Trust in media and processing of health information during the Covid-19 pandemic
Chang Sup Park
Gaylord College of Journalism and Mass Communication, The University of Oklahoma

Abstract:
Based on a nationwide survey of 938 American adults in 2020, this study analyzed systematic and heuristic information processing related to Covid-19. Results showed mainstream media use correlated with systematic processing, while partisan and social media use correlated with heuristic processing. Trust in mainstream media predicted systematic processing, whereas trust in partisan and social media predicted heuristic processing. Perceived importance of health issues was positively associated with systematic processing and negatively with heuristic processing. Perceived ability to find relevant health news positively predicted systematic processing. The findings underscore the complex interplay among media trust, media use, and individual perceptions in information processing during public health crises.

Keywords: Heuristic-Systematic Information Processing, Health Information, Covid-19 Pandemic, Media Trust

Introduction
The advent of online media has reshaped how health information is disseminated, sparking a surge in efforts to assess its credibility and trustworthiness (Smith et al., 2020). Amidst the Covid-19 pandemic, characterized by an avalanche of information and misinformation, understanding how individuals process health-related information became paramount. The crisis underscored the critical role of accurate information dissemination in public health emergencies and highlighted the influence of various media sources on public perceptions and behaviors. Despite the vital importance of accurate health information, individuals often exhibit cognitive parsimony, investing minimal effort in assessing such information (Shearer & Mitchell, 2021).

Against this backdrop, it becomes imperative to discern which information sources—whether traditional, partisan, or social media—were most trusted by individuals during the pandemic, and how cognitive processes influenced their judgments of trustworthiness. To address these questions, this study turns to the Heuristic-Systematic Model (HSM) (Chaiken, 1980), which provides insights into the cognitive effort expended in evaluating the credibility of different sources and messages. The HSM identifies heuristic and systematic processing as the primary cognitive pathways for evaluating information. Heuristic processing entails the use of mental shortcuts or cues, such as a medium’s reputation, to arrive at decisions, whereas systematic processing involves a more comprehensive and analytical approach (Chaiken & Ledgerwood, 2012). For decisions of little consequence, individuals often rely on the less cognitively demanding heuristic method, whereas for issues perceived as important, systematic processing predominates (Metzger & Flanagin, 2015).

Through a nationwide survey of 938 American adults conducted in 2020, we examined the extent to which the levels of trust in pandemic news across mainstream media (newspapers, television news), partisan media, and social media platforms during the pandemic are associated with heuristic and systematic processing. Given the looming threat of more deadly viruses in the future, it is crucial to understand which information sources (traditional, partisan, and social media) individuals place the most trust in, and the cognitive processes guiding their decision-making. This study also delves into factors influencing both media trust and cognitive processing, including perceived importance of health issues, perceptions of one’s ability to find relevant health news, certainty in health decision-making, and need for cognition.

Literature Review
Heuristic-Systematic Model (HSM)
The Heuristic-Systematic Model (HSM), introduced by Chaiken in 1980, is a crucial framework for understanding how individuals process information and make judgments. It posits two primary cognitive pathways: heuristic processing and systematic processing. Heuristic processing involves the use of mental shortcuts and easily comprehensible cues to make judgments quickly and efficiently (Chaiken, 1980). On the other hand, systematic processing entails a more thorough and analytical evaluation of information, characterized by careful

Copyright © 2024 Health & New Media Research
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
http://hnmr.org
attention, deep thinking, and intensive reasoning (Chaiken & Ledgerwood, 2012). According to Chaiken (1980), whether individuals engage in heuristic or systematic processing depends on their ability to evaluate messages and their motivations for seeking accurate information. Those with limited cognitive resources or low motivation may rely more heavily on heuristic processing, whereas individuals with the capacity and motivation for careful deliberation are more likely to engage in systematic processing (Chen & Chaiken, 1999). Heuristic processing often involves the use of cues such as source reputation or message simplicity to make quick judgments, while systematic processing entails a comprehensive evaluation of evidence and arguments (Chaiken & Ledgerwood, 2012).

The HSM provides a valuable framework for understanding how individuals assess the credibility of information. Heuristic processing allows for efficient decision-making in situations where cognitive resources are limited, but it can also lead to biases and errors in judgment if relied upon exclusively. In contrast, systematic processing enables individuals to critically evaluate information and make well-informed decisions, but it requires more cognitive effort and motivation (Chaiken & Ledgerwood, 2012). Understanding the interplay between heuristic and systematic processing is essential for comprehending how individuals navigate the vast amount of information available to them in the digital age.

Trust in Media

Trust in the media is fundamental for maintaining social order and cohesion (Kohring & Matthes, 2007; Strömbäck et al., 2020) and is essential for the proper functioning of a democracy (Strömbäck et al., 2020). Users rely heavily on the perceived trustworthiness and accuracy of a medium for its persuasiveness, seeking assurance in the integrity and motives of journalists (Strömbäck et al., 2020; Tsfati & Cohen, 2012).

