

# Health Communication Based on Penta Helix Model to Promote Clean and Healthy Living Behavior Among Food Vendors in Sunter River: A Case in North Jakarta-Indonesia

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## ABSTRACT

Clean and Healthy Living Behavior among food vendors in traditional markets located on the riverbanks plays an important role in maintaining food security and public health. However, this practice in traditional markets, especially on the banks of the small river (Kali) in North Jakarta, still faces serious challenges, including low hygiene awareness, minimal sanitation facilities, and weak supervision. This study aims to explore the factors that influence the behavior of vendors in implementing Clean and Healthy Living Behavior and formulate an effective communication strategy based on the Penta Helix Model, persuasive communication theory, health campaigns, Theory of Planned Behavior (TPB), Health Belief Model (HBM), Social Cognitive Theory (SCT), and Diffusion of Innovations. With a qualitative approach, this study is expected to contribute to designing more contextual and sustainable communication interventions.

**Keywords:** *Health Communication, Clean and Healthy Living, Food Vendors, Traditional Markets, North Jakarta*

## INTRODUCTION

Clean and Healthy Living Behaviors are part of the promotive and preventive efforts within the public health system. In the

context of food vendors, particularly in traditional markets, these behaviors are a crucial factor influencing food safety, public health, and microeconomic sustainability [1]. However, various studies indicate that the implementation of Clean and Healthy Living Behaviors among food vendors in traditional markets is still very limited and has not yet become an established habit [2].

In North Jakarta, traditional markets continue to encounter various sanitation issues, including inadequate hygiene facilities, limited awareness of hygiene practices, and poor enforcement of rules and regulations. Numerous vendors still operate without proper food protection, neglect handwashing, and utilize contaminated water [3] Although most vendors are aware of the significance of hygiene, this understanding does not always reflect in their everyday actions [4]

Food vendors in this region are crucial to the community's food consumption chain. They engage with consumers on a daily basis, so the standards of hygiene and sanitation in their food handling significantly affect public health. However, issues such as utilizing unsafe water, preparing food without using personal protective equipment, and unsanitary sales conditions are still prevalent [5]. Therefore, comprehensive and inclusive communication efforts are necessary to

promote behavior change towards a Clean and Healthy Lifestyle among these vendors. A strategic method to tackle this issue is the pentahelix model of collaboration, which encompasses five key stakeholders: government, academia, business entities, communities/society, and the mass media. This model is thought to foster a more synergistic communication environment since each component contributes unique strengths and functions to the process of social transformation [6,7].

The government can serve as both a regulator and enabler for the Clean and Healthy Living Behavior initiative, while academics contribute by offering a foundation of knowledge and conducting research-based assessments. The business sector is capable of delivering incentives and logistical assistance, whereas communities can function as social drivers that foster collective awareness. Additionally, both mass media and social media possess the ability to distribute information and influence public perceptions [8].

By integrating these five components into a comprehensive communication strategy, the aim is to establish sustainable behavioral change rooted in community involvement.

Despite this, there have been limited empirical investigations focusing on the effectiveness of the pentahelix model in relation to a Clean and Healthy Living Behavior campaign targeted at informal food vendors, especially in urban environments such as North Jakarta. Consequently, this research intends to address this gap in existing literature by analyzing how a pentahelix-oriented communication strategy can be successfully utilized to encourage clean and healthy living practices among food vendors in the Kali Sunter region.

The research problem to explore is how to create effective communication strategies that inspire riverside traders to adopt clean and healthy living practices. In what ways can communication and behavioral theories be utilized to comprehend and direct behavior change interventions aimed at

promoting Clean and Healthy Living Behavior in riverside settings?

The goal of this study is to develop a successful communication strategy to enhance awareness and actions related to Clean and Healthy Living Behavior among traders. Furthermore, this research seeks to implement persuasive communication theory, campaign theory, Theory of Planned Behavior, Health Belief Model, Social Cognitive Theory, and Diffusion of Innovations as a foundation for crafting interventions aimed at behavior change.

## **LITERATURE REVIEW**

### ***Health Communication and Behavior Change***

Health communication refers to the exchange of information designed to enhance the awareness, knowledge, and motivation of individuals and groups to engage in healthy lifestyle practices [9]. In terms of modifying behavior, communication not only provides informative content but also serves as a persuasive tactic that influences attitudes and societal norms [10]. A variety of communication and behavioral theories have been utilized to elucidate the processes involved in health behavior modification, including:

The Health Belief Model (HBM) focuses on how individuals perceive their vulnerability to health issues and the advantages of taking preventive measures [11]. The Theory of Planned Behavior (TPB) holds that the intentions behind behaviors are influenced by one's attitudes towards that behavior, the perceived social pressures, and the level of perceived control over the behavior [12]. Social Cognitive Theory (SCT) highlights the role of the social context, observational learning, and self-efficacy in the development and continuation of behavior [13]. The Diffusion of Innovations Theory describes the process through which new concepts or practices disseminate via communication channels within a community [14].

In relation to PHBS (Clean and Healthy Living Behavior), enhancing traders'

awareness of the significance of sanitation, environmental cleanliness, and healthy lifestyles can be achieved through focused, community-oriented communication strategies that encourage active involvement from the community.

**The Penta Helix Model in Health Communication**

The Penta Helix model is a collaborative framework that includes five main actors in development: government, academia, the business sector, society/community, and mass media [6]. In the realm of health communication, the Penta Helix approach fosters cooperation among stakeholders to create and execute locally tailored promotional and preventive initiatives. The application of this model within the PHBS campaign can enhance the impact of the message by involving: Government: as the regulator and provider of policies and infrastructure for sanitation. Academia: as

strategists driven by research and assessment. Business Stakeholders: as partners in financing and enablers of CSR programs focused on market environmental health. Community Members/Traders: as active participants and implementers of behavior change based on collective efforts. Media: as a platform for spreading messages and shaping public opinion that supports PHBS.

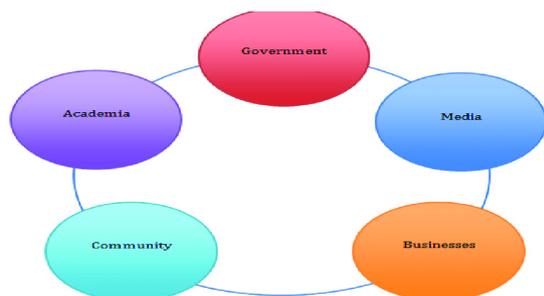
This model was created based on the triple helix concept, which originally included only government, academia, and industry, then broadened to a quadruple helix by incorporating media, and ultimately evolved to a pentahelix by including societal factors [6,15].

In discussing the communication of modifications in clean and healthy lifestyle practices among food vendors, every aspect of the pentahelix has its own distinct and supportive function, as outlined below:

**Table 1: Penta Helix Elements and Their Role in Clean and Healthy Living Behavior Campaigns**

Pentahelix Elements	Role in the Campaign
Government	Creating regulations, providing budgets and sanitation infrastructure, and fostering traders through the health department and the MSME department.
Academics	Conduct research, provide data and insights on the condition of PHBS traders, and design evidence-based communication strategies.
Business world	Providing support in the form of sponsorship, hygiene-based entrepreneurship training, and incentives for traders who implement PHBS.
Community/Society	Become an agent of change, such as a trading community or PKK group, which disseminates information and builds collective awareness.
Media	Disseminating information, raising market sanitation issues, and educating the public and traders through mass media and digital campaigns.

This collaborative model is interdependent, meaning the success of a PHBS campaign depends heavily on synergy between elements. No single party can solve complex behavioral problems alone[7,16].



**Figure 1. The Penta Helix Model [17,18]**

Research like that carried out by Dananjaya (2025) [19] indicates that utilizing the Penta Helix model in health communication at the community level can enhance public awareness of health matters and boost involvement in adopting preventive measures.

**Traders as Targets of Health Communication**

Food sellers in traditional markets play a vital role in the food safety chain, yet they are frequently neglected by official health programs. They function in a closely-knit, informal social network characterized by

strong community norms. Behavioral changes among vendors are most successful when a community-based method and thorough interpersonal communication are employed[20]. Educational initiatives like sanitation training, guidance for healthy stalls, and the promotion of PHBS led by local figures have proven to be more appealing to vendors compared to one-sided, large-scale health campaigns.

Research indicates that effectively enhancing traders' understanding of PHBS requires more than just informational campaigns; it needs to be bolstered by interactive, contextual, and collaborative communication methods. The Penta Helix framework serves as a strategic model for engaging various key stakeholders in the creation of participatory, measurable, and sustainable health communication. By merging theories of behavior change with the Penta Helix collaborative approach, this article aims to offer both conceptual and practical insights to initiatives focused on improving life quality in traditional market settings.



**Figure 2. Street Food Vendor in Jakarta (IStock-Rahmawati, 2019)**

## **THEORETICAL FRAMEWORK**

To tackle this problem, effective communication strategies are essential. A significant strategy is persuasive communication, which focuses on conveying messages intended to affect the attitudes and actions of the target audience. In this context, persuasive communication must consider the merchants' social, cultural, and economic circumstances to guarantee that the message is appropriately understood and assimilated [21].

Additionally, the theory of communication campaigns highlights the necessity of a structured, methodical, and enduring communication strategy focused on behavior change. A campaign promoting a clean and healthy lifestyle should employ pertinent messages, suitable media (including both interpersonal and mass communication), and engage local stakeholders like market managers, community leaders, and health professionals [22].

From a psychological and behavioral standpoint, the Theory of Planned Behavior (TPB) indicates that individual actions are shaped by behavioral intentions, which are affected by attitudes, social norms, and the perceived ability to control the behavior [12]. In this regard, if traders view cleanliness as important (attitude), feel societal pressure to maintain cleanliness (subjective norms), and believe they have the ability to achieve it (behavioral control), they are more likely to engage in healthy hygiene practices.

Another pertinent theory is the Health Belief Model (HBM), which suggests that health behavior is shaped by a person's belief regarding their susceptibility to a disease, the seriousness of that disease, the advantages of preventive actions, and the perceived obstacles [11]. If traders recognize that poor hygiene practices can lead to illness for both consumers and themselves, and they believe that implementing PHBS will yield tangible benefits, they will be more inclined to adopt healthy behaviors.

Bandura's (1986) Social Cognitive Theory (SCT) highlights the significance of social learning in influencing behavior. Traders are more inclined to adopt hygienic practices when they observe other traders gaining advantages from them. Elements such as self-efficacy (the belief in one's ability to take action) are crucial and should be strengthened through training or practical examples.

Ultimately, the Diffusion of Innovation theory [14] provides insight into how new practices, like maintaining good hygiene, can be disseminated throughout a community. Cleanliness can be viewed as an "innovation"

that requires change agents, effective communication methods, and a gradual acceptance process from "innovators" to "laggards." Within the realm of traditional markets, recognizing and empowering vendors who have successfully adopted healthy hygiene practices can act as exemplary figures for others to follow.

This research seeks to examine the actual circumstances surrounding the execution of clean and healthy living practices among food vendors in traditional markets in North Jakarta, while also developing a communication strategy that is both effective and grounded in theory to enhance sustainable clean and healthy behavior.

**Table 2. Formulation of Communication Theories in Communicating Clean and Healthy Living Behavior**

Communication Theory	Core Theory	Analysis and Relevance in the Context of PHBS Food Vendors
Communication Campaign Theory [22]	Campaigns must be strategic, planned, and involve stakeholders for long-term behavior change.	The PHBS campaign should be designed with relevant messages, utilizing face-to-face communication (direct counseling) and local media channels, while engaging market managers, community leaders, and health professionals to enhance its effectiveness and acceptance.
Theory of Planned Behavior (TPB) [12]	Intention to behave is influenced by attitudes, subjective norms, and perceived control over behavior.	When vendors have a favorable outlook on cleanliness, recognize societal expectations for maintaining cleanliness, and feel capable of upholding hygiene standards even in challenging circumstances, they are more inclined to adopt healthy practices. Strategies can aim to enhance intention by providing education, fostering positive social pressures, and boosting self-efficacy.
Health Belief Model (HBM) [11]	Health behavior is influenced by perceptions of disease threat, benefits of action, and perceived barriers..	If traders perceive a threat from illness, recognize the advantages of PHBS, and reduce obstacles (like costs and available facilities), they will be encouraged to uphold cleanliness. Educating them and supplying amenities such as handwashing stations can assist in eliminating these obstacles.
Social Cognitive Theory (SCT) [13]	Behavior is learned through social observation, modeling, and reinforced by self-efficacy.	Merchants are likely to imitate other hygienic merchants when they observe the beneficial effects. Offering training, sharing practical examples, and demonstrating hygiene practices through role modeling can enhance self-efficacy and encourage the adoption of PHBS.
Diffusion of Innovation [14]	Innovation spreads through social processes, starting with innovators and then followed by the majority and laggards.	PHBS is established as a form of social innovation. It is essential to identify, train, and showcase change agents (such as exemplary merchants) as role models to inspire other merchants to emulate their practices. A step-by-step strategy that emphasizes the stages of adoption is vital.

## RESEARCH METHODS

This research utilized a qualitative methodology with an exploratory descriptive framework. This methodology was selected to gain a deeper understanding of the practices, perceptions, and the social, cultural, and psychological elements that affect clean and healthy living habits among food vendors in traditional markets.

### *Research Location and Subjects*

The study site concentrated on various traditional markets in North Jakarta, chosen based on criteria such as high food trading

activity, diversity among traders, and differing levels of sanitation. The research participants included food vendors (offering both ready-to-eat and fresh food items), market administrators, officers from local community health centers, and consumers from the market serving as triangulation informants. Informants were selected using a purposive sampling method, which involved choosing individuals deemed knowledgeable and having direct experience with PHBS practices within the market setting.

### **Data collection technique**

Data were gathered using several techniques: Comprehensive interviews with traders and other stakeholders to gain insights into their understanding, attitudes, and practices related to clean and healthy living behaviors. Direct observation of traders' activities at their stalls or business locations to systematically document hygiene and sanitation practices. Recording of market sanitation facilities, the health campaign materials present, and notes or policies from market management or the health department.

### **Data Analysis Techniques**

The information collected was examined using thematic analysis methods, specifically by recognizing, categorizing, and interpreting the key themes that surfaced from the findings of interviews and observations. The analytical procedure was executed in phases: Data reduction involved choosing data that pertains to the research focus, presenting data in a matrix or thematic narrative format, and concluding and validating findings, employing triangulation of sources and techniques to enhance data reliability.

## **RESULTS AND DISCUSSION**

This research uncovered multiple significant insights regarding the practices and views of food vendors concerning clean and healthy living habits along the shores of the Sunter River in North Jakarta. The results are organized into five primary themes corresponding to the theory utilized in this research.

### **General knowledge about clean and healthy living behavior is still limited**

The majority of vendors expressed that they recognize the significance of upholding hygiene in both food and sales environments. Nevertheless, their comprehension was restricted to fundamental practices such as handwashing and covering food items. They did not entirely grasp the connection between

hygiene and the potential risk of foodborne illnesses.

These results are consistent with the Health Belief Model (HBM), which suggests that beliefs about the likelihood and seriousness of disease are often minimal. A significant number of vendors do not view themselves or their customers as at risk for health issues caused by unsanitary practices.

### **Social Norms and Environmental Pressure**

Various vendors recognized that hygiene practices are not a prevailing aspect of the market culture. The importance of cleanliness is not highlighted by other vendors or market management. This illustrates the deficiency of subjective norms in the Theory of Planned Behavior (TPB), which is intended to influence the intention to change.

Nevertheless, evidence suggests that when traders observe their peers embracing clean and healthy habits—such as cleaning equipment every day or using gloves—they often replicate those behaviors. This illustrates the process of observational learning as outlined in Social Cognitive Theory (SCT).

### **Practical and Structural Barriers**

The primary obstacle to embracing clean and healthy living habits is the scarcity of resources like clean water, handwashing stations, and sufficient trash bins. In addition, financial constraints cause some vendors to perceive clean practices as “impractical” or an “expensive and time-consuming endeavor.”

This discovery pertains to the "perceived barriers" component of the Health Belief Model (HBM) and relates to perceived behavioral control within the Theory of Planned Behavior (TPB). Merchants expressed that they did not have the necessary resources or authority to implement behavioral changes, despite acknowledging the significance of cleanliness.

### ***The Role of Communication and Health Education is Still Minimal***

Data on clean and healthy living practices primarily comes from occasional outreach initiatives by community health centers (Puskesmas). Nevertheless, the method employed is one-sided and doesn't involve vendors. Additionally, vendors have communicated that educational resources like posters or banners are frequently ignored due to their unappealing designs and the contextless nature of their messages.

This scenario illustrates the significance of creating a communication campaign grounded in persuasive communication principles, utilizing an engaging and visual method that resonates with the everyday experiences of traders. As outlined in campaign theory [22], the success of a campaign largely relies on choosing the appropriate message, medium, and dissemination strategy.

### ***Adoption of Clean and Healthy Living Behavior Practices as a Gradual Diffusion Process***

Certain vendors have started to regularly adopt hygienic practices, including providing their own clean water, using gloves, and maintaining sanitation at their stalls. They frequently act as exemplary figures for other vendors.

These results indicate that changes in behavior happen slowly through a process that aligns with the Diffusion of Innovations Theory. Traders who are more willing to embrace change serve as “early adopters,” significantly contributing to the rapid spread of clean and healthy living practices within the market community.

In summary, these results highlight the significance of adopting a multi-theoretical perspective to comprehend and encourage practices of clean and healthy living. Engaging in clean and healthy lifestyles is not solely dependent on knowledge; it is also significantly shaped by societal norms, structural limitations, personal confidence, and effective communication strategies.

A successful communication strategy should emphasize not just outreach but also the creation of a supportive social atmosphere, the promotion of positive role models, and the mitigation of practical obstacles. Involving traders as agents of change within their communities is essential for speeding up the change process.

### **CONCLUSION**

This research indicates that maintaining clean and healthy practices among food vendors in traditional markets in North Jakarta encounters several obstacles, including issues related to knowledge, habits, and structural resources. Vendors typically possess only fundamental knowledge of clean and healthy living practices, which is not accompanied by sufficient risk awareness. The prevalence of negative social norms, inadequate infrastructure, and the absence of successful communication campaigns lead to a deficiency in hygienic behaviors in the market setting.

The combination of communication and behavioral theories—like the Theory of Planned Behavior, the Health Belief Model, Social Cognitive Theory, Diffusion of Innovations, and theories of persuasive communication and campaigns—indicates that changing behavior necessitates interventions that are more than just informative; they must also be participatory and context-sensitive. A strategy that takes into account the psychological, social, and structural dimensions is essential for fostering awareness and motivation for adopting healthy behaviors.

According to the findings of the research, stakeholders can adopt the following suggestions: Firstly, enhance education that is both contextual and participatory. Programs aimed at teaching clean and healthy living practices should be presented in a convincing and engaging manner that connects with the everyday experiences of traders. Incorporating visual media, testimonials from successful traders, and interactive discussion techniques can boost participation and comprehension.

Secondly, Enhancing Positive Social Norms. Engaging vendors who already adhere to clean and healthy lifestyles as change agents (role models) can reinforce societal norms that promote hygienic practices. Community initiatives, like clean stall contests or frequent recognition awards, can foster positive shared habits.

To begin with, enhance foundational infrastructure in conventional markets. Access to clean water, handwashing stations, and sufficient sanitation amenities is essential for vendors to regularly maintain clean and healthy practices. It is crucial for local authorities and market administrators to prioritize this in their policies.

Fourth, campaigns that utilize theoretical frameworks and empirical data. Efforts to change behavior should be developed using insights from research and relevant communication theories. It is important for communication strategies to take into account the most effective methods for engaging traders, including interpersonal communication, WhatsApp groups for traders, or direct outreach efforts.

Fifth, Collaboration Among Multiple Parties. It is essential for health services, market managers, NGOs, academics, and trading communities to work together in creating a sustainable program that promotes a clean and healthy lifestyle, including clear role assignments and regular joint assessments.

This study contributes to the advancement of communication and behavioral theory, especially concerning informal urban communities, such as traditional markets. The results of the research highlight the significance of the following theories: Firstly, the Theory of Planned Behavior (TPB): Utilizing TPB in this research indicates that the intentions of traders to engage in healthy behaviors are significantly impacted by subjective norms (the social pressures from their environment) and perceptions of behavioral control (their perceived capabilities and opportunities). This underscores the necessity for interventions that focus not only on individuals but also on the social and

environmental frameworks surrounding them.

Secondly, the Health Belief Model (HBM): Research shows that having a low perception of disease risk due to poor hygiene practices significantly hampers the adoption of healthy living behaviors. This reinforces the HBM as a crucial framework for pinpointing the misconceptions among traders that can be addressed through communication. