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Older Adults' Consumption of Fake News – An Interoceptive Perspective

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ABSTRACT

In an era dominated by social media, the spread of fake news and disinformation presents a distinct peril for those aged 50 and above, who are active and more likely to share it on platforms like Twitter and Facebook. This misinformation could jeopardize the mental and physical well-being of those older adults who are most likely to share health-related fake news. While cognitive decline has traditionally been blamed for older adults' vulnerability to fake news, recent research underscores the role of accumulated knowledge, suggesting cognitive deficits alone cannot fully explain their susceptibility. This research investigates how emotional appeals contained in fake news influence older adults through socio-emotional processing, particularly as older individuals increasingly rely on surface-level analytical reasoning. As such, we may be in a better position to understand how these factors ultimately affect older adults consumption behavior of health-related information.

Keywords

Fake news, interoceptive perspective, older adults, consumption, emotional appeal.

INTRODUCTION

As social media becomes more ubiquitous, the Internet has become an ideal platform for disseminating fake news intentionally and unintentionally. Research has shown that users over 50 are disproportionately responsible for sharing fake news on Twitter, accounting for 80% of shares (Grinberg et al., 2019). On Facebook, a similar trend has been observed, with users over 65 being seven times more likely to share links to fake news domains than younger users (Guess et al., 2019). This evidence indicates that fake news consumption is particularly concerning for older adults, as it can negatively affect their mental and physical wellbeing. In the case of health-related fake news, for

instance, older adults may make incorrect decisions about their medical treatments or take dangerous medications, leading to serious health risks or even death. Therefore, it is crucial to identify the circumstances under which older adults are more likely to consume fake news.

The primary explanation for why older adults are susceptible to fake news has been attributed to cognitive deficits associated with aging, as numerous studies have shown (Duque & Peres-Neto, 2022). However, recent research has challenged this view by demonstrating that older adults' accumulated knowledge can help them evaluate the veracity of claims, despite difficulties remembering the source of information. Thus, cognitive deficits alone may not fully account for their engagement with fake news. Other social and emotional changes that occur in late adulthood, such as increased loneliness, role changes, and shifting social goals, may also be significant factors. We are in line with this recent view and propose that socio-emotional factors should be considered in understanding why older adults consume fake news. Firstly, many socio-emotional processing abilities remain intact in older adults, including their ability to remember emotional aspects of stimuli (Bell et al., 2013). Secondly, socio-emotional factors can influence perceptual and behavioral processes, as older adults often prioritize emotional-focused coping strategies to enhance their wellbeing (Bell et al., 2013). As a result, older adults may unintentionally share fake news to fulfill their socio-emotional needs, such as to connect with others and reduce feelings of loneliness.

This research proposal focuses on *how emotional appeals in fake news affect older adults' fake news consumption behaviors through their socio-emotional processing*. While most research have investigated the impact of analytical reasoning on fake news consumption (Kim & Dennis, 2019; Kim et al., 2019; Moravec et al. 2019), the socio-emotional factors, which are non-rational, are paid less attention. As individuals age, they rely on shallow

analytical reasoning, and thus the non-rational socio-emotional factors could play more important role in older adults' fake news consumption. In addition, although previous studies have examined the influence of emotions on fake news consumption, they have mainly focused on negative emotions and general population (Deng & Chau, 2022; Horner et al., 2021). However, positive socio-emotional factors and mechanisms specific to older adults are largely ignored. The emotional interoception perspective (Craig, 2008) is employed in this study to address this research gap. Interoception pertains to the perception of bodily sensations, and this research concentrates on emotional states (Ceunen et al., 2016). The emotional interoception perspective posits that older adults' interoceptive functioning towards general emotional appeals may decline with age, but their interoceptive sensitivity towards emotional appeals that promote wellbeing may increase due to changes in their goals towards maintaining a positive state (Fernandes et al., 2008; Mather & Carstensen, 2005). As such, we hypothesize that older adults' emotional interoception strength is critical in regulating their processing of emotional appeals in fake news, ultimately influencing their fake news consumption behaviors. In the following sections, we introduce the theoretical background, our hypothesis development, and the proposed methodology.

