

Research on the Pathways to Bridge the Digital Gap for Migrant Workers from the Perspective of Health Communication

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Abstract:

The digital gap 3.0 concerns the quality of life and social development and is also a core issue determining survival. This paper focuses on acquiring health information and applying intelligent technology to migrant workers in cities. Through field research and semi-structured in-depth interviews, it explores the formation, evolution, and iteration of the digital gap among migrant workers and proposes intervention pathways. The study finds that migrant workers primarily rely on network-based mutual aid to obtain health information, with issues such as health information avoidance and weak “proactive health” awareness. To address these problems, the government should manage health-related information, platforms need to regulate the “marginalization” behavior of intelligent algorithms, media should establish systematic health agendas, and migrant workers themselves should improve their information literacy.

Keywords:

Digital Gap, Health Communication, Migrant Workers, Digital Inequality

1. Introduction

Digital inequality is becoming an essential component of connectivity inequality, and the “digital gap” problem has been activated unprecedentedly, widely involved in life, office, education, health care, etc. The rapid advancement of intelligent technology has added new connotations and driving forces to the digital gap [21]. Among them, the contradiction between digitalization, intelligence, and disadvantaged groups has attracted the attention of the academic community, especially the more obvious gap in technology use and information access in the intelligent era. As a group with frequent occurrences of occupational diseases and chronic diseases, migrant workers in previous studies generally have media use barriers and a lack of digital literacy. They are often located on the edge of the benefits of intelligent technologies, and their media practices and technology use thus enter the research vision of this paper.

2. Literature Review

2.1. Health Communication

Health communication has long been viewed as a type of communication that is issue-based and dedicated to identifying, researching, and solving problems related to health promotion [14]. Jackson believed that health communication should use the mass media to disseminate health-related information for disease prevention and health promotion [3]. Rogers, on the other hand, believes that health communication is a kind of behavior that transforms the results of medical research into acceptable health information through various communication strategies and ultimately improves the health level of the whole society by changing the attitude of the public [9]. The definition of health communication by Chinese scholars follows the earlier Western definition [11]. From the communication perspective, “health” should be the unity of body and spirit, individual and world, existence and experience. It is not an ultimate, visible physical state but a complex process involving multiple elements in the existential sense of an individual's bodily functions, interpersonal harmony, and spiritual values [12].

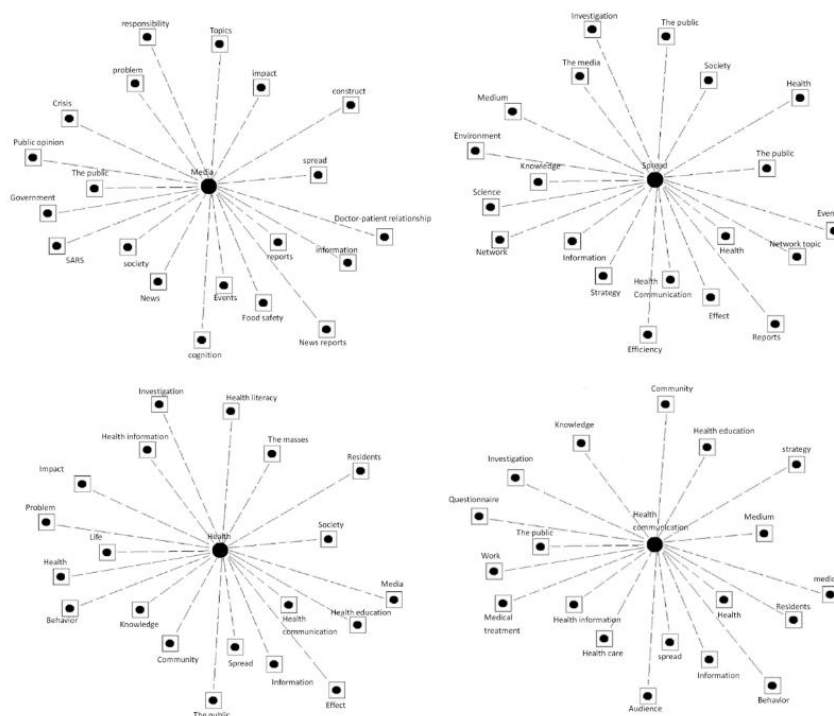


Figure 1. Core Concept Map of Health Communication Research at the Stage of Interdisciplinary Collision.