Mainstream media outlets, such as newspapers and broadcast television news, played a crucial role in disseminating information about the Covid-19 pandemic, perceived as credible due to their long-standing reputations for factual reporting and adherence to journalistic standards (Gottfried & Shearer, 2016). During the pandemic, mainstream media served as primary sources of information for many individuals seeking updates on case numbers, government responses, and public health guidelines (Hornik et al., 2021), bolstering trust through their perceived objectivity and commitment to providing accurate and reliable information.

In contrast to mainstream media, partisan and social media platforms faced scrutiny during the Covid-19 pandemic for their role in disseminating misinformation and amplifying conspiracy theories. Partisan media outlets, known for their ideological bias and selective reporting, cater to specific political audiences (Kaye & Johnson, 2019), attracting followers through negativity toward mainstream media and by convincing them that information contradicting their beliefs is biased and incorrect (Ladd & Podkul, 2018; Tsfati, 2010; Fischer et al., 2005; Levendusky, 2013).

Social media platforms like Facebook and X (former Twitter) functioned as primary sources of information for many individuals during the pandemic, offering real-time updates and user-generated content. However, the open nature of social media facilitated the spread of misinformation, undermining trust in the platform’s reliability. Despite efforts to curb misinformation through fact-checking and content moderation, social media platforms continue to grapple with the challenge of balancing free expression with the need for accurate information dissemination.

Hypotheses and Research Questions

Research indicates that mainstream media outlets are generally perceived as more trustworthy than partisan and social media platforms (Johnson & Kaye, 2015; Kaye & Johnson, 2019). This trust disparity can be attributed to several factors, including the diversity of perspectives presented by mainstream sources compared with the often one-sided narratives found in partisan media (Kaye & Johnson, 2019; Koh & Sundar, 2010). Additionally, renowned mainstream media outlets like The New York Times and CNN benefit from their brand recognition, leading consumers to use the reputation of these sources as a heuristic cue for trustworthiness (Metzger & Flanagan, 2015).

When evaluating information from partisan and social media sources, individuals tend to rely heavily on heuristic cues such as source familiarity or ideological alignment (Kaye & Johnson, 2019). Partisan media outlets are known for tailoring their content to specific political ideologies, reinforcing existing beliefs and values among their audience (Kaye & Johnson, 2019). This targeted approach not only solidifies the preexisting attitudes of their audience but also creates a feedback loop where consumers of partisan media become increasingly entrenched in their viewpoints. Similarly, social media platforms utilize algorithms designed to maximize user engagement by curating content that aligns with users’ interests and social networks, leading to the creation of echo chambers (Cinelli et al., 2021). Within these echo chambers, selective exposure and confirmation bias are exacerbated, as individuals are predominantly exposed to information that confirms their existing beliefs and viewpoints, while dissenting opinions are filtered out. The Covid-19 pandemic intensified these tendencies, as individuals gravitated towards partisan and social media sources that affirmed their worldview (Nguyen & Catalan-Matamoros, 2020). The unprecedented nature of the pandemic, coupled with widespread uncertainty and fear, heightened individuals’ reliance on familiar and ideologically aligned sources for information and reassurance. Confirmation bias further entrenched these patterns, causing individuals to interpret information in a manner that confirmed their existing beliefs while disregarding contradictory evidence (Pennycook & Rand, 2021; Roozenbeek et al., 2020). For instance, individuals distrustful of mainstream media may have been more receptive to information from partisan and social media sources that validated their skepticism, even if such information was less credible or reliable. This selective consumption and interpretation of information contributed to the polarization of public opinion and the spread of misinformation during the pandemic (Nielsen et al., 2020; Cinelli et al., 2020).

In times of crisis, such as during a public health emergency like the Covid-19 pandemic, individuals may experience cognitive overload due to the inundation of information from various media sources (Bawden & Robinson, 2020). Cognitive overload occurs when the amount of information presented exceeds an individual’s processing capacity, leading to difficulty in discerning reliable information from misinformation. Heuristic processing offers a cognitive shortcut to navigate this overload by enabling individuals to make quick decisions.
based on simplified mental shortcuts rather than engaging in more laborious systematic processing (Chaiken, 1980). During the pandemic, the overwhelming volume of information, coupled with the rapidly changing nature of the crisis, likely increased individuals’ reliance on heuristic cues, such as the perceived credibility of the source or the consistency of the information with their preexisting beliefs, rather than the accuracy or reliability of the content itself.