THEORETICAL BACKGROUND

Previous fake news studies

Prior research in Information Systems (IS) has mainly investigated the influence of contextual cues, such as source rating and fake news flags, on the perception and consumption of fake news through reasoning and deliberation (Kim & Dennis, 2019; Kim et al., 2019; Moravec et al. 2019). For example, Kim et al. (2019) investigated how source ratings influenced social media users' beliefs in the articles. They found that expert rating and user article rating have more important impacts on users' beliefs in the articles than user source rating since experts are believed to be knowledgeable. Crowd users' ratings are considered to represent collective wisdom. Highlighting the desired behavior of reporting fake news as a contextual cue can facilitate users to detect and report fake news on social media.

Another stream of literature focuses on how the emotions embedded in fake news influence older adults' consumption (e.g., Deng & Chau, 2021; Horner et al., 2021). Emotions are known to play a critical role in cognitive, perceptual, and behavioral processes, such as how individuals process and share information. This line of research suggests that negative emotions tend to increase fake news consumption since people tend to pay attention to negative stimuli to avoid potential threats. For instance, Deng and Chau (2021) found that expressing anger in online news reduces its credibility, as readers perceive angry authors as irrational and untrustworthy. However, this literature overlooks the unique characteristics of older

adults who often experience cognitive and emotional shifts in goals (Lu et al. 2022a). Therefore, older adults may not be as responsive to the emotional cues embedded in fake news design as they may have reduced cognitive ability for cognitive deliberation. Additionally, they may not be as susceptible to negative emotions in fake news since their socioemotional goals prioritize promoting their wellbeing. To fill this gap, we employ the interoceptive perspective to investigate how older adults specifically process fake news.

Aging and emotional interoception

We focus on the interoceptive perspective to understand how older adults' interoception functioning and sensation can affect their pursuit of socio-emotional goals, which can in turn impact how they perceive and process emotional stimuli in fake news (Craig, 2008; Khalsa et al., 2009). From a neurophysiological perspective, interoception refers to the functioning of receptors in our organs and skin that send messages to the brain, allowing it to understand these messages and respond appropriately. This sensation enables us to understand our bodily states, such as hunger, thirst, temperature, and other sensations that originate within our bodies. From a psychological perspective, interoception corresponds to our affective sensors, which interpret and learn from external stimuli. This study focuses on the psychological perspective that emphasizes emotional interoception.

Emotional interoception functioning tends to decline with age. Aging is a complex process affecting how organisms acquire sensory information from their environment. It often results in increased sensory thresholds, meaning that more intense stimuli are needed for information from the periphery to reach conscious awareness (Khalsa et al., 2009). This indicates that, given the same intensity of external stimuli, older adults generally have weaker emotional interoceptive sensation than younger adults. Furthermore, emotional interoception also varies among older adults depending on factors such as their educational background, lifestyle, socioeconomic status, financial capability, and political ideology (Critchley & Garfinkel, 2017).

Although older adults generally experience a decline in emotional interoception, they tend to focus their interoception on stimuli that enhance their wellbeing (Knight et al., 2007). Research has shown that older adults engage more with emotionally positive stimuli while ignoring stimuli that might evoke negative emotions (Fernandes et al., 2008; Knight et al., 2007). The ability to accurately perceive and interpret emotional sensations is crucial for effective emotion regulation, allowing individuals to identify and respond to their emotions adaptively. Emotional interoception is associated with various aspects of mental health and wellbeing (Pinna & Edwards, 2020). Individuals with poor emotional interoception skills are more vulnerable to anxiety, depression, and other mood disorders. On the other hand,

individuals who possess strong emotional interoception skills are more resilient to stress and better able to regulate their emotions.

To summarize, the interoceptive perspective can provide insight into how older adults perceive fake news. As emotional interoception decreases with age, emotional appeals in fake news may significantly impact how older adults evaluate it, particularly if it promotes wellbeing and happiness. While previous studies have focused on negative emotions such as anger and sadness and their effect on fake news consumption (Deng & Chau, 2022; Horner et al., 2021), this research aims to expand our understanding by investigating how emotional appeals related to wellbeing can influence older adults' consumption of fake news through interoception-enabled social-emotional processing mechanisms.

