

# The Digitalizing Women's Social Capital: Community-Based Communication and Gendered Agency in Rural Food Systems

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## ABSTRACT

### Keywords

Digitalized Social Capital; Women's Community Networks; Rural Food Systems; Nutritional Awareness; Gender and Development

This research examines communication practices in community-based organisations to increase women's and family health social capital through food diversification in rural communities, especially in Madura, Indonesia. The analysis focuses on the role of traditional women's networks in communication for development approaches and on how they are increasingly harvested for specific purposes and integrated into institutions through various digital platforms, such as WhatsApp groups. This hybridisation enables collective learning, increases nutritional awareness and assists in negotiating household food decisions within a patriarchal cultural milieu.

The data, surveys and interviews were recorded in Sumenep and Pamekasan. Results indicate that while women maintain strong social networks and relationships in their communities, they typically lack formal authority over household food expenditures. By transmitting information and fostering a sense of togetherness, digital community communication empowers women to reach out to their peers. As a result, women are able to champion local foods such as corn, tubers and traditional spices as desirable nutritious substitutes for rice.

This study integrates participatory communication (Middleton) and persuasive communication (Yale Model) lines of research to propose a community-centred digital communication platform framework. This framework leverages social capital to facilitate gendered agency in rural development. The study offers an innovative perspective by framing "digitalised social capital" not merely as technology adoption but as a hybrid communication system that disrupts collective norms and household food management.

This study contributes to the Sustainable Development Goals SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality) and SDG 17 (Partnerships for the Goals) as localised digital communication interwoven within women's community networks can improve food security resilience and gender-inclusive development for rural South & Southeast Asian communities.

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## 1. Introduction

Food security and nutrition remain serious challenges in rural areas of the Global South, including Indonesia. Despite increasing food production and economic growth, rural household consumption patterns are still dominated by a single staple food, particularly rice, which limits nutritional diversity and quality. This situation reflects a global problem where food availability does not always equate to nutritional adequacy (FAO, 2021; Global Panel, 2016). Within the household context, women play a crucial role in managing family food and nutrition, yet are often limited in decision-making, particularly in patriarchal societies (Meinzen-Dick et al., 2019). This situation places women as both key actors and structurally constrained parties in the family food system.

In Indonesia, this issue is further complicated by the phenomenon of the "triple burden of malnutrition," a condition where undernutrition, micronutrient deficiencies, and overnutrition occur simultaneously (UNICEF, 2023). Data shows that more than 20% of children under five suffer from stunting, while food consumption diversity remains unequal, particularly in rural areas (BPS, 2024; WFP, 2023). Fluctuations in food diversity achievement indicate that nutritional security remains vulnerable and unsustainable. This indicates that food issues are not only related to availability, but also to access, knowledge, cultural preferences, and power relations within the household. In contexts like Madura, these dynamics are reflected in everyday communication practices that influence how food decisions are negotiated at the family level.

Several studies have shown that social capital plays a crucial role in supporting food security and community-based development. Social capital, encompassing networks, trust, and shared norms, enables collective action and effective information exchange (Putnam, 2000; Aldrich & Meyer, 2015). Informal women's networks such as religious study groups (*pesantren*), social gatherings (*arisan*), and community groups serve as strategic spaces for knowledge sharing and strengthening social solidarity (Kabeer, 2020). From a development communication perspective, a participatory communication approach emphasizes the importance of dialogue, community engagement, and leveraging local knowledge in driving sustainable behavior change (Servaes, 2020). This approach has proven more effective than top-down interventions in the context of health and agriculture.

The development of digital technology, particularly the use of platforms like WhatsApp, has transformed the way social networks operate in society. These platforms enable rapid, broad, and continuous communication, thereby strengthening social relationships while expanding the reach of information (Aricat & Ling, 2018). Studies show that digital communication can strengthen bonding and bridging social capital, as well as increase access to health and agricultural information (Gil de Zúñiga et al., 2017; Aker & Mbiti, 2019). However, most research still views digital technology as a tool for information dissemination, not as a mechanism for transforming social relations and power structures within communities.

Recent research in reputable journals emphasizes the importance of integrating a gender perspective into food systems. Studies in Food Policy show that many food system analyses are insensitive to gender dynamics, thus failing to explain the role of women's agency in food security (Doss et al., 2022). Other research in the Journal of Development Studies shows that women's empowerment contributes significantly to nutritional improvements, but remains limited by structural barriers and access to information (Malapit et al., 2023). Meanwhile, studies on social capital indicate that community networks play a crucial role in food security, but are often understood as static resources, rather than dynamic communication processes (Sari et al., 2023). Thus, the interrelationships between gender, social capital, and food systems—particularly in the context of digital communication—remain largely unexplored.

This research gap lies in the lack of understanding of how digital platforms interact with women's existing social networks and how these interactions shape communication practices and decision-

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making in everyday life. In particular, there is limited research explaining how digital communication enables women to negotiate roles and exercise agency in patriarchal cultural contexts, particularly in decisions related to family food.