The proliferation of misinformation and conspiracy theories on social media platforms during the pandemic likely exacerbated cognitive load and uncertainty, prompting individuals to prioritize efficiency over accuracy when evaluating information from these sources (Pennycooke et al., 2020). Social media’s algorithm-driven content delivery systems often amplify sensationalist and emotionally charged information (Cinelli et al., 2020), which can further skew individuals’ perceptions and judgments. This environment fosters a reliance on heuristic processing, as individuals navigate the deluge of information by resorting to mental shortcuts that favor speed and ease of decision-making (Buchanan, 2020; Tversky & Kahneman, 1974). As a result, the reliance on heuristic processing during the pandemic may have led individuals to place greater trust in partisan and social media sources that aligned with their ideological predispositions and offered simplistic, coherent narratives, even at the expense of factual accuracy. Based on the above reasoning, we pose the following:

H1a: During the Covid-19 pandemic, individuals who relied on mainstream media for news were more likely to utilize systematic processing than heuristic processing.

H1b: During the Covid-19 pandemic, individuals who relied on partisan or social media for news were more likely to utilize heuristic processing than systematic processing.

H1a and H1b suggest that during the pandemic, individuals used heuristic processing more when consuming information from partisan and social media than from mainstream media. H1a and H1b deal specifically with the changes in cognitive processing patterns during a crisis (Covid-19 pandemic) when consuming different types of media. We will also explore how trust in different media sources affects systematic and heuristic processing.

Mainstream media outlets are renowned for presenting multiple perspectives and verifying information before publication, prompting audiences to engage in thoughtful analysis rather than relying solely on heuristic cues (Kaye & Johnson, 2019). Moreover, mainstream media sources often offer in-depth coverage of complex issues, necessitating systematic processing from audiences to fully comprehend and assess the presented information (Kaye & Johnson, 2019). This depth and breadth of reporting are attributed to the established journalistic standards and resources available to mainstream media outlets, allowing for thorough investigative journalism and fact-checking processes (Metzger & Flanagin, 2015). The extensive coverage provided by mainstream media enables audiences to engage with a wide range of perspectives and detailed analyses, fostering critical thinking and informed decision-making (Dunaway & Graber, 2022; Newman et al., 2020).

Accordingly, individuals who place trust in mainstream media are inclined to engage in systematic processing to evaluate the credibility and accuracy of encountered information (Johnson & Kaye, 2015; Metzger & Flanagin, 2015; Waisbord, 2018).

Systematic processing involves a deliberate and analytical approach to information evaluation, where individuals carefully scrutinize evidence and arguments before forming judgments (Chaiken, 1980). This rigorous cognitive effort is often prompted by the credibility cues associated with mainstream media, such as brand reputation and journalistic integrity (Winter et al., 2015). Thus, trust in mainstream media is positively correlated with informed and rational public discourse, contributing to a well-functioning democracy (Tsafati & Ariely, 2014).

In contrast, partisan and social media sources prioritize ideological alignment and user engagement over factual accuracy and objectivity (Kaye & Johnson, 2019). Partisan media outlets cater to specific political ideologies, shaping information presentation to reinforce pre-existing beliefs and values (Kaye & Johnson, 2019). Similarly, social media platforms foster echo chambers, exposing individuals to content aligned with their interests and social networks, thereby reinforcing selective exposure and confirmation bias (Cinelli et al., 2020; Garre, 2009).

As a result, individuals who trust partisan and social media sources are more likely to resort to heuristic processing, utilizing mental shortcuts and cues to make quick and efficient judgments and decisions. Heuristic processing serves as a coping mechanism for cognitive and information overload, allowing individuals to simplify complex information and reduce cognitive effort when evaluating content from partisan and social media sources.

H2: Trust in mainstream media sources is positively correlated with systematic processing, whereas trust in partisan and social media is positively correlated with heuristic processing.

Impact of Individual Characteristics on Information Processing

Individual characteristics such as political ideology, demographics, and psychological traits play a significant role in shaping trust in media sources and cognitive processing strategies (Chen & Chaiken, 1999; Hornik et al., 2021). For example, individuals on the ideological extremes demonstrate lower trust in mainstream sources and higher trust in partisan media outlets (Kaye & Johnson, 2019). Older adults tend to trust traditional media sources more than younger generations, who are more accustomed to consuming news online (Shearer, E., & Mitchell, 2021). Individuals with higher levels of education and income are more likely to engage in systematic processing and critically evaluate information from multiple sources (Metzger & Flanagin, 2007). In addition to demographic variables, this study examines the impact of perceived importance of health issues, perceived ability to find relevant health news, attitude certainty, and need for cognition.

Perceived Importance of Health Issues

Individuals’ perceptions of the importance of health issues play a significant role in shaping their information processing and media trust during the pandemic. According to the HSM, individuals are more likely to engage in systematic processing when they perceive an issue as personally relevant or important (Chaiken, 1980). Thus, individuals who perceive health issues, such as Covid-19, as highly important are more likely to critically evaluate pandemic-related information and rely on credible sources for news and updates (Chaiken, 1980).
Research has shown that perceived importance of health issues influences information-seeking behavior and media consumption patterns during public health crises (Paek et al., 2008). Individuals who perceive health issues as highly important are more motivated to seek out information from multiple sources, including mainstream media, public health agencies, and trusted experts, to stay informed and make informed decisions about their health and safety (Paek et al., 2008).

