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Intergenerational Feedback: Exploring the Formation Mechanism of Information Seeking Behavior among Rural Middle-aged and Elderly Adults—An Empirical Study during Public Health Emergencies (Postprint)

Authors: Zhang Dawei, Xie Xingzheng

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Abstract

[Purpose/Significance] This study explores the intergenerational reverse support behavior of rural middle-aged and elderly individuals seeking event-related information from their children receiving higher education during public health emergencies, as well as its formation process, aiming to construct new pathways for risk information dissemination in rural areas and provide practical insights for government departments in rural governance. [Method/Process] Based on the Theory of Motivated Information Management, this research focuses on whether uncertainty discrepancy, anxiety, outcome expectancy, and efficacy among rural middle-aged and elderly people during public health emergencies influence their information seeking behavior. Additionally, it examines whether they exhibit information adoption and information transmission behaviors after obtaining relevant information. During the COVID-19 pandemic, data were collected using the questionnaire survey method, and research hypotheses were verified through statistical analysis software. [Results/Conclusion] The analysis reveals that uncertainty discrepancy triggers anxiety among rural middle-aged and elderly individuals, which subsequently influences their outcome expectancy and efficacy, ultimately activating their information seeking behavior. They also adopt and transmit the acquired information to achieve the goal of joint epidemic prevention.

Full Text

Intergenerational Feedback: Exploring the Formation Mechanism of Information-Seeking Behavior Among Rural Middle-Aged and Elderly Populations—An Empirical Study Based on Public Health Emergencies

Authors: Zhang Dawei¹, Xie Xingzheng^{1,2}

¹School of Journalism, Fudan University, Shanghai 200433

²School of Humanities, Fujian University of Technology, Fuzhou 350118

Abstract:

[Purpose/Significance] This study explores the intergenerational feedback behavior of rural middle-aged and elderly individuals seeking event-related information from their college-educated children during public health emergencies, aiming to construct new pathways for risk information dissemination in rural areas and provide practical insights for rural governance. [Method/Process] Grounded in the Theory of Motivated Information Management, this research examines how uncertainty discrepancy, anxiety, outcome expectations, and efficacy influence information-seeking behavior among rural middle-aged and elderly populations during public health emergencies. It further investigates whether they exhibit information adoption and forwarding behaviors after acquiring relevant information. Data were collected via questionnaire surveys during the COVID-19 pandemic and analyzed using statistical software. [Results/Conclusion] The analysis reveals that uncertainty discrepancy triggers anxiety among rural middle-aged and elderly individuals, subsequently affecting their outcome expectations and efficacy, ultimately triggering their information-seeking behavior. They also adopt and forward acquired information to achieve collective epidemic prevention.

Keywords: public health emergency; intergenerational feedback; middle-aged and elderly population; rural area; Theory of Motivated Information Management

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The renowned sociologist Margaret Mead noted in her book *Culture and Commitment*: “If in the past there were elders who knew more than the young through accumulated experience within a specific cultural system, this is no longer the case today” [1]. Mead’s assertion illustrates the cultural shift from “pre-figurative culture” to “post-figurative culture.” China is currently experiencing an aging inflection point marked by the reversal of the population dependency ratio, which also signifies that the younger generation is stepping onto the social stage and becoming a vital force driving social development [2]. In other words, the “post-figurative era” has arrived, and youth groups will have a greater voice. Simultaneously, the rise of the internet has provided fertile

ground for the emergence of “post-figurative culture” [3], particularly for “digital immigrant” parents in rural families. Due to limited formal education, a digital divide has formed between generations [4]. Moreover, their relatively low scientific and information literacy requires rural college students to provide multidimensional intergenerational feedback [5], imparting digital-era technologies and knowledge to their parents.

