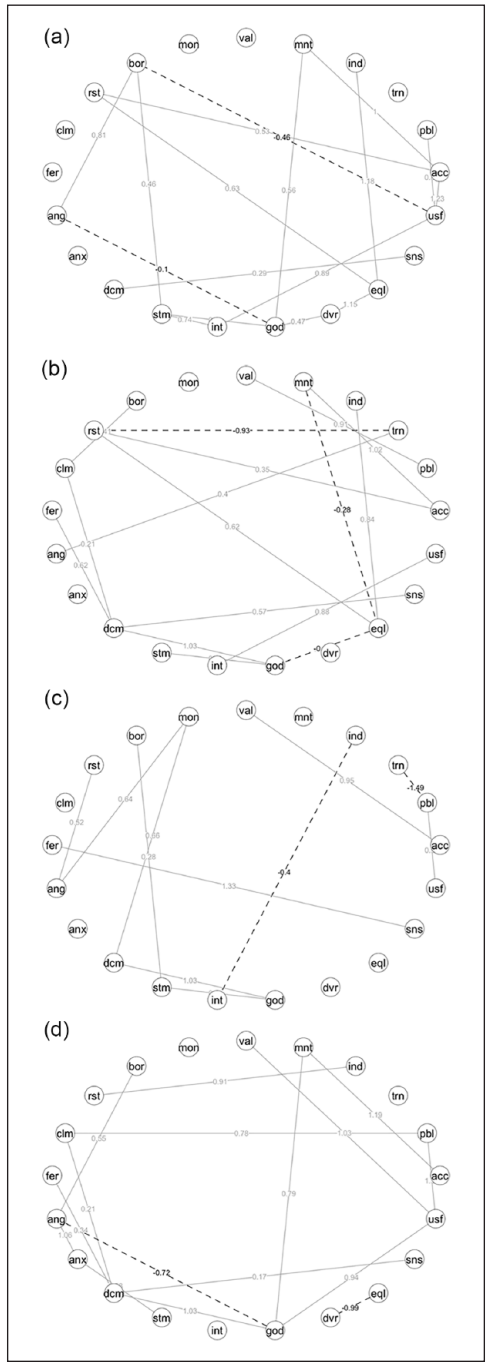

Figure 5. (continued)

Figure 5. Statistical Comparison of Networks. (a) Conservative (the Chosun Ilbo)—General News Media (Baseline). (b) Hankyoreh (Progressive)—General News Media (Baseline). (c) KBS (Public Broadcasting Station)—General News Media (Baseline). (d) TV Chosun (Private Broadcasting Station)—General News Media (Baseline).
Note. Only edges with $p \leq .05$ are shown in the figure. Dashed lines indicate that the edge intensity of the former network is smaller than that of the latter, while solid lines represent the opposite. Node labels and their full forms are as follows: acc = accuracy; ang = angry; anx = anxious; bor = boring; clm = calm; dcm = discomfort; dvr = diversity; eql = equality; fer = fear; god = feeling good; ind = independence; int = interesting; mon = monotonic; mnt = social monitoring; pbl = public interest; usf = useful; rst = restful; sns = sensational; stm = stimulating; trn = transparency; val = news value.

that the government-funded medium operates transparently. The link between "public interest" and "transparency" was significantly weaker than the baseline, $d = -1.49$, $p < .01$ (Figure 5c).

Lastly, an interesting observation concerning TV Chosun is the weaker link between "diversity" and "equality" compared to the baseline. The association between the perception that the cable channel's news reports are balanced and the perception that it represents diverse voices is less strong than in the baseline model (Figure 5d). As TV Chosun is regarded as a conservative alternative to liberal mainstream TV networks, "balanced" might have a different meaning from "diversity" to its audiences.

Discussion

When viewing the world as a vast network, complex truths hidden behind familiar phenomena come into view. In this hyper-connected era where individual minds extend to connect people and shape societies, portraying thoughts and feelings as a network may serve as a crucial starting point for a more nuanced understanding of the complex processes of communication. The age-old concept of attitude, which has been a cornerstone in persuasive communication, reveals numerous unexplored issues when examined through the lens of a network.

While most previous efforts to measure public perceptions of news media have focused on aggregated scores, such as overall high or low attitude ratings, examining attitude networks reveals which specific cognitive elements are associated with positive or negative emotions. This insight illuminates which elements tend to make people feel restful and calm or uncomfortable and angry, providing a nuanced understanding beyond merely comparing aggregated scores across media. For instance, by constructing a network of the overall attitude that voters have toward a presidential candidate, it becomes possible to analyze the relationships among various evaluation factors of the candidate, such as honesty, fairness, sincerity, and leadership (Dalege et al., 2016). Through this analysis, one can identify which part represents a weak link, where mutual conflict occurs, and what perception strongly evokes negative emotions, thereby enabling the opportunity for detailed improvements.