H3: Perceived importance of health issues is positively related to systematic information processing, but not with heuristic processing.

Perceived Ability to Find Relevant Health News
Perceived ability to find relevant health news reflects individuals’ confidence in their information-seeking skills and their trust in their own judgment when evaluating media content (Schemer et al., 2018). According to the HSM, individuals who perceive themselves as competent information seekers are more likely to engage in systematic processing and critically evaluate pandemic-related news and information (Chaiken, 1980).

Moreover, perceived ability to find relevant health news may influence individuals’ trust in different media sources. Research has shown that individuals who trust their own judgment and information-seeking skills are more likely to rely on a diverse range of sources for pandemic-related news, including mainstream media, public health agencies, and credible experts (Schemer et al., 2018). Conversely, individuals who lack confidence in their ability to find relevant health news may rely on heuristic cues, such as source familiarity or ideological alignment, to assess the credibility of media sources (Schemer et al., 2018).

H4: Perceived ability to find relevant health news is positively related to systematic information processing, but not with heuristic processing.

Attitude Certainty
Attitude certainty refers to the confidence individuals have in their own beliefs and attitudes (Krosnick et al., 2005). According to the HSM, individuals who are certain about their attitudes are more likely to engage in heuristic processing and rely on cognitive shortcuts when evaluating information (Chaiken, 1980). Thus, individuals with high attitude certainty may be more susceptible to selective exposure and confirmation bias, seeking out information that confirms their pre-existing beliefs and attitudes (Krosnick et al., 2005).

Individuals who are highly certain about their attitudes towards health issues, such as Covid-19, may be less open to information that contradicts their beliefs and more inclined to trust sources that reinforce their existing attitudes. Conversely, individuals with low attitude certainty may be more open to new information and more critical of media sources, leading to greater variability in media trust and information processing strategies.

H5: Attitude certainty is positively related to heuristic information processing.

RQ1: How does attitude certainty relate to systematic information processing?

Need for Cognition
Need for cognition reflects individuals’ enjoyment and motivation to engage in effortful and deep thinking about complex issues (Cacioppo & Petty, 1982). According to the HSM, individuals with a high need for cognition are more likely to engage in systematic processing and critically evaluate pandemic-related information (Cacioppo & Petty, 1982). Thus, individuals with a high need for cognition may be more discerning in their media consumption habits, seeking out credible sources and critically evaluating the credibility of information presented in the media (Cacioppo & Petty, 1982).

Thus, it appears that individuals with a high need for cognition are more likely to rely on mainstream media sources and credible experts for pandemic-related news and information, whereas individuals with a low need for cognition may be more susceptible to misinformation and rely on heuristic cues to assess the credibility of media sources.

H6: Need for cognition is positively related to systematic information processing.

RQ2: How does need for cognition relate to heuristic information processing?

Methods
This research conducted an online survey, spanning from November 23, 2020, to December 23, 2020, with 938 adult participants in the U.S. Panel members received an email containing a link to the survey and were remunerated for their participation. Quota sampling techniques were employed to ensure that the respondents were a representative sample of the U.S. population in terms of age, gender, education, and income.

The quota sampling resulted in a distribution of 48.9% males, 50.1% females, and 1.0% identifying as ‘other,’ mirroring the demographics of U.S. voters. Among the participants, approximately two-thirds (65.5%) had attended college or attained a bachelor’s degree or higher, with an average age of 43.2 and an average reported income of $92,500 in 2020. In terms of racial demographics, two-thirds (67.7%) identified as White, 10.8% as Hispanic, 10.1% as Black, with the remaining participants identifying as other ethnicities.

Measures
Except for the demographics, all the variables were assessed on 5-point Likert scale.

Systematic Processing. Drawing upon Chaiken (1980), we asked participants to indicate the extent to which they agree to the following statements: (1) I carefully consider the evidence and arguments presented in pandemic-related information; (2) I actively seek out multiple sources of pandemic-related information to ensure I have a comprehensive understanding of the situation; (3) I critically evaluate the credibility of pandemic-related information by checking the reliability of the sources and verifying the facts presented (α = .85; M = 3.40, SD = 1.90).

Heuristic Processing. Drawing upon Chaiken (1980), participants were asked to indicate the extent to which they agree to the following statements: (1) I tend to rely on familiar sources for pandemic-related news; (2) When evaluating pandemic-related information, I often use ideological alignment as a shortcut; (3) I make quick judgments about the credibility of pandemic-related information based on the source’s reputation (α = .81 M = 3.15, SD = 1.82).
Trust in Media Sources. Based on Johnson and Kaye (2015), we asked participants to rate their level of trust in each type of media source for pandemic-related news and information: trust in mainstream media sources (newspapers, network television news, cable television news; α = .85, M = 3.82, SD = 1.59); trust in partisan media sources (TownHall, The Daily Caller (progressive websites), Huffington Post, BuzzFeed (progressive websites), talk radio; α = .79, M = 2.74, SD = 1.76); trust in social media (Facebook, X, Instagram, TikTok, YouTube; α = .80, M = 3.04, SD = 1.92).

