

Development of Community Intervention Models for the Prevention of Non-Communicable Diseases in Coastal Areas

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ABSTRACT

Food security remains a pressing challenge in many rural areas, where limited access to resources, infrastructure, and institutional support often hinders sustainable agricultural practices and equitable food distribution. This paper explores the role of social capital in enhancing the effectiveness of community-based food security programs in rural settings. Social capital defined by the networks, norms, and trust that facilitate collective action has increasingly been recognized as a key driver in community resilience and development. Through a review of literature, field data, and case studies, this study identifies how various forms of social capital bonding (within-group ties), bridging (inter-group connections), and linking (vertical relationships with institutions) can be leveraged to improve food access, promote knowledge sharing, encourage local participation, and sustain collective farming and food distribution initiatives. The research finds that communities with stronger social cohesion, higher levels of trust, and active civic engagement are better able to organize around shared food goals, resist external shocks, and maintain long-term food programs. Furthermore, the study emphasizes the importance of integrating social capital strategies into public policy and development planning, particularly in regions vulnerable to climate change and economic marginalization. By strengthening local networks and fostering inclusive participation, social capital becomes a vital asset in achieving food sovereignty and sustainable rural development.

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1. INTRODUCTION

Food security has emerged as one of the most critical issues confronting rural communities across the globe, particularly in developing nations. Defined by the Food and Agriculture Organization (FAO) as the condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life, food security is a multi-dimensional challenge. In rural villages, this challenge is exacerbated by issues such as poverty, limited access to markets, poor infrastructure, environmental degradation, and climate variability. As efforts to address food insecurity evolve, there has been a growing recognition of the role that social structures and relationships play in shaping agricultural practices, food access, and nutritional outcomes. Social capital a concept encompassing the networks, norms, values, and trust that facilitate coordination and cooperation among individuals and groups has emerged as a pivotal element in the sustainability of community-based food systems. Unlike financial or physical capital, social capital is intangible, yet its influence on collective action and resource sharing in rural societies is profound.

Rural communities often possess unique social configurations marked by strong kinship ties, cultural traditions, and community solidarity. These social fabrics can be a powerful foundation for

mobilizing collective action toward food security. In villages where formal institutions are often weak or absent, informal relationships and trust-based cooperation serve as essential substitutes, enabling communities to share labor, information, seeds, tools, and even food during times of scarcity. Social capital manifests in three primary forms: bonding, bridging, and linking. Bonding social capital refers to the connections among individuals who are similar in terms of social identity, such as family, close friends, or neighbors. This type of capital is vital for emotional support and mutual assistance. Bridging social capital encompasses relationships that span across different social groups, such as associations with other communities or networks that connect diverse ethnic or occupational groups. Bridging ties are crucial for acquiring new ideas, information, and broader social support. Linking social capital refers to connections between individuals or groups and institutions, including local governments, NGOs, and extension services. It enables access to resources, support, and influence over decision-making processes.

In the context of food security programs, all three forms of social capital play significant roles in strengthening resilience, promoting equitable access to food resources, and encouraging inclusive participation in agricultural initiatives. Villages in rural areas often face food security challenges that are both systemic and structural. Limited access to arable land: Land fragmentation and inequitable land ownership hinder efficient food production. Low agricultural productivity: Lack of access to quality seeds, modern farming techniques, irrigation, and machinery leads to low yields. Poor infrastructure: Inadequate roads, markets, storage facilities, and energy systems restrict access to food and limit economic opportunities. Environmental threats: Climate change, soil degradation, and water scarcity disproportionately affect smallholder farmers. Market exclusion: Many rural producers are disconnected from formal markets, which limits their ability to sell surplus and purchase diverse food. Weak institutional support: Limited government extension services, credit access, and technical assistance hamper development efforts. These challenges necessitate not only technological and economic interventions but also a strengthened social foundation through which communities can organize and mobilize local assets effectively.

In response to these complex challenges, community-based approaches to food security have gained prominence. These approaches emphasize local ownership, participatory decision-making, and collective responsibility. Rather than viewing communities as passive recipients of aid, community-based models recognize the agency, knowledge, and capacity of local people to develop and sustain food systems that meet their needs. Key elements of community-based food security programs include: Participatory planning and governance: Involving villagers in identifying problems, setting priorities, and designing interventions. Capacity-building and education: Strengthening the skills and knowledge of farmers, women, youth, and local leaders. Resource pooling and cooperative action: Encouraging group-based farming, communal seed banks, collective marketing, and food sharing mechanisms. Sustainability and resilience focus: Promoting agroecological practices, indigenous knowledge, and local food traditions. Social capital acts as a catalyst in each of these elements by fostering trust, coordination, and a shared sense of purpose among participants.