The findings from the current study demonstrate that estimating attitude networks toward various news media not only enables an in-depth examination of the structural characteristics of people's attitudes toward each news medium beyond merely obtaining an aggregated score but also facilitates comparisons to highlight subtle differences

in structure that may have been previously overlooked. While it is commonly posited that sensational and stimulating news might evoke anger and discomfort among individuals, our results indicate that a lack of transparency regarding the production and distribution of news might be a fundamental reason underpinning their negative reactions to news media (Figure 1). This suggests that South Koreans predominantly hold a normative view that news media should operate in a transparent manner. Accuracy, on the other hand, had the highest number of direct connections to other nodes, implying that improving the accuracy of news can effectively improve audience perceptions in other dimensions such as equality, usefulness, transparency, and news value.

The analyses of specific news media unravel varying narratives. People tend to exhibit a stronger attitude network toward Chosun Ilbo, a prominent newspaper with a conservative stance, compared to its progressive counterpart, Hankyoreh. This disparity seems to be rooted in the connectivity between cognitive appraisals and emotional responses. In the case of the conservative newspaper, individuals were particularly incensed by the perceived prioritization of private interests over public ones. For Chosun Ilbo, which is owned and run by the family that established it, the perception of pursuing private interests can trigger anger, which subsequently leads to discomfort, fear, and anxiety (Figure 3a). On the other hand, individuals showed relatively weaker emotional responses toward the cognitive appraisals of Hankyoreh. This could be partly attributed to its citizen-owned model, which may result in a different level of emotional investment. Besides the lack of equality that triggers anger, it remains unclear what specific cognitive factors cause negative emotions among Hankyoreh readers, given the overall segregation between cognitive and emotional dimensions of their attitude.

The divergence in emotional response was also observed when comparing two broadcasting television stations, one public and the other private. It was discovered that individuals had relatively weak connections between their cognitive appraisals and emotional responses regarding KBS, a public broadcasting station. The two clusters were connected only through "independence" and "sensationalism"—the more independent from external influences, the more sensational it may become. This might seem counterintuitive, but it underscores the complexity of the issue of independence. Upon reflection, people may perceive KBS's news as being less sensational due to government oversight (i.e., less independent). Alternatively, when they see its sensational content, they might view KBS as relatively free from external pressures, including the government's control. Although the overall network strength is low, given that "transparency," "accuracy," "public interest," and "social monitoring" had the most connections (i.e., 5) to other nodes among cognitive appraisals, working on any one of these perceptions can have a ripple effect, influencing multiple other perceptions.

In contrast, stronger cognition-emotion connections were observed concerning TV Chosun, a privately owned channel. The result reveals that perceptions of low independence and low news value regarding this channel can evoke discomfort. It indicates that individuals feel uneasy when they see the medium as lacking independence or when they believe it offers news of lower value. These findings underscore the significance of perceived independence and news value in shaping audiences' emotional reactions to TV Chosun. Being established as a subsidiary of Chosun Ilbo, a privately owned newspaper company, it may be perceived as inherently less

independent than public news media. This perception could undermine the perceived newsworthiness of the stories it delivers, and in turn, evoke discomfort in the audience—a sentiment closely associated with anger.

Statistical pairwise comparisons of each attitude network with the baseline (i.e., general news media; Figure 5) provide insights into the crucial links specific to a particular medium when compared to news media in general. In the case of Chosun Ilbo, "accuracy" is connected relatively more strongly than the baseline to "usefulness," which is a central perception directly linked to five other nodes in the attitude network (Figure 3). This suggests a strategic approach for the paper: By enhancing the public's perception of the accuracy of its news articles, the paper can effectively elevate perceptions of "usefulness," "transparency," "news value," and "social monitoring," as well as triggering other positive perceptions such as "interesting" and public interest" through "usefulness."

It is notable that people have the lowest attitude strength regarding Hankyoreh, which also has the highest entropy—the most dispersed distribution of edges in a network. In Hankyoreh's attitude network (Figure 3b), "equality" appeared to be directly and negatively linked to "anger." However, pairwise comparisons revealed that this connection was not significantly stronger than the baseline network, reflecting the network's largely compartmentalized structure. Instead, the connection between "equality" and "feeling good" was found to be significantly weaker than the baseline network. This suggests that it might be more challenging for the paper to effectively influence readers' overall emotional appraisals by emphasizing a few cognitive perceptions, such as "equality," due to its dispersed network.