At the end of 2019, the global COVID-19 pandemic struck suddenly. From the initial outbreak to full escalation, the attitudes and preventive behaviors of middle-aged and elderly family members underwent a series of changes. In the early stages, most young people silently monitored the pandemic’s progression at home, not only protecting themselves but also actively disseminating pandemic information to their elders and persuading them to adopt protective measures such as self-isolation. It is particularly noteworthy that a large number of rural middle-aged and elderly individuals lack scientific and information literacy [6-7], causing them to either not adopt or be unwilling to adopt protective measures when the pandemic arrived. Some rural middle-aged and elderly groups were unable to discern the scientific validity and rationality of information, resulting in pandemic phobia and generating pessimistic and panicked emotions. Against this backdrop, would rural middle-aged and elderly individuals actively seek information from their college-attending children, and how effective would this information feedback be? This study attempts to address this gap by using the Theory of Motivated Information Management as a theoretical framework and collecting data through questionnaires to explore the mechanism by which rural middle-aged and elderly individuals seek information from their children during public health crises, focusing on the role that college students from rural backgrounds play in encouraging protective measures among middle-aged and elderly groups.

2 Literature Review

2.1 “Cultural Feedback” Within Families

In traditional conceptions, rural families exhibited “gerontocracy,” where parent-child relationships followed hierarchical principles, with parents demonstrating pedagogical authority and children always playing the role of the taught [8]. In the 1980s, Chinese scholar Zhou Xiaohong introduced research on reverse socialization and first proposed the concept of “cultural feedback” to describe the phenomenon of younger generations transmitting knowledge and culture to older generations [9]. He argued that with rapid social change, the content, form, and direction of cultural inheritance have undergone certain transformations. Due to intergenerational differences in the ability to accept new things, previous family interaction patterns have been gradually subverted. The absolute pedagogical power once held by the parental generation has weakened, while the younger generation, previously only compliant with elders’ wishes, has begun to demonstrate initiative and exhibit “feedback” behavior. In the internet era, the digital divide between generations is primarily manifested

in information search and social media usage, skills that have become important catalysts for youth groups' intergenerational feedback, enabling children to exert comprehensive influence on their parents [10].

Zhou Xiaohong's series of studies have both confirmed the universality of cultural feedback in Chinese families and demonstrated the inevitability of cultural feedback in the new media era. Numerous scholars have since conducted related research, emphasizing that youth groups' digital feedback to parents is relatively common. For example, scholar Zhu Xiuling explored the potential mechanisms by which "digital access gap" and "digital usage gap" trigger cultural feedback behavior, starting from teenagers' mobile phone usage [11]. Scholars Zheng Chaoyue and Xu Xiaojie, taking post-95s and their parents as research subjects, discovered digital feedback mechanisms embedded in elders' short-video usage behavior [12]. Scholars Hong Jiewen and Li Xin, using Chenqu Village in Shanxi Province as a case study, examined WeChat's intergenerational communication in rural families, identifying the driving forces and resistance of WeChat feedback behavior in rural households [13]. Scholar Zhou Yuqiong found that a "digital generation gap" also exists in new media adoption and usage, with elders' nurturing of youth being significantly less than youth's feedback to elders; moreover, this feedback behavior serves as a catalyst for harmonious family relationships [14]. In her research, the "digital knowledge gap" is identified as an important manifestation of the digital divide and a significant motivator for elders to actively seek information feedback from youth [14].

2.2 Theory of Motivated Information Management

Based on Uncertainty Reduction Theory, Efficacy Theory, and the Information Seeking Model, scholars W. A. Afifi and J. L. Weiner proposed the Theory of Motivated Information Management [15], arguing that individuals' decisions to seek information are based on their assessment and interpretation of the situation in which the information resides [16]. According to this theory, the information management process begins with uncertainty discrepancy, with personal emotions, potential outcomes, and efficacy assessments being important components [17]. Therefore, the information management process is primarily reflected in three stages: interpretation, evaluation, and decision [15].

This study employs the Theory of Motivated Information Management as its background theory to investigate the phenomenon of rural middle-aged and elderly individuals seeking information from their children during the COVID-19 pandemic. As COVID-19 is a disease caused by an unknown virus that can easily be fatal for severe cases, it represents a public health emergency that humanity does not want to face but must confront. Previous research has widely applied this theory to public health contexts, such as cancer [18], end-of-life issues [19], and sexual health [20], with findings effectively demonstrating mechanisms influencing individuals' information management processes. Furthermore, in public health emergencies, this theory provides a pathway to explore rural middle-aged and elderly individuals' internal perceptions when seeking pandemic information

from their children and examines the possibility of seeking pandemic information within parent-child relationships, offering a new perspective for explaining rural intergenerational feedback phenomena.