The enhancement of social capital in food security programming involves both recognizing existing social assets and deliberately cultivating new forms of collaboration and engagement. Some strategies to strengthen social capital include: Forming farmer cooperatives and savings groups to facilitate information exchange, credit access, and bulk purchasing. Supporting local institutions and traditional leaders in facilitating dialogue, resolving conflicts, and promoting equity. Encouraging multi-stakeholder platforms where community members interact with external actors like NGOs, government agencies, and researchers. Building inclusive participation by ensuring that women, youth, marginalized castes or tribes, and the elderly have voices in decision-making. Promoting trust-building activities such as community festivals, communal workdays, and joint monitoring of food projects. When social capital is deliberately strengthened in these ways, community food security programs are more likely to be inclusive, effective, and sustainable.

Women, indigenous populations, and marginalized groups are often the most vulnerable to food insecurity, yet they are also central actors in food production, preparation, and distribution. Women, in particular, play critical roles in small-scale agriculture, seed preservation, nutritional education, and family well-being. However, they often face systemic barriers such as land ownership restrictions, limited access to credit, and exclusion from decision-making bodies. Strengthening social capital provides a pathway to empower these groups by: Creating women's groups and mothers' associations

focused on food and nutrition. Providing leadership training and inclusive platforms for dialogue. Challenging social norms that exclude or marginalize certain groups from community leadership or land access. Promoting intergenerational knowledge exchange to preserve food traditions and local wisdom. A strong, inclusive network of social relationships thus becomes not only a support system but a transformative space for empowerment and equity in food systems.

While community-level efforts are critical, they must be supported by enabling policies and institutional frameworks. Governments and development organizations can play key roles by: Integrating social capital considerations into food security and agricultural development strategies. Supporting rural extension services that build farmer networks and link communities to markets and innovation. Investing in rural infrastructure that facilitates cooperative action, such as village roads, storage units, and meeting halls. Recognizing and supporting informal community-based organizations as legitimate actors in food policy implementation. Facilitating platforms where community voices can inform district and national food security plans.

Such policy alignment not only legitimizes community-based food initiatives but also ensures that social capital development is scalable and supported by resources. Despite increasing recognition of the importance of social capital, there remain gaps in understanding how it can be systematically measured, strengthened, and integrated into food security programming. Few studies provide concrete methodologies for operationalizing social capital in program design or offer comparative analyses across different cultural and geographic contexts. Identifying specific mechanisms through which social capital improves food outcomes in village settings. Mapping existing social capital assets and barriers in selected rural communities. Developing a framework for integrating social capital strategies into food security initiatives.

Evaluating the outcomes of community-based food security programs that intentionally build and use social capital. This research is significant for several reasons. First, it contributes to the growing field of community-based development by providing practical insights into how social relationships influence food security. Second, it highlights the importance of non-material assets such as trust, cooperation, and social networks in achieving development goals traditionally pursued through financial or technological means. Third, it emphasizes a people-centered approach to rural development that respects and leverages local knowledge, leadership, and agency. Finally, in an era of increasing uncertainty due to climate change, pandemics, and economic instability, strengthening the social fabric of rural communities becomes more important than ever. Social capital, as a renewable and inclusive resource, can act as a buffer against shocks and a foundation for long-term food system resilience.

2. RESEARCH METHOD

This study adopts a qualitative descriptive research approach to explore how social capital contributes to the success and sustainability of community food security programs in rural areas. The research aims to understand the patterns, processes, and dynamics of social interactions that influence collective food-related initiatives. The study employs a case study design, focusing on selected rural communities that have implemented community-based food security programs. This design enables in-depth examination of real-life social capital mechanisms and their impacts on food availability, accessibility, and utilization. Primary data were collected through semi-structured interviews, focus group discussions (FGDs), and direct observations. Interviews were conducted with key community stakeholders including farmers, women's group leaders, local leaders, and representatives of NGOs or government agricultural agencies. FGDs involved community members of varying demographics to capture diverse perspectives on trust, cooperation, and participation. Secondary data, including local development reports, NGO documentation, and food security assessments, were also analyzed to provide contextual understanding. Purposive sampling was used to select study sites and participants based on criteria such as active involvement in food security programs, diversity in community composition, and the presence of established local institutions. Data were analyzed using thematic analysis, with coding based on indicators of bonding, bridging, and linking social capital. Triangulation was employed to enhance validity by cross-verifying information from interviews, FGDs, and observations. Informed consent was obtained from all participants, and the study ensured confidentiality, cultural sensitivity, and voluntary participation throughout the research process. This methodological approach provides rich insights into how social capital strengthens communal efforts in food security and offers recommendations for policy and practice.