Partisan media is a distinct category of media that is comparable to traditional and social media. Partisan media refers to outlets that explicitly align with specific political ideologies or parties, often promoting a particular political agenda and offering content that reinforces the beliefs and values of their target audience. This type of media contrasts with traditional media, which aims to provide balanced and objective reporting, and social media, which is a platform for user-generated content and diverse perspectives. Partisan media plays a significant role in shaping public opinion by reinforcing existing beliefs and creating echo chambers (Stroud, 2010). Including partisan media as a category allows for more comprehensive comparative analysis alongside traditional and social media. Researchers and policymakers can better understand the interplay between different media types and their collective impact on information dissemination, public trust, and democratic processes (Bennett & Iyengar, 2008).

Media Use. We also measured media use. We asked, “How often do you get news or information about the pandemic from the following media during a typical week?” on a 5-point scale ranging from 1 (“not at all”) to 5 (“very frequently”): Mainstream media use (newspapers, network television news, cable television news; α = .86, M = 3.04, SD = 1.80); partisan media use (TownHall, The Daily Caller (conservative websites), Huffington Post, BuzzFeed (progressive websites), talk radio; α = .78, M = 2.68, SD = 1.65); social media use (Facebook, X, Instagram, TikTok, YouTube; α = .83, M = 3.38, SD = 1.99).

Perceived Importance of Health Issues. Mainly drawing upon Anwar et al. (2020) and Wong and Jensen (2020), we asked participants to indicate the extent to which they perceive health issues related to Covid-19 as personally relevant or important: (1) The Covid-19 pandemic is extremely important to me personally; (2) I consider staying informed about Covid-19 to be a top priority; (3) I believe that Covid-19 poses a significant threat to public health; (4) The impact of Covid-19 on society is of great concern to me (α = .84, M = 4.12, SD = 1.68).

Perceived Ability to Find Relevant Health News. Drawing upon Schemer et al. (2018), we asked participants to rate their confidence in their information-seeking skills and their trust in their own judgment when evaluating pandemic-related news and information: (1) I am confident in my ability to find accurate and reliable pandemic-related information; (2) I believe that I can distinguish between credible and unreliable sources of pandemic-related news; (3) I trust my judgment when evaluating the credibility of pandemic-related information; (4) I feel competent in my information-seeking skills when searching for pandemic-related news (α = .81, M = 3.45, SD = 1.99).

Attitude Certainty. Based on Krosnick et al. (2005), we asked participants to indicate the extent to which they are confident in their beliefs and attitudes towards Covid-19: (1) I am very confident in my beliefs and attitudes towards the Covid-19 pandemic; (2) I have strong convictions about how the Covid-19 pandemic should be addressed; (3) I rarely question my opinions about Covid-19-related issues; (4) I am certain that my views on the Covid-19 pandemic are correct (α = .80, M = 3.58, SD = 1.79).

Need for Cognition. We modified the wording to fit the new context while maintaining the original scale’s structure proposed by Cacioppo and Petty (1982). Participants were asked to indicate the extent to which they enjoy and are motivated to engage in effortful and deep thinking about complex issues: (1) I enjoy thinking about complex issues related to the Covid-19 pandemic; (2) I prefer to analyze pandemic-related information thoroughly rather than making quick judgments; (3) I find it rewarding to engage in deep thinking about the Covid-19 pandemic; (4) I am motivated to seek out multiple perspectives on Covid-19-related topics (α = .83, M = 2.92, SD = 1.71).

Participants indicated their highest level of education by choosing from the following options: (1) Less than high school/high school graduate, (2) Some college, (3) Four-year college degree, and (4) Master’s degree/terminal degree, such as Ph.D., M.D., J.D. Additionally, respondents provided their estimated income for the year 2020, their age as of their last birthday, their gender (male, female, other), and their ethnicity, which included options such as White, Black, American Indian/Eskimo Aleut, Asian, Pacific Islander, Hispanic, Multi/race/ethnic, and other.

Results

Descriptive Statistics

During the pandemic, people tended to engage more in systematic processing (M = 3.4) than heuristic processing (M = 3.15). It is possible that the severity and consequences of the coronavirus have led people to view the Covid-19 related information more seriously. As expected, people trusted mainstream media (M = 3.82) more than partisan media (M = 2.74) or social media (M = 3.04). Most participants thought health issues were very important to them and others (Perceived Importance of Health News, M = 4.12). In general, participants had a strong confidence in their information-seeking skills about the pandemic (Perceived Ability to Find Relevant Health News, M = 3.45), and in their beliefs and attitudes towards Covid-19 (Attitude Certainty, M = 3.58). The extent to which participant enjoy engaging in effortful and deep thinking about complex issues related to the pandemic was found to be somewhat above the midpoint (Need for Cognition, M = 2.92).