2.2.1 Interpretation Stage According to the Theory of Motivated Information Management, the initial stage in individuals' information management decision-making process is interpretation, primarily involving personal interpretation of their uncertainty discrepancy and anxiety [15]. Scholar D. E. Brashers conceptualizes uncertainty as a cognitive state that occurs “when details of situations are ambiguous and complex, unpredictable; when information is unavailable or inconsistent; and when people feel insecure about their own knowledge state or the public's cognitive state” [21]. Uncertainty reflects individuals' cognitive assessment of specific issues. According to Uncertainty Reduction Theory, uncertainty has a stimulating effect, with individuals experiencing higher levels of uncertainty being more likely to seek ways to address it [22]. However, the Theory of Motivated Information Management proposes that individuals' motivation to seek information lies in uncertainty discrepancy rather than uncertainty itself. Uncertainty discrepancy refers to the difference between individuals' awareness of their uncertainty about a specific issue and their desired state [17]. During the COVID-19 outbreak, public knowledge about the virus was scarce, but the concentrated outbreak made the public's desire to obtain pandemic information more urgent, which is the root of uncertainty discrepancy.

Previous research on uncertainty management indicates that uncertainty discrepancy triggers individuals' positive or negative emotional responses [23]. Among different emotional responses, the Theory of Motivated Information Management emphasizes the important role of personal anxiety in information management decision-making. Scholar A. Bandura views anxiety as a negative physiological state primarily stemming from uncomfortable stimuli [24]. Scholar L. Chang found that college students' uncertainty discrepancy about sexual health causes their anxiety [25]. This positive relationship has also been validated by scholar N. C. H. Wong in research on individuals seeking information about cervical cancer [18]. Accordingly, this study's first hypothesis is:

H1: During public health emergencies, uncertainty discrepancy about the event among rural middle-aged and elderly individuals will trigger their anxiety.

2.2.2 Evaluation Stage To cope with anxiety, different situations or individuals may make completely different decisions. In some cases, individuals may seek more information to reduce anxiety, while in others, they may choose to avoid more information to escape anxiety [23]. The decision to seek or avoid information is mediated by individuals' predictions about outcome expectations and efficacy during the evaluation stage [20].

The Theory of Motivated Information Management posits that after individuals' anxiety is triggered, they are motivated to evaluate outcome expectations and

efficacy [26]. Outcome expectations refer to individuals' assessments of the costs, benefits, and potential consequences of performing specific behaviors [27]. In this study, outcome expectations primarily refer to rural middle-aged and elderly individuals' assessments of the outcomes of seeking pandemic information from their children. Efficacy is individuals' belief in their capability to complete a certain behavior [24]. In the context of this study, rural middle-aged and elderly individuals' belief in their ability to seek pandemic information from their children is regarded as efficacy. Efficacy primarily includes three dimensions: communication efficacy, coping efficacy, and target efficacy [17]. Communication efficacy describes individuals' belief in their ability to ask questions and receive feedback; coping efficacy refers to individuals' belief in their ability to process acquired information; and target efficacy is individuals' belief in the information source's willingness and ability to provide information. Previous research has used efficacy differently, with some studies treating it as a first-order variable [26] and others as a second-order variable [25, 28]. Upon analysis, this study adopts the latter approach, which is more common in existing research, treating efficacy as a second-order variable comprising three dimensions.

A review of previous research on the Theory of Motivated Information Management reveals that negative emotional responses lead to negative outcome expectations and efficacy judgments, while positive emotional responses trigger positive outcome expectations and efficacy assessments. Specifically, S. R. Hovick validated that individuals' anxiety is an important factor leading to low-level efficacy evaluation and outcome expectations when seeking family health information [29]; in the context of caring for elderly parents, anxiety is also a negative influencing factor on adult children's outcome expectations and efficacy [29]. Furthermore, according to the Theory of Motivated Information Management, individuals' outcome expectations and efficacy exhibit a positive influence relationship [26, 30]. Accordingly, this study hypothesizes:

H2: During public health emergencies, anxiety among rural middle-aged and elderly individuals will negatively influence outcome expectations.

H3: During public health emergencies, anxiety among rural middle-aged and elderly individuals will negatively influence efficacy evaluation.