3. RESULTS AND DISCUSSIONS

The research findings from three selected rural villages underscore the significant contribution of social capital to the effectiveness and sustainability of community-based food security programs. Through qualitative data collected via interviews, focus group discussions, and participatory observations, the study identifies key patterns and practices that illustrate how different forms of social capital bonding, bridging, and linking support food security initiatives. One of the most prominent outcomes relates to the presence of strong bonding social capital. Within households and close community networks, villagers demonstrated a high level of mutual support, particularly evident during the planting and harvest seasons. Informal food-sharing practices were common, and labor exchange for farming tasks was widespread. These acts were governed by unwritten cultural norms rooted in reciprocity and collective welfare. For instance, in Village A, respondents often emphasized that community members always supported one another during times of scarcity, ensuring no one was left behind. This solidarity reinforced not only food access but also social harmony and trust.

The research also revealed varying degrees of bridging social capital, especially among farmer groups, women's organizations, and youth associations. In Village B, strong inter-group collaboration facilitated resource sharing and knowledge exchange. Agricultural cooperatives organized joint training on organic farming and collective marketing of produce. These networks enabled the community to experiment with new technologies and farming methods, improving productivity and food availability. In contrast, Village C displayed weak bridging ties, with evidence of competition and lack of trust between different groups, which hindered coordinated food security efforts. Linking social capital was found to be a critical factor in accessing external resources and institutional support. Village B demonstrated strong vertical connections with local government bodies, NGOs, and academic institutions. These links allowed the community to benefit from improved seed distribution, technical training, and inclusion in district-level planning. Trusted local leaders and intermediaries played essential roles in negotiating and maintaining these relationships. Conversely, Village A, despite its strong internal support systems, lacked similar external linkages and was therefore more isolated from developmental programs.

Trust and accountability emerged as foundational components for effective social capital mobilization. In villages where leadership structures were transparent and participatory, initiatives such as community seed banks and collective farming efforts achieved higher levels of success. Village B's community-managed granary, for example, operated on principles of shared contribution and equitable access, with rotating leadership ensuring fairness and inclusivity. On the other hand, in Village C, lack of transparency and disputes over resource allocation led to the collapse of similar programs. Local knowledge and leadership were also instrumental. Elders and women leaders in particular served as custodians of agricultural practices and social norms. Their involvement in decision-making processes contributed to higher participation and trust across age and gender groups. Communities that valued traditional knowledge and integrated it with modern practices were more likely to sustain long-term food security solutions.

Finally, the research revealed that while social capital has many strengths, it can also produce exclusionary effects. Strong internal networks sometimes led to the marginalization of new or less-connected residents. For instance, in Village C, newly settled families faced difficulties integrating into community programs, limiting their access to shared food resources. This finding suggests the importance of inclusive practices in the design and implementation of food security interventions. Overall, the results affirm that social capital is a key driver of community food security. It enhances resilience, promotes resource sharing, and facilitates cooperation. However, its benefits are maximized when balanced across bonding, bridging, and linking dimensions, supported by inclusive governance and active community participation.

Discussion

The research conducted in three rural villages revealed the pivotal role that social capital plays in enhancing community food security. The findings showed that community networks, mutual trust, local leadership, and shared values were central in facilitating cooperation and ensuring the sustainability of local food systems. This section presents the major results derived from field observations, interviews, and focus group discussions, followed by a discussion integrating existing literature. One of the most notable findings was the strength of bonding social capital within kinship groups and close-knit neighborhoods. In all three villages, households reported frequent informal exchanges of food, seeds, and labor among relatives and neighbors, especially during planting and harvest seasons. This system

of mutual aid was not formalized through institutions but relied on long-standing cultural norms and expectations of reciprocity. For instance, elderly participants in Village A emphasized that "no one in the village goes hungry" because of these unwritten agreements. Such practices not only help cushion shocks during poor harvests or economic downturns but also reinforce social cohesion.

Bridging social capital was also evident, though to varying degrees across communities. Village B, which had a history of collaboration with NGOs and agricultural extension programs, exhibited stronger horizontal linkages between different farmer groups, women's cooperatives, and youth organizations. These linkages enabled communities to pool resources, share innovations in organic farming, and conduct joint marketing initiatives for surplus produce. In contrast, Village C had weaker inter-group relations, and participants cited competition and mistrust between groups as barriers to unified food initiatives. This divergence suggests that while intra-group trust may be high, inter-group collaboration depends on deliberate facilitation and trust-building. The third dimension, linking social capital, was particularly significant in accessing external support and influencing policy decisions. In Village B, local leaders had established strong ties with district agricultural offices, non-profit organizations, and university extension services. These connections resulted in tangible benefits, such as improved seed varieties, training on climate-resilient agriculture, and inclusion in regional food security planning. Participants noted that trusted intermediaries such as respected community organizers or educated youth played key roles in maintaining these external relationships. Village A, while rich in bonding capital, lacked such linking networks and consequently had limited exposure to innovation and external funding.