Many studies have incorporated new related factors and perspectives to address local practices and real-world experiences, such as stigma and doctor-patient communication [1] [4], thereby transforming existing theoretical frameworks. Zhou introduced the Elaboration Likelihood Model (ELM) to research factors influencing information adoption intentions among users of online health communities (OHC). The findings revealed that both information factors and social interactions affect adoption intentions [19]. Liu and colleagues applied the Information Adoption Model (IAM) in their research, discovering that social experience topics, emotional expression topics, and emotional tone in posts, as well as poster credibility and influence in terms of information source credibility, are significantly positively

correlated with the number of likes and shares of posts in online mental health communities [6].

In terms of model usage, research in this direction frequently employs the Stimulus-Organism-Response (SOR) model, which points out that different stimuli (Stimulus) produce different effects on an individual's internal state (Organism), subsequently determining their behavior (Response). With the deepening of research, the connotation of SOR theory has also expanded. For example, the external environment as a stimulus has extended from the traditional real-world environment to the social media environment [15], organism responses have expanded from singular emotional reactions to a combination of emotional and cognitive responses, and users' avoidance behaviors have been included in the examination [7].

Many scholars categorize the factors influencing health information adoption behavior into three types: user, information, and environment. Gong He et al. focused on the adoption of scientific information [2], Tang Xuli researched user health literacy [13], and Shinta focused on women's cervical cancer prevention behaviors [10]. Through solid field experience and qualitative materials, scholars understand complex realities, shifting from "disease-centered" to "people-centered" approaches. For example, studies on the life narratives of female caregivers in the care field [16] and research on apps in the reproductive field embody both humanistic care and intellectual contributions [5].

2.2. Intelligence Gap

The digital gap emerged along with the wave of Internet commercialization in the 1990s. As digital communication has driven a paradigm shift in societal information dissemination mechanisms, the digital gap has essentially undergone three distinct paradigms in parallel. These paradigms are the initial access gap (Digital Gap 1.0), the literacy gap in network usage (Digital Gap 2.0), and the data-centric intelligence gap in the era of smart technology (Digital Gap 3.0) [20].

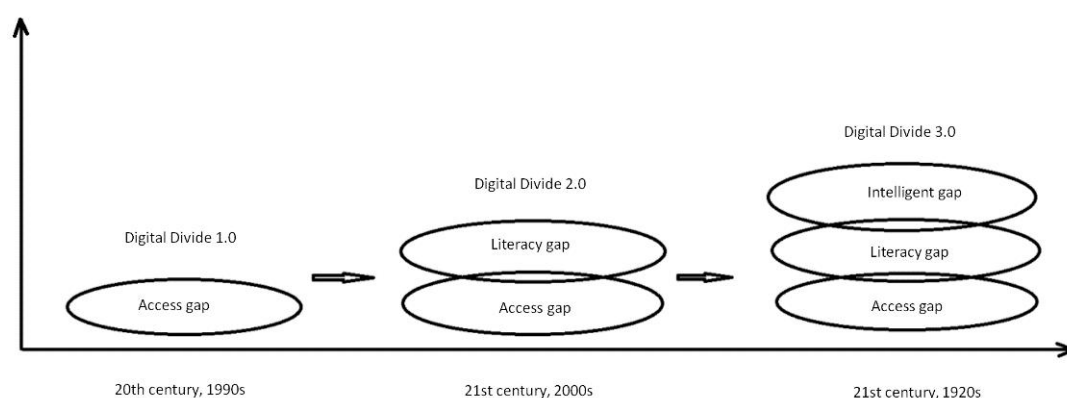


Figure 2. *Three-Stage Evolution of the Digital Gap and Its Characteristics.*

Against the backdrop of digital inequality increasingly aligning with social inequality, focusing on the intelligent communication challenges faced by vulnerable groups in specific fields is especially crucial. The underlying logic of the intelligence gap is the transformation of social information dissemination, and this perspective will also permeate this study's problem statement and method design.