H4: During public health emergencies, outcome expectations among rural middle-aged and elderly individuals will positively influence efficacy evaluation.

2.2.3 Decision Stage In the decision stage, individuals make information management decisions based on judgments from the evaluation stage [31]. Typically, individuals with positive outcome expectations and efficacy are more likely to become information seekers. If both factors are negatively evaluated, such groups are more likely to exhibit information avoidance behavior [17]. Previous literature based on different research contexts, such as anxiety between parents and children about safe sex [32] and communication between partners about condoms and sexual health [33], has shown that efficacy positively influences

individuals' information-seeking intentions. It can thus be inferred that during COVID-19, efficacy positively influences rural middle-aged and elderly individuals' information-seeking behavior from their children. Accordingly, this study hypothesizes:

H5: During public health emergencies, efficacy among rural middle-aged and elderly individuals will positively influence their information-seeking from children.

When rural middle-aged and elderly individuals perceive the obtained information as useful, will they exhibit subsequent behaviors? Therefore, this study's second research question is:

RQ2: What are the outcomes of rural middle-aged and elderly individuals' information-seeking behavior from their children during public health emergencies?

2.3 Information Forwarding and Adoption

Although the internet has become popularized in rural areas and many rural middle-aged and elderly individuals have become regular social media users, it is not difficult to find that rural society still bears traces of the "differential mode of association" [34], meaning the basic characteristics of an acquaintance society have not changed. Even though WeChat has gradually entered their lives, they tend to migrate offline acquaintance circles online, forming WeChat groups. In the differential mode of association, people support each other in small circles and jointly defend against risks [35]. In other words, when individuals master COVID-19 information, they will forward it to others to encourage them to adopt preventive measures. Accordingly, this study hypothesizes:

H6: During public health emergencies, information-seeking among rural middle-aged and elderly individuals will positively influence information forwarding.

Information adoption primarily refers to individuals accepting relevant advice based on received information [36]. In this study, rural middle-aged and elderly individuals actively seeking pandemic information from their children also implies high perceived information effectiveness and credibility. According to the Information Adoption Model, information effectiveness and credibility are important factors influencing individuals' information adoption [37]. Therefore, rural middle-aged and elderly individuals will adopt pandemic-related information transmitted by their college-attending children and take corresponding preventive measures. Accordingly, this study hypothesizes:

H7: During public health emergencies, information-seeking among rural middle-aged and elderly individuals will positively influence information adoption.

2.4 Research Model

Based on the literature review, this study developed seven research hypotheses. The research model is constructed in Figure 1 [Figure 1: see original paper].

3 Research Methods

3.1 Questionnaire Design

To test the constructed model and hypotheses, the author designed a questionnaire on influencing factors and corresponding outcomes of rural middle-aged and elderly individuals' information-seeking from college students, based on relevant scales from domestic and international scholars. The questionnaire primarily included items for research variables (see Table 1) and basic sample demographics.

As shown in Table 1, the questionnaire contained 30 items, each evaluated using a 7-point Likert scale (“strongly disagree,” “disagree,” “somewhat disagree,” “neutral,” “somewhat agree,” “agree,” “strongly agree”). Before formal distribution, the author invited 20 rural middle-aged and elderly friends via WeChat for pilot testing, identifying and revising some unclearly expressed items.

Based on the literature review, this study included seven research variables: uncertainty discrepancy, anxiety, outcome expectations, efficacy, information-seeking, information adoption, and information forwarding. Items for uncertainty discrepancy and anxiety were derived from research by W. A. Afifi et al. [27]. Scales for outcome expectations, efficacy, and information-seeking behavior proposed by scholar L. Chang were adopted for this study, with efficacy as a second-order variable comprising three important dimensions: communication efficacy, coping efficacy, and target efficacy [25]. Information forwarding refers to rural middle-aged and elderly individuals' behavior of relaying relevant information to others after information-seeking. This variable's measurement primarily referenced L. Chang's information-seeking items [25] and was re-edited to fit this study's context. Information adoption items were derived from scholar Y. H. Fang's research to measure rural middle-aged and elderly individuals' preventive behaviors after information-seeking [38].