RESEARCH MODEL AND HYPOTHESES

Figure 1 depicts our proposed research model, which takes into account age-related declines in sensation function that can affect how emotional appeals promoting happiness and wellbeing are perceived by older adults. Fake news can embed various types of emotional appeal that relate to wellbeing. To begin, we draw on the self-determination theory (SDT) (Ryan, 2009; Ryan & Deci, 2000), which emphasizes three fundamental psychological needs for optimal wellbeing: autonomy, competence, and relatedness. Autonomy refers to feeling in control of one's actions and life, competence involves feeling capable and effective in one's pursuits, and relatedness entails the need for social connections and support (Ryan, 2009). Our study specifically focuses on the psychological needs of competence and relatedness, which are frequently framed emotionally in persuasive messages like fake news.

First, the emotional appeal of developing intimate social relationships can foster *relatedness* among older adults, leading to increased social connectivity and support (Ryan & Deci 2000). For older adults, developing close social relationships is a crucial emotional goal (Lansford et al., 1998) that provides psychological well-being through companionship and support. As individuals age, they tend to prioritize their inner social circle and their social circle typically diminishes. Therefore, incorporating the concept of intimate social relationships into fake news might serve as an appealing stimulus that captures the attention of older adults (Bell et al., 2013). By doing so, fake news with the emotional appeal of developing intimate social relationships can be emotionally attractive to older adults, leading them to be less likely to engage in adaptive emotional regulation. Therefore, we propose that:

H1: The emotional appeal of relatedness in fake news will decrease older adults' adaptive emotional regulation toward the fake news.

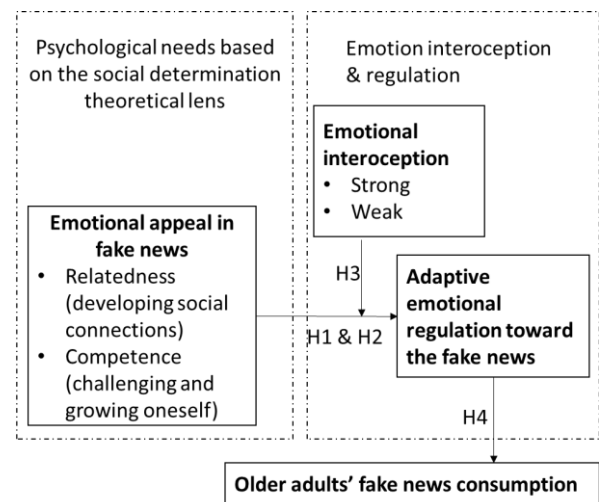


Figure 1. Research Model

In addition to relatedness, competence is another important psychological need that can be expressed as an emotional appeal for personal growth and challenge (Ryan & Deci, 2000). This emotional appeal can foster a sense of capability and confidence in taking on opportunities for personal growth. Among many older adults, personal growth is highly valued and they often see challenging themselves as an opportunity to learn new skills, gain new experiences, and broaden their horizons (Lansford et al., 1998; Ryff, 1989). When fake news incorporate emotional appeals related to challenging and growing oneself, it becomes appealing to older adults and decreases their motivation to regulate their positive emotions. In addition, the emotional appeal of competence can be incorporated in fake news by providing information that challenges the reader's beliefs or by presenting complex information that requires intellectual effort to understand. As a result, older adults may be less likely to regulate their positive emotions. We propose:

H2: The emotional appeal of competence in fake news will decrease older adults' adaptive emotional regulation toward fake news.

Emotional interoception is the ability to recognize and interpret one's own emotional signals and physiological sensations (Barrett et al., 2019). This means that older adults who are more aware of their own emotional experiences may be more likely to be influenced by the emotional appeals in fake news. Consequently, older adults who have stronger emotional interoception are likely to be more emotionally engaged with the emotional appeals expressed in fake news. It is therefore expected that emotional interoception will facilitate older adults in perceiving the positive emotional appeals as fulfilling their psychological needs—relatedness and competence-related appeals in particular—ultimately enhancing their emotional wellbeing. As a result, they may feel more hesitant to regulate or control these positive feelings. Therefore, we propose:

H3: Older adults' emotional interoception will strengthen the relationships between emotional appeals in fake news and adaptive emotional regulation toward the fake news, as proposed in H1 and H2.