Hypotheses and Research Questions

A series of hierarchical regression analysis were conducted to examine the impact of individual characteristics, use of media sources, trust in media sources, and perceived health-related factors on systematic and heuristic information processing. Demographic variables (age, gender, education, income, and race) were entered into Block 1, trust in media variables (trust in mainstream media, trust in partisan media, trust in social media) in Block 2, media use variables (mainstream media use, partisan media use, social media use) in Block 3, and perceived importance of health issues, perceived ability to find relevant health news, attitude certainty, and need for cognition in Block 4. Systematic processing and heuristic processing served as the dependent variables.

Mainstream media use (β = .318, p < .001) was positively associated with systematic processing, but not with heuristic processing, supporting H1a. On the other hand, use of partisan
media has a positive link to heuristic processing ($\beta = .273, p < .001$), but not with systematic processing. The same pattern was found from social media use, which predicted heuristic processing ($\beta = .208, p < .001$) and failed to predict systematic processing. Thus, H1b is supported.

Trust in mainstream media ($\beta = .326, p < .001$) was positively associated with systematic processing, but not with heuristic processing. Trust in partisan media ($\beta = .286, p < .001$) and trust in social media ($\beta = .161, p < .001$) were positively associated with heuristic processing, but not with systematic processing. Therefore, H2 is supported.

Perceived importance of health issues was a significant predictor of systematic processing ($\beta = .116, p = .005$). However, perceived importance of health issues predicted heuristic processing negatively ($\beta = -.109, p = .009$). Thus, H3 is partially supported.

Perceived ability to find relevant health news predicted systematic processing ($\beta = .093, p = .010$), but not heuristic processing, supporting H4.

Attitude certainty and need for cognition failed to predict either systematic processing or heuristic processing. Therefore, both H5 and H6 are not supported.

When the dependent variable was systematic processing, the results revealed a significant overall model, $F(12, 915) = 27.48, p < .001$, $R^2 = .264$. Education ($\beta = .243, p < .001$) and income ($\beta = .158, p < .001$) were significant predictors of systematic processing, indicating that individuals with higher education and income levels were more likely to engage in systematic processing of pandemic-related information. When the dependent variable was heuristic processing, the results also revealed a significant overall model, $F(12, 915) = 23.82, p < .001$, $R^2 = .274$. Age ($\beta = -.186, p < .001$) and education ($\beta = -.101, p = .006$) were significant predictors, indicating that younger individuals and those with lower education levels were more likely to engage in heuristic processing.

### Table 1.
Hierarchical Regression Predicting Systematic and Heuristic Processing

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Systematic Processing</th>
<th>Heuristic Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.021</td>
<td>- .186***</td>
</tr>
<tr>
<td>Gender</td>
<td>-.032</td>
<td>.024</td>
</tr>
<tr>
<td>Education</td>
<td>.243***</td>
<td>-.101**</td>
</tr>
<tr>
<td>Income</td>
<td>.074</td>
<td>-.041</td>
</tr>
<tr>
<td>Race</td>
<td>.027</td>
<td>.016</td>
</tr>
<tr>
<td>Inc. $R^2$ (%)</td>
<td>6.7%***</td>
<td>7.4%</td>
</tr>
<tr>
<td><strong>Media Trust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mainstream media</td>
<td>.326***</td>
<td>-.043</td>
</tr>
<tr>
<td>Partisan media</td>
<td>-.035</td>
<td>.286***</td>
</tr>
<tr>
<td>Social media</td>
<td>.007</td>
<td>.161***</td>
</tr>
<tr>
<td>Inc. $R^2$ (%)</td>
<td>10.3%***</td>
<td>10.8%**</td>
</tr>
<tr>
<td><strong>Media Use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mainstream media</td>
<td>.318***</td>
<td>-.048</td>
</tr>
<tr>
<td>Partisan media</td>
<td>-.038</td>
<td>.273***</td>
</tr>
<tr>
<td>Social media</td>
<td>.014</td>
<td>.208***</td>
</tr>
<tr>
<td>Inc. $R^2$ (%)</td>
<td>12.7%***</td>
<td>11.6%***</td>
</tr>
<tr>
<td><strong>Individual Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived importance of health issues</td>
<td>.116**</td>
<td>-.109**</td>
</tr>
<tr>
<td>Perceived ability to find relevant health news</td>
<td>.093*</td>
<td>-.047</td>
</tr>
<tr>
<td>Attitude certainty</td>
<td>.026</td>
<td>-.049</td>
</tr>
<tr>
<td>Need for cognition</td>
<td>.048</td>
<td>-.036</td>
</tr>
<tr>
<td>Inc. $R^2$ (%)</td>
<td>9.5%***</td>
<td>9.0%***</td>
</tr>
<tr>
<td>Total $R^2$ (%)</td>
<td>39.2%</td>
<td>38.8%</td>
</tr>
</tbody>
</table>

Note. The beta weights are standardized regression coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$.