In terms of demographic characteristics, the survey collected samples' gender, age, education, unit nature, income, and experience seeking pandemic information from children. Additionally, to verify whether information forwarding among rural middle-aged and elderly groups exhibits a “differential mode of association,” this study investigated their pandemic information forwarding targets.

3.2 Sample Collection

Since this study's target sample comprised rural middle-aged and elderly individuals with children attending university, two screening questions were set: “Are

you over 45 years old and from a rural area?” and “Is your child currently attending university?” to exclude non-target samples. In March 2020, the author used online questionnaires to survey rural middle-aged and elderly individuals with children attending university. Given that the target group resides in rural areas and may be resistant to online surveys, this study primarily relied on counselors at Fuzhou universities to send questionnaire links via QQ or WeChat groups to college students, emphasizing that the target sample was their parents. If parents had difficulty understanding the questionnaire, students could communicate with them in dialect to ensure comprehension and guarantee that collected data reflected their actual conditions.

This study collected 519 samples, excluding invalid samples, resulting in 405 valid samples with an effective rate of 78.0%. As shown in Table 2, most samples (49.9%) were aged 50-54. Male and female samples were roughly balanced at 48.4% and 51.6%, respectively. In terms of education, most samples had only received high school education or below. During the COVID-19 pandemic, 68.1% of samples had experience seeking pandemic information from their children. Regarding pandemic information forwarding targets, 94.3% of samples chose to forward information to close relatives and friends, 77.5% to ordinary relatives and friends, 29.9% to distant relatives and general friends, and only 3.5% to friends of friends or strangers. This demonstrates that traces of the “differential mode of association” still exist in rural areas.

4 Research Results

This study used the statistical software AMOS 24.0 to construct a structural equation model for data analysis. Before data analysis, the distribution of each item’s values was examined. The analysis revealed that the skewness and kurtosis of each item’s values ranged from -0.513 to 0.209 and -1.202 to -0.090, respectively, all within the reasonable range of -2 to 2, indicating that all item values had good normal distribution [39].

4.1 Reliability and Validity Tests

Following the recommendations of scholars J. C. Anderson and D. W. Gerbing, confirmatory factor analysis can be used to test reliability, convergent validity, and discriminant validity [40]. The model fit indices ($\chi^2 = 656.473$, $df = 353$, $\chi^2/df = 1.860$, $RMSEA = 0.046$, $GFI = 0.900$, $CFI = 0.952$, $IFI = 0.952$, $TLI = 0.945$, $NFI = 0.902$) showed good model fit.

Confirmatory factor analysis results are shown in Table 3. Only item AN3 was deleted due to its standardized loading being below 0.6; all other items were retained. The CR values for uncertainty discrepancy, anxiety, outcome expectations, efficacy, information-seeking, information adoption, and information forwarding were 0.822, 0.766, 0.836, 0.822, 0.814, 0.874, and 0.828, respectively, all greater than the recommended value of 0.7, indicating good reliability for all research variables [41]. Meanwhile, the AVE values for these variables were

0.607, 0.522, 0.629, 0.609, 0.595, 0.635, and 0.618, respectively, all greater than the recommended value of 0.5, indicating good convergent validity for all research variables [41].

As shown in Table 4, the square roots of each variable's AVE value were greater than the Pearson correlation coefficients between variables, indicating good discriminant validity among the seven variables in this study [41].

4.2 Common Method Bias Test

As analyzed above, this study used questionnaires for data collection, which may lead to common method bias to some extent [42]. Harman's single-factor test, a common method used in previous research [43], was employed to test the collected data. The results showed that the model fit indices ($\chi^2 = 4004.283$, $df = 377$, $\chi^2/df = 10.621$, $RMSEA = 0.154$, $GFI = 0.491$, $CFI = 0.424$, $IFI = 0.426$, $TLI = 0.379$, $NFI = 0.402$) were unreasonable, indicating that common method bias was not present.

4.3 Hypothesis Testing

The model fit indices ($\chi^2 = 1139.890$, $df = 367$, $\chi^2/df = 3.106$, $RMSEA = 0.072$, $GFI = 0.846$, $CFI = 0.877$, $IFI = 0.878$, $TLI = 0.864$, $NFI = 0.830$) showed good model fit.