2.3. Rural migrant workers in cities

The migrant worker group is an important component of the urban population. These individuals are registered as rural residents but work in urban non-agricultural industries, with wages being their primary source of income. For a long time, research on migrant workers has been a focal point in disciplines such as sociology, demography, and economics. The field of journalism and communication started to focus on the topic of migrant workers relatively late and has shown a tendency towards “disciplinary introversion” [18]. This is manifested in two specific ways: first, treating migrant workers as objects of news reporting or media construction, examining issues like the deprivation of discourse power, media image, or reporting bias; second, studying migrant workers as media users, focusing on their media consumption habits and new media usage. Both approaches lack the perspective of viewing migrant workers within the context of urban adaptation or urban integration. Therefore, this study emphasizes other contexts within social and cultural backgrounds and social changes.

Considering this, the study proposes the following research questions:

- a. What kinds of digital inequalities do migrant workers face regarding health information acquisition and intelligent technology application? Through what media practices can these gaps be coordinated or bridged?
- b. As diverse actors in the health chain, do they understand the health needs of migrant workers? How can they apply professional logic to address potential intelligence gaps? How do they view the future development of this phenomenon?

3. Research Method and Research Design

3.1. Conducting Preliminary Research Using a Questionnaire Method

In January 2023, this study conducted preliminary research using a questionnaire survey method. The distribution of the questionnaire was carried out in three ways: Precisely targeting respondents through the online questionnaire platform “Credamo”; Conducting field visits to several labor markets and surrounding communities in Nanjing, where questionnaires were distributed to migrant workers; Utilizing a snowball sampling method, where interested respondents shared the questionnaire link within their worker groups. The questionnaire included 15 questions covering demographic information, smart healthcare usage, intelligent communication status, and structural optimization. Preliminary research revealed that the digital gap in health information communication mainly manifests in confusion caused by complex health information and obstacles in using smart technologies.

A total of 392 samples were collected, 359 of which were valid, resulting in an effective response rate of 89%. As shown in Table 1, Cronbach’s alpha coefficients for all variables were greater than 0.7, indicating that the reliability level of the scale used in this study is adequate.

3.2. Field Research Method

From January 2023 to March 2024, field research was conducted on migrant workers. Initially, the research relied on hometown social networks to contact migrant workers using snowball sampling and searched for eligible users on social media platforms to recruit interviewees. Later, team members visited several typical labor markets in Nanjing and Jiangsu and interviewed some adult children of migrant workers. To increase the heterogeneity of the research subjects, the study also

included media professionals and hospital publicity departments involved in various stages of the health chain.

Table 1. *In-depth interviewee form.*

Serial nubmer	Sex	Age	Occupation	Interview method
Migrant workers(relatives)				
S1	Male	37	Truck driver	Participant observation
S2	Male	44	Air conditioning installer	Participant observation
S3	Male	59	Worksite worker	On-site interview
S4	Male	33	Franchise manager	Telephone interview
S5	Male	21	Restaurant waiter	Telephone interview
S6	Male	28	Security staff	On-site interview
S7	Female	45	Domestic staff	Participant observation
S8	Female	37	Shop sale	On-site interview
S9	Female	52	Dustman	Telephone interview
S10	Female	30	Restaurant waiter	Telephone interview
S11	Female	27	(Children)University Administration	On-site interview
Health communication practitioners				
S12	Male	28	Media reporter	On-site interview
S13	Female	36	Hospital propaganda department	On-site interview
S14	Female	33	Forner Health Category	On-site interview
S15	Female	30	Director	On-site interview

4. Structural Barriers and Individual Challenges to Health Communication

Based on in-depth interviews, the study found that the digital gap in health communication among migrant workers exhibits multi-layered issues. First, geographical factors prominently influence the health information dissemination chain among migrant workers. Second, an overload of health information impacts their risk perception, exacerbating health information avoidance within this group. Third, migrant workers themselves are not sensitive to existing problems and lack “proactive health” awareness.