This research seeks to fill this gap by examining communication practices within women's community networks integrated with digital platforms in rural Madura. Drawing on participatory communication theory (Servaes, 2020) and the Yale persuasive communication model (Petty & Briñol, 2015), this research develops the concept of "digitalized social capital" as a hybrid communication system that combines offline and digital social interactions in a mutually reinforcing manner. Within this system, communication processes such as peer influence, message repetition, and collective learning play a crucial role in shaping knowledge and practices related to food and nutrition. This concept views technology not merely as a tool but as part of a communication infrastructure that can reconfigure gender-based power relations in rural food systems.

This research aims to: (1) analyze communication practices within women's community networks in promoting food diversification and nutrition awareness; (2) examine the role of digital platforms, particularly WhatsApp, in transforming these communication practices; and (3) explain how digital interactions enable women to exercise agency in household food decision-making. This research uses a qualitative approach through fieldwork in Sumenep and Pamekasan, utilizing in-depth interviews, observation, and digital communication analysis. By integrating communication, gender, and rural development perspectives, this research is expected to contribute to understanding the role of digitalized social capital in supporting inclusive and sustainable food systems.

## 2. Method

Data were analyzed using thematic analysis (Braun & Clarke, 2021) through transcription, coding, theme grouping, and interpretation. The analysis focused not only on message content but also on the communication process, including how messages were produced and negotiated. Interpretations were strengthened by the participatory communication framework (Servaes, 2020) and the Yale persuasive communication model (Petty & Briñol, 2015).

Data validity was maintained through triangulation of sources and methods, member checking, and discussions with fellow researchers. Ethical aspects were addressed through participant consent, data confidentiality, and the use of data for academic purposes only. This approach enabled the integration of offline and digital communication analysis as a hybrid communication system to understand the transformation of women's social capital in rural food systems.

## 3. Result and Discussion

### 3.1 Transforming Women's Social Networks through Digital Communication and Enhancing Collective Legitimacy in Food Decision-Making

Communication In the rural Madura community, women establish robust social networks informally through religious gatherings, savings groups, and daily interactions within the village. This network facilitates the dissemination of information regarding nutrition, familial health, and dietary practices. Repeated exchanges fortify social relationships and trust among community members. A source in Sumenep stated,

"We typically receive information from religious assemblies or social organizations." Subsequently, we discuss culinary topics, children's nutrition, or health-promoting matters (Informant 1, Sumenep)

This social network experiences significant alteration upon integration with digital platforms, particularly WhatsApp. The majority of individuals who provided information are members of WhatsApp groups for their communities, where they exchange information, organize activities, and

engage in daily discussions. Digital communication accelerates information dissemination and introduces novel learning modalities previously attainable solely through in-person interactions.

A source stated:

"We now utilize WhatsApp more frequently, allowing individuals to share recipes or healthy food options directly within the group." We acquire knowledge rapidly. (Informant 3, Pamekasan)

Group interactions demonstrate that individuals disseminate information regarding local food alternatives such as maize, tubers, and traditional spices through various means, including concise messages, images, and personal narratives. Communication occurs in an interactive manner, characterized by prompt responses, inquiries, and subsequent discussions.

An informant stated that individuals frequently inquire about, seek guidance on preparing, or attempt to replicate a dish made with maize or cassava at home upon receiving an image of it. (Informant 5, Sumenep)

This research reveals that the additional knowledge about family nutrition gained from interactions in the WhatsApp group not only increases women's awareness but also strengthens their negotiating power with their husbands regarding food choices. Members of the group consistently disseminate information from reliable sources, including the mothers of community health workers, village midwives, religious leaders (*bu nyai*), and health influencers on social media. This provides women with a form of social legitimacy that enhances the strength of their arguments in familial discussions.

A source stated: "At times, my husband doubts my assertions." However, he generally finds it more credible when I attribute it to the group, the midwife, or the traditional healer. (Informant 6, Pamekasan)

Another individual who commented on the WhatsApp group noted that the diversity of information sources enhanced the message's strength and persuasiveness:

"In that group, I am not the sole contributor." Numerous other mothers, as well as community health workers and midwives, are also present. Therefore, if my spouse overhears this conversation, he will not perceive it as solely my perspective. (Informant 4, Sumenep)

Incorporating content from public figures or influencers enhances the persuasiveness of the message:

"Occasionally, there are videos featuring physicians or influencers discussing nutritious food." "My husband will trust it more because the source is not ordinary." (Informant 8, Pamekasan)

The findings indicate that digital communication in women's communities serves both as a medium for information exchange and as a collective method for establishing knowledge legitimacy. The obtained information is no longer individualistic; it results from a social construction supported by various actors with differing levels of legitimacy. Women do not possess complete authority over family financial expenditures; however, they can leverage these communal information sources to influence familial decisions, such as budgeting for groceries or choosing where to shop for food. The shift from interpersonal communication to group discourse enhances women's influence in the food decision-making process. Moreover, digital communication serves as a platform for collaborative learning. The informants indicated that discussions in the WhatsApp group enhanced their understanding of nutrition and food processing in their locality, which they subsequently applied in their daily routines. One individual who provided information stated the following:

"I possessed limited knowledge regarding nutrition previously. Having extensively discussed it within the group, I now possess a clearer understanding and can elucidate it to my family. (Informant 2, Sumenep)

The research findings indicate that the digitization of community communication enhances information access and empowers women to gain knowledge, influence the social milieu, and

negotiate within the domestic domain, ultimately leading to improved decision-making and greater participation in community affairs.