As shown in Table 5, all seven research hypotheses were supported. Specifically, in the early stages of the pandemic, the extremely rapid spread of the virus and middle-aged and elderly individuals' lack of understanding about COVID-19 created uncertainty discrepancy regarding the pandemic, which intensified their concerns and triggered anxiety (H1: $\beta = 0.318$, $t = 4.843$, $p < 0.001$). Middle-aged and elderly individuals' anxiety influenced their outcome expectations about information-seeking behavior with their children, leading them to believe that communication with their children would not yield positive results. Therefore, anxiety showed a negative relationship with outcome expectations (H2: $\beta = -0.313$, $t = -4.851$, $p < 0.001$). Simultaneously, middle-aged and elderly individuals in an anxious state also doubted their personal behavioral capabilities, believing they could not communicate well with their children. Thus, anxiety negatively influenced efficacy (H3: $\beta = -0.212$, $t = -3.214$, $p < 0.01$). Once middle-aged and elderly individuals had positive outcome expectations, they also built self-efficacy for positive communication with their children about COVID-19. Therefore, outcome expectations and efficacy showed a positive relationship (H4: $\beta = 0.374$, $t = 5.610$, $p < 0.001$). After establishing self-efficacy, elders were willing to seek pandemic-related information from their children to reduce uncertainty discrepancy. Thus, efficacy positively influenced middle-aged and elderly individuals' information-seeking behavior (H5: $\beta = 0.237$, $t = 3.510$, $p < 0.001$). Additionally, after receiving effective information from their children, middle-aged and elderly individuals typically adopted two behavioral approaches: (1) forwarding information to others to let more peo-

ple understand the real situation of the COVID-19 pandemic; and (2) adopting information to actively prevent the disease. Accordingly, information-seeking positively influenced both information forwarding (H6: $\beta = 0.423$, $t = 6.815$, $p < 0.001$) and information adoption (H7: $\beta = 0.340$, $t = 5.696$, $p < 0.001$).

5 Research Implications

5.1 Theoretical Contributions

This study's theoretical contributions are mainly reflected in four aspects:

- (1) Using the Theory of Motivated Information Management as the background theory, this study integrates information forwarding and adoption behaviors to explore rural middle-aged and elderly individuals' information-seeking from their children and subsequent information management behaviors during public health emergencies. Previously, the Theory of Motivated Information Management was primarily used to explore individuals' information-seeking in career planning, sexual behavior, and organ donation, without verifying its applicability in public health emergency contexts. Additionally, in risk information-seeking research, domestic scholars have introduced models such as the Health Information Model and the Risk Information Seeking and Processing Model as theoretical backgrounds. This study provides a new adapted model and theory for academic research on risk information management behavior in public health emergencies.
- (2) This study's results show that college-attending children are important information sources for rural middle-aged and elderly individuals during public health emergencies, again confirming that intergenerational feedback truly exists in rural families. Most previous research on intergenerational feedback has highlighted feedback practice from a technical perspective, such as scholar Zhou Yuqiong's investigation of children's feedback on new media usage to parents [14] and scholars Hong Jiewen and Li Xin's exploration of intergenerational feedback in rural families using WeChat usage as the research object [13]. This study, however, examines the issue from an information perspective, enriching the connotation of intergenerational feedback to some extent.
- (3) Information flow reflects the transfer of family authority under the impact of internet technology. The family is the basic unit constituting Chinese society. In traditional Chinese society, information flow accompanied pedagogical power flowing from the old to the young, meaning that the "elder" was the authority in the family. As scholar Fei Xiaotong proposed based on Chinese social structure, "gerontocracy" is an authority with age as the external and experience as the internal standard [8]. "Elder authority" may change due to cultural shifts that render traditional life experience and rules insufficient for daily life [8]. This study's results prove the impact of another force: technology has granted curious young

people temporal advantages in accessing the internet, and accumulated temporal experience has created a change in “elders,” that is, the transfer of authority from the old to the young.