### Discussion

This study found that mainstream media use was positively associated with systematic processing, while partisan and social media use were linked to heuristic processing. Trust in mainstream media predicted systematic processing, whereas trust in partisan and social media predicted heuristic processing. Perceived importance of health issues positively predicted systematic processing but negatively predicted heuristic processing. Perceived ability to find relevant health news was associated with systematic processing only. Attitude certainty and need for cognition did not predict either processing type.

The findings of this study have significant theoretical implications for understanding individuals’ cognitive processing strategies and trust in media sources during public health crises, particularly the Covid-19 pandemic. These implications are rooted in the Heuristic-Systematic Model (HSM) proposed by Chaiken (1980), which posits that individuals engage in two primary modes of information processing: heuristic processing and systematic processing.

Firstly, the identification of differential cognitive processing strategies across various media sources contributes to the theoretical understanding of how individuals navigate the complex information environment during public health crises. Our finding that mainstream media use has a positive link to systematic processing, while partisan and social media use has a significant association with heuristic processing is somewhat in line with prior studies. For example, Winter et al. (2015) discovered that users often rely on heuristic cues when evaluating information from social media, whereas they are more likely to engage in systematic processing when dealing with traditional news sources. Metzger, Flanagin, and Medders (2010) found individuals often use heuristic cues in digital environments where information overload is common. Our study expands the prior findings by investigating the impact of partisan media.
and social media in addition to mainstream media.

Moreover, the positive correlation between trust in mainstream media sources and systematic processing, as well as the positive correlation between trust in partisan and social media sources and heuristic processing underscores the importance of considering individuals’ trust in media sources when examining their cognitive responses to pandemic-related information. Mainstream media, with its established reputation for professional journalism and fact-checking, provides the necessary trust cues that motivate individuals to invest cognitive resources in comprehensively evaluating information (Metzger et al., 2010; Sundar, 2008). However, it is not determined if trust in mainstream media fosters deeper cognitive engagement, or those with deeper cognitive engagement favor mainstream media. On the other hand, trust in partisan and social media sources aligns with heuristic processing because these platforms often provide information that reinforces pre-existing beliefs and ideologies, making it easier for individuals to rely on simple cues like source familiarity or ideological alignment. Johnson and Kaye (2015) reported that individuals who trust partisan media are more likely to use heuristics to assess credibility.

By demonstrating that trust in mainstream media fosters systematic processing, while trust in partisan and social media encourages heuristic processing, this study illustrates how media trust can work differently in information processing depending on the types and nature of the media. Future research should continue to explore these complexities, particularly in the context of evolving media landscapes and emerging public health challenges.

Our finding that perceived importance of health issues positively predicted systematic processing but negatively predicted heuristic processing suggests that when individuals perceive health issues as highly important, they are more likely to engage in thorough and analytical evaluation of pandemic-related information. This indicates that individuals are more likely to engage in careful consideration of message content, when the topic is personally relevant (Petty & Cacioppo, 1986). Basch et al. (2020) found that people who perceive Covid-19 as a significant threat are more likely to seek out detailed information and critically evaluate the credibility of sources, further supporting the role of perceived importance in driving systematic processing. The negative correlation with heuristic processing indicates that high perceived importance reduces the reliance on mental shortcuts and quick judgments, which are often used under conditions of low motivation or perceived irrelevance. This pattern is consistent with the HSM that suggests motivation and cognitive capacity are key determinants in processing strategies (Chaiken, 1980).

The finding that the perceived ability to find relevant health news was associated with systematic processing only reflects individuals’ confidence in their information-seeking skills and judgment. This confidence likely enhances their engagement in more effortful and detailed evaluation of information. In the context of media consumption during a pandemic, confidence in finding relevant health news can lead individuals to trust their judgment more and critically evaluate the credibility of different sources. Schemer et al. (2018) highlighted that individuals with higher self-efficacy in information-seeking are better at identifying reliable sources and are less susceptible to misinformation. This supports that enhancing individuals’ confidence in their information-seeking capabilities can promote more systematic processing and reduce the likelihood of relying on heuristic cues.

While both perceived importance of health issues and perceived ability to find relevant health news are crucial in fostering a more informed and critically engaged public, our study finds that attitude certainty and need for cognition do not play a significant role in processing pandemic-related information. This finding contrasts with the assumptions of the HSM, which posit that individuals with a high need for cognition are more likely to engage in systematic processing of information (Chaiken, 1980). However, recent studies suggest that the context and nature of the information might moderate these relationships. For instance, in high-stress or high-uncertainty situations, such as a pandemic, even individuals with a high need for cognition may resort to heuristic processing due to cognitive overload or anxiety (Carnevale & Hatak, 2020; Griffin & Tversky, 1992).

Additionally, attitude certainty, which refers to the confidence individuals have in their beliefs and attitudes, was expected to influence information processing strategies. Theoretically, individuals with high attitude certainty should exhibit more resistance to persuasion and be more discerning in their information processing (Clarkson, Tormala, & Rucker, 2008; Rucker et al., 2014). However, our finding aligns with the work of McCrudden and Kendou (2014), who argue that during times of crisis, the urgency and volume of information can overwhelm individuals, diminishing the influence of attitude certainty on processing strategies. Moreover, the context of the Covid-19 pandemic, with its rapidly changing information and widespread misinformation, might lead individuals to rely more on source credibility rather than their internal cognitive motivations.

These results underscore the complex interplay between individual cognitive traits and contextual factors in shaping information processing behaviors. They suggest that during unprecedented events like a pandemic, factors such as media trust and perceived importance of issues may overshadow traditional cognitive determinants like need for cognition and attitude certainty. This calls for further research to explore how crisis contexts alter the dynamics of cognitive processing models.

Taken together, this study contributes to our understanding of individuals’ cognitive processing strategies and trust in media sources during public health crises, drawing upon the framework of the HSM. By elucidating the interplay between cognitive processing, media trust, and media use behaviors, this study advances theoretical knowledge in the field of health communication, providing a foundation for future research on information processing and decision-making in the context of public health emergencies.

Our findings have several practical implications for policymakers, media practitioners, and public health professionals. First, media practitioners should strive to uphold journalistic standards and ethics when reporting on the Covid-19 pandemic, particularly on partisan and social media platforms where heuristic processing is prevalent. By providing balanced and factual coverage of pandemic-related issues, media practitioners can help counteract misinformation and promote informed decision-making among the public.

Additionally, public health professionals should collaborate with trusted experts and influencers to disseminate credible information through social media channels, where many indi-
viduals seek pandemic-related news and updates. By engaging with audiences on social media platforms and addressing their concerns in a transparent and empathetic manner, public health professionals can build trust and credibility, thereby facilitating positive health behaviors and outcomes.

**Limitations and Future Research**

The study utilized quota sampling techniques to ensure demographic representation; however, this method may not capture the diversity of perspectives within the population accurately. Quota sampling might inadvertently exclude certain demographic groups or individuals with unique viewpoints, potentially skewing the findings. The study relied on self-reported data, particularly regarding cognitive processing strategies, trust in media sources, and perceived health-related factors. Self-report measures are susceptible to social desirability bias, where participants may provide responses that align with societal norms or expectations rather than their genuine attitudes or behaviors. An experimental design may help to secure more rigor in measuring people’s perceptions and attitudes.

The study adopted a cross-sectional survey design, capturing data at a single point in time. While cross-sectional studies provide valuable snapshots of phenomena, they lack the ability to establish causality or examine temporal changes over time. Longitudinal studies would offer more robust insights into the dynamics of cognitive processing and media trust during public health crises, allowing researchers to track changes in attitudes and behaviors longitudinally and identify potential causal relationships.

**Conclusion**

To better understand how people process health-related information, this study conducted a survey of 938 American adults in 2020. Results show that during the Covid-19 pandemic, mainstream media use was positively associated with systematic processing, whereas partisan and social media use was linked to heuristic processing. Trust in mainstream media predicted systematic processing, while trust in partisan and social media predicted heuristic processing. The perceived importance of health issues was positively associated with systematic processing and negatively associated with heuristic processing. The perceived ability to find relevant health news was associated solely with systematic processing. Neither attitude certainty nor need for cognition predicted either type of processing.

Mainly drawing up the HSM, this study advances our understanding of the cognitive processing strategies during the Covid-19 pandemic. Theoretical implications highlight the importance of considering media trust, media use, individual perceptions about health issues, and perceived ability to find relevant health news when examining their information processing behaviors. Moving forward, continued research in this area is needed to explore the long-term effects of media exposure and information processing on public perceptions and behaviors during public health crises.

**Notes**

1. BuzzFeed found in 2006, is an American digital media company known for its combination of entertainment, news, and social media content. It has earned recognition and accolades for its investigative journalism and in-depth reporting on critical issues. BuzzFeed is generally considered to have a liberal or progressive editorial stance. This perception is based on the type of content it produces, which often aligns with liberal viewpoints, and the political leanings of its audience (Mitchell et al., 2014).

2. Talk radio is a radio format that features discussions on various topics, including news, politics, sports, and entertainment, often with a host who interacts with guests and listeners (Armstrong & Rubin, 1989). This format encourages listener participation through call-ins, where the audience can voice their opinions and ask questions. Historically, talk radio has played a significant role in shaping public opinion and providing a platform for political discourse. Talk radio is predominantly conservative in the United States (Engist, Matzko, & Merkus, 2024).

**Data Availability Statement**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Funding Information**

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

**References**