4.1. Geographical Mutual Aid: Health Information in Chat Groups

Due to factors such as living environment and the digital gap, the health literacy of migrant workers is relatively low. This group is highly mobile, and their primary channel for obtaining health information from familiar circles is through WeChat “hometown groups.” One interviewee (S1) mentioned, “In our group, we share various information we come across, including entertainment, current events, and health information, because it is closely related to our bodies.” WeChat groups provide a platform and carrier for information exchange and emotional connection, bridging the spatial distance in health communication.

According to the classic “Knowledge, Attitude, and Practice” (KAP) theory in health communication, the effectiveness of health communication is reflected in three levels: cognitive, attitudinal, and behavioral. At the mental level, the belief in health knowledge disseminated in WeChat groups is influenced by factors such as the group's time, energy, and existing knowledge reserves. Sharing a link does not mean most people will click and view it. At the attitudinal and behavioral levels, although migrant workers have a high degree of approval of the health knowledge disseminated,

long-standing life concepts and habits are complex to change, resulting in the effect of health communication mostly remaining at the cognitive level.

4.2. Risk Perception: Health Information Avoidance

Health information avoidance behavior can be traced to the SOR (Stimulus-Organism-Response) theory. In recent years, the SOR theory has been introduced into health information research, indicating that information characteristics and emotional reactions influence personal information anxiety and trigger avoidance behaviors. First, negative information characteristics directly cause health risk anxiety among migrant workers and, through the compound effect of information salience, exacerbate risk perception. Interviews show that cognitive dissonance is directly related to perceived harm characteristics; when migrant workers experience conflict with health information, cognitive dissonance affects risk perception, thus triggering information avoidance behaviors. Secondly, the study found that an information gain frame is more effective in promoting health prevention behaviors. Therefore, in health promotion practices targeting migrant workers, content producers should use gain frames whenever possible and avoid emotional content to reduce negative emotional responses and information avoidance behaviors.

4.3. Weak “Proactive Health” Awareness

The study's subjects are influenced by various external factors such as the economic, communication, and cultural environment, resulting in overall low health communication efficiency. Migrant workers face obstacles in information reception at the end of the health communication chain and have a vague understanding of the causal chain. They have some self-awareness of common issues but cannot independently detect more potential problems. For example, one interviewee (S7) mentioned, “My husband and I have been working in Nanjing since we were young. Once, he broke his right hand while working but didn't say anything... Delaying work means delaying the project, and the boss wouldn't be happy.” Additionally, most migrant workers do not have the awareness to verify information, do not distinguish between information sources, and do not habitually cross-check information from different sources.

5. Discussion: Strategies for Bridging the Gap

5.1. Bridging the “Usage Gap”: Practical Application Level

The digital gap in the application of health information is relatively more straightforward to bridge, but its objective existence must be addressed. This group's lack of “practical experience” leads to a vague understanding of macro-level health concepts and specific practices. Hospitals can actively recruit volunteers on this basis (according to some interview records, some local hospitals have already made such attempts). The Health Commission should collaborate with communities to hold educational activities, grounding these efforts at the grassroots level to explain how to use such technologies.