- (4) Scholar Fei Xiaotong also pointed out that China’s grassroots social structure presents a “differential mode of association,” that is, “centered on the self, with social relationships extending outward layer by layer” [8]. Moreover, scholar Li Mohai believes that traces of the “differential mode of association” still exist in today’s rural areas [34]. The basic spirit embedded in this social structure is the “ethical standard” proposed by scholar Liang Shuming, meaning that ethical relationships “begin in the family but do not end there” [44]. By investigating the scope of rural middle-aged and elderly individuals’ information forwarding, this study found that close relatives and friends are their primary information forwarding targets, ordinary relatives and friends are secondary targets, and distant relatives and general friends are in a less important position. This confirms that the “differential mode of association” exists in rural information dissemination and that ethical relationships “do not end in the family.”

5.2 Practical Implications

This study’s findings also contain practical value, mainly reflected in four aspects:

- (1) This study shows that 65.6% of rural middle-aged and elderly individuals had experience seeking information from their college-attending children during the COVID-19 pandemic, indicating that intergenerational feedback is common in rural families. This provides a reliable route for national information dissemination in rural society during the pandemic, especially when numerous rumors flooded social media and rural middle-aged and elderly individuals with relatively low scientific literacy could not effectively distinguish rumors from true information, intensifying their uncertainty discrepancy and triggering anxiety, potentially even causing mass panic. In public health emergencies, the government should fully mobilize the subjective initiative of rural college students, making them the backbone of risk information dissemination to transmit more accurate and objective information to rural middle-aged and elderly populations.
- (2) During the COVID-19 outbreak, although many mainstream media outlets launched rumor-refuting functions, rumors still contributed to anxiety among rural middle-aged and elderly individuals to some extent. As the saying goes, rumors stop with the “wise.” Traditionally, the “wise” usually belonged to the elder generation because their extensive experience gave them more knowledge than the young when facing certain matters. However, the birth of the internet as a “field” has reversed some traditional relationships. The younger generation, mastering more internet usage skills (such as WeChat rumor-refuting assistants), possesses greater accu-

racy in the authenticity of online information. In other words, the younger generation has become the “wise” and can “feedback” to the parental generation in internet information usage. This also provides new ideas for government internet social governance.

- (3) This study verifies that rural middle-aged and elderly individuals’ anxiety is influenced by their uncertainty discrepancy, meaning that avoiding public uncertainty discrepancy is key to handling public health emergencies. Typically, uncertainty discrepancy stems from insufficient understanding of event information, which may result from middle-aged and elderly individuals’ lack of scientific literacy or insufficient information disclosure. Therefore, the government and media can enhance their scientific literacy through popular science videos and other forms favored by middle-aged and elderly individuals, while also strengthening information transparency to improve their understanding of events.
- (4) This study again reveals the importance of word-of-mouth communication among rural middle-aged and elderly individuals and the “differential path” of word-of-mouth dissemination. Especially when they believe they have mastered information important to relatives and friends, they will disseminate it to others through various channels. Unlike the “stranger society” in urban areas, today’s rural areas remain an “acquaintance society” where information is disseminated within acquaintance circles, adding crucial weight to the effectiveness of word-of-mouth communication. Of course, the real rural society still has a clear differential mode of association structure. Identifying the “important groups” of rural middle-aged and elderly individuals is a key step in risk information dissemination and science communication, which can achieve twice the result with half the effort for local governments handling public health emergencies.

5.3 Limitations and Recommendations

Although this study’s objectives have been achieved, certain limitations exist. First, this study’s subjects were limited to rural middle-aged and elderly individuals, excluding urban middle-aged and elderly populations. In reality, behavioral patterns between these two groups may differ. Future research could include middle-aged and elderly individuals from different regions as research subjects to ensure the generalizability of findings. Second, according to experts, the impact of the current pandemic may not have ended; future scholars could also use experience sampling methods for data collection to ensure data reflects the real-time status of behavior occurrence, discovering the influencing mechanisms of middle-aged and elderly individuals’ information-seeking and information management behavior formation. Third, this study only considered the formation mechanism of rural middle-aged and elderly individuals seeking information from their children. In fact, rural middle-aged and elderly individuals also obtain relevant information from social media such as short videos and WeChat. Future research could examine the internal mechanisms of middle-aged

and elderly individuals seeking information from social media.

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Author Contributions:

Zhang Dawei: Proposed the research framework and wrote the paper;

Xie Xingzheng: Collected data, analyzed data, and wrote the paper.

Note: Figure translations are in progress. See original paper for figures.

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