When examining KBS, the relatively strong link between "discomfort" and "monotonous" stands out as an interesting focal point. This connection suggests that network television has the potential to provoke discomfort among audiences simply by delivering monotonous news reports. This connection, which is unique to KBS, implies the delicate balancing act that news media must navigate to cater to the diverse expectations and needs of their audiences by crafting a blend of informative yet engaging content. The notably weak relationship between "transparency" and "public interest" concerning KBS may indicate a dissonance among audiences. People may perceive KBS as serving the public interest as the public broadcaster, but they may not necessarily view its operation as more transparent than other media.

In the attitude network of TV Chosun, cognitive evaluations were intricately connected to emotional appraisals. One strategic approach the company can consider is placing greater emphasis on enhancing the audience's perception of "usefulness," as it shows significantly stronger connections to "feeling good" and "public interest" compared to the baseline network. In addition, the particularly strong link between "independence" and "restfulness" underscores the importance of maintaining independence from the company's private interests to foster a sense of comfort among the audience. These results also raise the possibility that, regardless of their ideological stance, South Koreans may generally be more inclined to have emotional reactions to privately owned media compared to publicly owned ones. This finding reflects a broader apprehension toward privately owned media outlets, where the owner's interests might, in the eyes of the public, compromise the autonomy of the media.

Research Implications

Beyond the analysis of specific cases, the network approach to audience attitudes offers important theoretical implications for communication research. First, conceptualizing attitudes as psychological networks aligns well with contemporary psychological theories, which emphasize the complexity and interdependence of mental processes (Dalege et al., 2016, 2018). For example, when audiences resist changing their attitudes toward particular news outlets, the network representation can help identify the specific issues occupying key positions within the attitude structure. This theoretical alignment enhances our ability to explain and predict media audience behaviors, such as media selection, opinion expression, or political participation, including voting (Dalege et al., 2017; van Borkulo et al., 2014).

Related to the previous point, the network approach extends the uses and gratifications perspective by showing how audiences' media choices are influenced not only by the gratifications they seek but also by the structural connections between their cognitive and emotional evaluations. Traditional uses and gratifications studies have mainly focused on identifying individuals' motives for using media, such as information-seeking and social interaction. However, our findings suggest that media gratification is not solely determined by specific needs or motives but rather emerges as a result of the intricate interplay between various cognitive and emotional reactions. In the context of news media selection, the network approach allows us to move beyond mere classifications of use motives and delve deeper into understanding why individuals choose or avoid specific news outlets, linking various cognitive and affective reasons.

For instance, public broadcasters such as KBS exhibited relatively weak connections between cognition and emotion, implying that audiences primarily engage with them for information consumption, which is mostly habitual rather than for emotional gratification. On the other hand, privately owned outlets such as TV Chosun demonstrated stronger cognition-emotion links, suggesting that audiences seek experiences with higher emotional engagement—a key dimension where their motivated reasoning takes place. This implies that different types of media not only fulfill different needs but also trigger distinct emotional pathways, which in turn shape long-term audience-media relationships.

Lastly, people's attitudes toward news media are not static but can vary across contexts, particularly in response to the frames employed by the media. Recent studies have introduced computational methods that identify frames as bundles of topics and actors within news content (Jiang et al., 2025). By integrating this framing-element approach with the network model, future research could explore how different framing structures shape the formation and evolution of audience attitude networks toward media outlets.

Limitations

It is important to note that the findings of the present study should be understood within the context of its limitations. First, the questionnaire included a total of 21 cognitive perceptions and emotional evaluations about news media. While these statements were derived from previous studies and reports, they do not constitute an

exhaustive list of components that contribute to attitudes toward news media. Adding another significant node could potentially alter the network structure.

In a similar vein, not all media outlets were included in the analyses. While we compared KBS and TV Chosun, they may not comprehensively represent other public broadcasting channels and cable television channels. People might have varying attitudes with different network characteristics toward different media organizations, however, we selected one representative from each category for the pairwise comparison with the baseline.

We should also acknowledge that survey participants may have answered the questionnaire without having sufficient experience with individual news media outlets. Notably, only 9.7% of South Koreans read physical newspapers, while a significant majority (84.1%) read newspaper articles through social media, messaging services, or news aggregation sites (Korea Press Foundation, 2022). Consequently, it is possible that they do not always check or accurately remember the source of each article they encounter. This makes it challenging for individuals to form concrete attitudes toward individual news sources. Participants might have responded to the questions about nine different media outlets based on affective gut reactions and partial impressions they have in mind, which could potentially lead to higher error rates.