“Self-exclusion” [17] refers to the resistance and distrust some groups have towards new developments in intelligent healthcare due to the broad influence of traditional medical models and services, leading to an “application gap” and a “digital rights gap” originating from the “information gap.” Of course, the emergence of big data technology has its rational basis. A more practical approach is to optimize algorithms

to avoid information waste and break the information bubble. Additionally, enhancing interactivity between platforms and users is also an effective solution. The standard-setters influence the standards for disseminating health information. When a user does not choose to browse a particular piece of health information, it does not mean they are uninterested in all health information, and the platform might misjudge such situations.

5.2. Bridging the “Access Gap”: Online Popularization Level

Compared to applications, due to the narrower information channels and relatively weaker information acceptance and understanding abilities of migrant workers, the digital gap in health information under the trend of intelligent development has become more invisible yet harder to cross.

The first issue is balancing traffic and volume. Conclusions indicate that popular and accessible dissemination methods are necessary in the Internet era. An expert (S12) stated, “The public judges the authenticity of health knowledge based on the authority and credibility of the publishing platform... From this perspective, highly recognized methods include comics, infographics, explanatory videos, and audios, including those using dialects.” The use of images and videos has a dual nature. On the one hand, their sensory solid stimulation, direct content delivery, and high comprehensibility are advantages. On the other hand, the lively format should be controlled to avoid overshadowing the content, making the audience remember the form but ignore the substance.

Next is the platform of engagement. Health information dissemination should be attempted on digital platforms like TikTok and WeChat and traditional platforms like print media. First, the user base and demographic of platforms like TikTok and WeChat indicate a large market, and people in the lower-tier markets who need to be more proficient in using the Internet are precisely those who need health knowledge the most. Second, considering the platform’s tone, short videos can easily incorporate educational content; people will likely click on eye-catching health knowledge while browsing WeChat articles. Additionally, based on user needs, the audience for print media usually includes older people and others not accustomed to using the Internet, who objectively need health knowledge and have the patience to read.

5.3. Bridging the Gap Through Governance

First, the government needs to pay attention to and extend Internet governance actions to health communication. In 2023, the “Qinglang” series of particular actions to combat the dissemination of fake health information was launched, focusing on rectifying the chaos of “self-media” and the content chaos on life service platforms.

Second, platforms should also take responsibility, establish traceability mechanisms, and cooperate with macro governance models to formulate penalties. Platforms can appropriately label common health rumors, empower back-end monitoring systems, and consider strictly monitoring or preemptively identifying potentially violating information. From the perspective of communication content, health agenda-setting needs to be more systematic. New media accounts of hospitals and health commissions should continue to ensure the output of high-quality content, thinking about “breaking the circle” strategies based on careful verification of health information to enhance content readability. Media producing health content should fully consider audience characteristics and create more accessible health science new

media works for the public, effectively increasing the frequency with which disadvantaged groups are exposed to intelligent healthcare technologies, thus helping them build bridges to the digital gap.

Finally, migrant workers should also focus on improving their information literacy. Comprehensive digitalization is a social trend, and migrant workers should adapt proactively to a digital society. Some migrant workers have been deceived while using social media platforms. Although individuals cannot represent the whole, migrant workers should strive to actively bridge the digital gap and enhance their personal health information literacy to adapt to the wave of digital society ultimately.

6. Conclusions

This study proposes rethinking the dominant health communication paradigm from a grassroots perspective to address the digital gap. Using fieldwork methods, the research delves into the media practices of various groups and provides practical, feasible approaches for positive intervention from different dimensions. The ultimate goal is to enable the expression of voices and visibility of the difficulties groups face outside the technological barriers.

However, the study has some limitations. In the research design, more than half of the subjects are from Jiangsu province, which may affect the conclusions. Additionally, this paper overlooks the impact of gender factors in the digital world and intelligent fields. Future research can further explore the peculiarities of the digital gap in the field of health information dissemination. For example, why are obstacles to using intelligent technology and the inequality in information acquisition under algorithmic recommendations so crucial in the health domain? What roles do urban-rural differences or urban integration play in this context? Besides broadly emphasizing the importance of “information literacy,” what conceptual changes and content production innovations can the diverse actors in the health communication chain make?

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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