Finally, we expect that older adults who engage less in adaptive emotional regulation are more susceptible to fake news and likely to consume more of it. Adaptive emotional regulation helps individuals maintain emotional stability and regulate their responses to emotional appeals. Engaging in adaptive emotional regulation towards fake news will result in older adults feeling emotionally calm and in control, leading to decreased attachment and bond towards the news (Thomson, MacInnis, & Park, 2005). In contrast, if older adults are reluctant to emotionally regulate their responses, they may become emotionally attached to the news, leading to emotional acceptance, internalization, and further sharing of the news. Therefore, we propose that adaptive emotional regulation plays a crucial role in older adults' susceptibility to fake news.

H4: Older adults' adaptive emotional regulation toward fake news will decrease their consumption of fake news.

METHODOLOGY, IMPLICATION, AND FUTURE RESEARCH PLAN

We suggest an experimental approach. In order to test our hypotheses, we will be manipulating emotional appeals in the design of our fake news. Specifically, we will be creating three fake news headlines in text with added graphics to resemble a Facebook post, but with a generic "News" icon and sharing functions to remove any confusion, following the methodology of Horner et al. (2021). These headlines will be created to represent three different emotional appeal types: development of intimate social relationships, challenging and growing oneself, and a neutral control group. We will be using *parody fake news* headlines from news websites as our stimuli, as they play on the vague plausibility of the news item (Tandoc et al., 2018). Parody fake news does not necessarily intend to cause harm, but it can lead to negative consequences, especially when spreading unreliable health news to older adults who have a natural tendency to react to news related to health (Cohen-Mansfield & Frank, 2008).

To ensure the representativeness of our emotional appeals, we will select 15 news headlines that are considered health-relevant and neutral in their emotional valence determined through a panel of experts, and recruit older adult participants across different age groups and socioeconomic statuses. These participants will perform a pilot test to find news headlines that are neutral in emotional valence and have insignificant professional quality. The pilot procedure will follow Deng and Chau (2021). After selecting the neutral headlines, we will add our emotional appeal manipulation to the news headline. Table 1 presents examples of headline design.

Control news headline	Study finds that drinking wine can make you smarter
Development of intimate relationship	<u>Sharing a glass of wine with friends</u> may improve cognitive abilities, according to a recent study.
Challenge oneself	<u>Develop your cognitive skills with a glass of wine:</u> Study shows potential link between wine consumption and improved mental abilities

Table 1. Design example of parody fake news headlines

In order to collect our data, we will be using a mobile user experience lab in a recreational vehicle that is equipped with neurophysiological measurements. We will assess *emotional interoception* both through survey questions and neurophysiological measurements. For the survey part, we will use validated items from previous scales, such as "I am aware of my body and the sensations that I feel, such as happy or sad" (Fiene et al., 2018). Additionally, we will use the electroencephalogram (EEG) signal strength toward emotional faces to measure emotional interoception from a neurophysiological perspective (Pollatos et al., 2007). *Emotional regulation* will be measured using EEG signal strength to analyze older adults' emotional responses to fake news. Eye tracking data will also be recorded to evaluate participants' attention while reading and assessing the news. To measure *fake news consumption*, we will assess the acceptance of the news and the likelihood of sharing it. Specifically, we will ask participants to rate the believability of the news and the probability of sharing the news item headline, as outlined by Kim and Dennis (2019). By using the mobile lab, we will be able to access older adult participants regardless of their willingness to travel to a campus lab or their physical mobility, ensuring inclusiveness and diversity in our sample.

Our goal with this study is to gain insight into how fake news affects the emotional attachment and spread of misleading information among older adults, which will ultimately lead to the development of more effective methods for protecting this vulnerable population. In our next phase of research, we aim to further investigate the spread of fake news among older adults through experimental evidence that focuses on emotional appeals in fake news. Additionally, we plan to analyze Facebook data using linguistic techniques to gain a better understanding of how fake news diffuses in real-world settings (e.g., Lu et al. 2022b). To address this issue, we also intend to explore interventions that could help older adults detect and report fake news, ultimately mitigating the spread of misinformation.

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