Furthermore, longitudinal studies could leverage this approach to track changes in attitude networks over time, providing insights into how media events, policy changes, or shifts in public discourse impact audience perceptions. This longitudinal tracking can be conducted using empirical data from multiphase surveys or through computer simulations that model changes in attitude networks over time. Dalege et al. (2018) demonstrated this by showcasing how simulations can effectively capture changes in the structure of attitudes over time. It would be also insightful to divide national audiences based on partisanship and compare their attitude networks. In addition, comparative studies across different cultural contexts could reveal how cultural factors influence the structure and dynamics of attitude networks. By expanding the scope of this research, scholars can develop a more comprehensive understanding of the factors that shape audience attitudes globally. This approach can help media companies craft informed communication strategies aimed at enhancing their strengths and addressing the weaker aspects of their public perception. Ultimately, the insights gained from this research can inform both academic scholarship and practical efforts to foster a more informed and engaged public.

Nonetheless, the results of our analyses shed considerable light on the nature of the attitude network toward news media people formed based on their experiences and impressions. Our findings suggest audience motivations and gratifications may be embedded within the structural organization of attitudes toward media. As discussed above, the network approach allows to dissect the intricate web of cognitive and emotional connections people form with various media outlets, lending a more comprehensive understanding of the public's media consumption behaviors and expectations. It underscores the dynamic interplay of diverse evaluative factors, providing a more granular comprehension of how different attributes of news media resonate with the audience.

Appendix

Table A1. Structural Property Measures of Network.

Measures	Definition	Interpretation
Network density	The proportion of existing links in a network	Higher density implies a stronger connection between evaluative reactions, while lower density suggests a fragmentation of attitudes.
Clustering	The proportion of closed triangles or triadic closures (i.e., two nodes connected to a third node also form a link between them) that exist in a network	Higher clustering implies that evaluative reactions tend to reinforce each other, while lower clustering suggests that attitudes are less structurally interdependent.
Distance	The average number of steps it takes to travel between any two nodes in the network, using the shortest possible paths	Shorter path distance implies that attitudes are more consolidated and internally coherent, often reflecting their strength.
Entropy	The degree of randomness or uncertainty in the distributions of links in a network	Higher entropy implies a more diverse and nuanced attitude structure, suggesting that evaluative reactions are more complex and multifaceted.
Expected influence	Equivalent to degree centrality in a weighted network, this metric reflects each node's connection range and the strength of its connections	A particular evaluative reaction with a higher expected influence (i.e., weighted degree centrality) can be considered a key driver of attitude formation for the media outlet.
Closeness	The average shortest path length from a node to all other nodes within the same network	A specific evaluative reaction with a higher degree of closeness is deeply integrated into the attitude structure, implying that it plays a crucial role in influencing other evaluative reactions.
Betweenness	The extent to which a node is situated between pairs of other nodes within the same network. This quantifies the extent to which a node acts as a bridge or intermediary	An evaluative reaction with a higher betweenness centrality acts as a bridge between different attitude clusters, serving as a crucial mediator in shaping attitudes.

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Notes

1. This method uses eLasso, a procedure tailored for binary data, to eliminate relations with weights below a threshold, which serves to reduce the number of pairs incorporated in the statistical model, thereby circumventing the issue of multicollinearity. For more information, see van Borkulo et al. (2014) and Dalege et al. (2016).
2. Under our institution's regulations, no IRB or ethics approval is required for anonymous opinion surveys, but the polling company employed standard ethical and confidentiality protocols, ensuring data were collected anonymously and reported only in aggregate forms.
3. The rankings of Korean news outlets for this assessment were determined by calculating the weighted average of several polls conducted between 2022 and 2024. These polls include the Reuters Institute Digital News Report (2024), the Korean Press Foundation survey (2022), the Sisa In Survey (2024), and the Korea Journalists Association Survey (2024). The rankings are as follows: (1) MBC, (2) JTBC, (3) Chosun Ilbo, (3) TV Chosun, (5) KBS, (6) Hankyoreh, (7) YouTube, (8) Naver.
4. The entropy discussed herein was computed utilizing the Shannon entropy measure, defined as $H(X) = -\sum p(x_{ij}) \log p(x_{ij})$, where $p(x_{ij})$ represents the probability or proportion of ties existing between a pair of nodes i and j.
5. Network permutation method is a statistical approach used to test the significance of observed network properties by comparing them to a null distribution obtained by randomizing the network while preserving certain network characteristics, such as degree distribution or number of nodes and edges.

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