### **3.2 From Social Capital to Collective Legitimacy: A Theoretical Dialogue between Participatory Communication and Digital Persuasion**

The results of this study demonstrate that the amalgamation of conventional social interactions with digital communication has created a hybrid communication system that enhances the social capital function of women in rural communities. Social capital, once predicated on in-person encounters, is increasingly proliferating through digital platforms such as WhatsApp, facilitating communication that is more intensive, rapid, and transcendent of spatial limitations. In this setting, social capital is no longer a static resource but a dynamic process continuously generated and regenerated through daily communication patterns facilitated by technology. This aligns with the perspective that digitalization augments the ability of social networks to facilitate information transmission and foster community cohesion (Aldrich & Meyer, 2015; Gil de Zúñiga et al., 2017).

Also, the way people in the WhatsApp group talk to each other shows that they are quite participatory. Women are not just people who get information; they are also people who create and share it. This technique exemplifies communal learning derived from experience and horizontal interaction, wherein knowledge is co-constructed through dialogue and shared practices rather than conveyed unidirectionally. These results support the participatory communication strategy, which stresses how important it is for people to be involved in making meaning and changing society (Servaes, 2020). In this setting, digital communication does not supplant current social contacts; instead, it enhances the dialogue space and fortifies the community's collective ability to comprehend pertinent topics, such as food and family health.

One significant contribution of this research is the discovery of the emergence of communal legitimacy within the communication process. The information that people communicate in WhatsApp groups is no longer private; it is strengthened by the assistance of different people in the network, such as other community members, health workers, religious leaders, and even digital influencers. The variety of various sources gives rise to a type of dispersed credibility, where the knowledge is trusted not because of one person but because of the social legitimacy that builds up throughout the network. The Yale persuasive communication model helps us understand this phenomenon by showing that the credibility of the source is a big part of changing people's attitudes and behaviors (Petty & Briñol, 2015). This study's findings suggest an evolution of the concept of credibility, transforming it from a singular notion to a communal and network-based one. This shift amplifies the persuasive efficacy of communications inside the realm of digital communication.

The findings of this study indicate that women continue to encounter constraints in formal authority for home economic decision-making in the context of gender relations. But they aren't completely passive either. Through persuasive communication bolstered by collective legitimacy, women can exert agency in a contextual and negotiable fashion. In this context, agency is not seen as direct authority, but as the ability to change choices, sway others, and find common ground in the home. This viewpoint corresponds with the gender perspective that perceives agency as a negotiated process under restrictive social frameworks (Kabeer, 2020; Cornwall, 2016). Consequently, digital communication serves as a conduit that enhances women's bargaining power by offering extensive and varied social support.

These findings also shed light on the significance of communication in rural food systems. Changes in how people eat were often tied to money or availability in the past. This study indicates that the way people talk about food is just as important. Women in social networks share, negotiate, and reinterpret information on food diversification, such as using maize, tubers, and other local items. This corroborates other research indicating that social and cultural determinants substantially impact food consumption habits (Doss et al., 2022; Malapit et al., 2023). Consequently, the digitalization of social capital can be perceived as a communication infrastructure that interlinks information, behaviors, and social ties within the food system.

This research theoretically enhances the comprehension of the interplay of communication, gender, and development by illustrating that digitalization serves not only as a technological

instrument but also as a catalyst that reshapes social and power dynamics. The notion of digitized social capital introduced in this study underscores that communication is a fundamental factor in influencing women's agency and instigating transformations in household food practices. The amalgamation of participatory communication and persuasive communication inside the digital realm engenders a novel form of community-based agency that remains underexplored in existing research.

Nonetheless, this study has limitations, especially regarding its geographical coverage, which is restricted to two districts in Madura. Consequently, further study must evaluate these findings within a wider and more varied environment, and integrate both qualitative and quantitative methodologies to comprehensively assess the influence of digital communication on alterations in dietary behavior. Moreover, an in-depth examination of the influence of digital entities, such as influencers, in constructing collective legitimacy is a crucial domain for further development.

#### 4. Conclusion

This research shows that communication within rural women's community networks has evolved into a hybrid communication system that integrates offline and digital interactions. Through platforms like WhatsApp, women not only access information but also collectively produce and distribute knowledge related to food and nutrition, thus encouraging increased awareness and practices of food diversification.

A key finding of this research is that digital communication strengthens women's agency in household decision-making, despite their continued patriarchal structure. This agency does not emerge through formal authority, but rather through collective legitimacy built from the support of social networks, including fellow community members, health workers, religious leaders, and other digital sources.

Theoretically, this research expands the concept of social capital by introducing the idea of digitalized social capital as a communication infrastructure that reconfigures social relations and power within rural food systems. The integration of participatory and persuasive communication suggests that behavioral change is determined by trust-based collective communication processes.

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