Another important finding was the role of trust and reciprocity in ensuring the sustainability of food security initiatives. In villages where community members trusted their leaders and one another, collective actions such as communal gardens, shared granaries, and collective water management—were more successful and widely supported. In Village B, for example, a community seed bank managed by a local committee thrived due to transparent management practices, rotational leadership, and regular community meetings. Meanwhile, in Village C, a similar initiative failed because of allegations of favoritism, lack of accountability, and internal conflicts. The study also highlighted the importance of local knowledge and leadership in mobilizing social capital. Elders and traditional leaders were not only seen as sources of wisdom but also as conveners of community meetings, conflict mediators, and custodians of agricultural knowledge. In all three villages, communities that actively engaged their elders in decision-making and knowledge sharing reported stronger cohesion and higher participation in food-related initiatives. Furthermore, the presence of women leaders in food cooperatives, health education, and nutrition programs was associated with higher rates of children's food security and community involvement.

Interestingly, the research revealed that social capital is not inherently positive or uniformly beneficial. In some cases, strong bonding capital created exclusionary practices, where outsiders or less-connected individuals had limited access to shared resources. In Village C, newer migrant families reported feeling marginalized from established food networks, which hampered their ability to participate in food security programs. This finding aligns with scholarly discussions that while bonding capital fosters internal solidarity, it may also hinder inclusiveness and innovation. The fieldwork also indicated that communication and information-sharing platforms were critical in fostering social capital. In Village B, the establishment of a community information board, WhatsApp farmer groups, and radio-based agricultural programs enhanced knowledge exchange and collective planning. Participants in these communities demonstrated better awareness of seasonal crop trends, pest outbreaks, and market prices. Such communication tools helped bridge generational and educational divides, allowing for broader community engagement.

Environmental challenges such as erratic rainfall, soil degradation, and pest infestations were common across all villages. However, communities with stronger social capital displayed higher levels of resilience and adaptive capacity. In Village A, for example, during a drought year, informal food redistribution networks and communal water rationing mechanisms helped mitigate the worst impacts. In contrast, Village C, where mistrust and fragmentation were prevalent, saw higher levels of food insecurity and conflict during the same period. These findings underscore the buffering role of social capital in the face of external shocks. The discussion of these results can be framed within broader theoretical and empirical literature. Social capital, as proposed by Putnam (2000) and further developed by Woolcock and Narayan (2000), functions as both a facilitator of cooperation and a form of collective resilience. In the rural development context, social capital enhances access to resources, improves

governance, and supports community-led innovation. The findings of this study affirm these insights by illustrating concrete mechanisms through which social capital operates in rural food systems.

Moreover, the variation in social capital across the three case study villages demonstrates that context matters. Historical experiences with cooperation, leadership structures, cultural norms, and exposure to external actors all shaped the development and utility of social capital. This reinforces the argument that social capital is not a uniform asset but one that must be nurtured through intentional efforts. Community-driven planning, inclusive leadership, and facilitative support from government and NGOs are essential to building and sustaining social capital. In conclusion, the research results reveal that social capital plays a foundational role in rural food security programs. Bonding capital ensures solidarity and mutual aid, bridging capital facilitates collaboration across diverse groups, and linking capital connects communities to external resources and advocacy. However, the positive impacts of social capital are contingent on transparency, inclusiveness, and equitable participation. The findings suggest that food security interventions should go beyond material inputs to invest in the social infrastructure that enables communities to organize, adapt, and thrive collectively.

4. CONCLUSION

Strengthening social capital plays a critical role in the success and sustainability of community food security programs in rural areas. The research findings demonstrate that social capital—comprising trust, mutual cooperation, social networks, and community engagement—serves as a fundamental asset in mobilizing local resources, facilitating collective action, and enhancing resilience against food insecurity. Rural communities with strong interpersonal trust and active participation in local organizations are more likely to implement effective food initiatives such as community gardens, food barns, and collective farming systems. Community participation, especially through inclusive and transparent decision-making processes, enhances a sense of ownership and shared responsibility among members. This, in turn, fosters long-term commitment to food security efforts. Social institutions such as farmers' groups, women's cooperatives, and religious organizations serve as effective platforms for organizing food production, managing food reserves, and promoting food literacy. These institutions also enable the exchange of knowledge and innovation, contributing to more adaptive and context-specific food strategies. However, challenges such as social fragmentation, youth disengagement, and unequal access to information must be addressed to ensure inclusivity and equity. Capacity-building efforts, particularly those aimed at leadership development and intergenerational collaboration, are essential for sustaining and expanding food security programs. In conclusion, social capital should be recognized as a key pillar in rural food security strategies. Policymakers and development practitioners must prioritize initiatives that strengthen community bonds, support inclusive governance structures, and empower local actors. By embedding social capital into the design and implementation of food security programs, rural communities can build more resilient, self-reliant, and sustainable food systems capable of withstanding economic and environmental shocks.

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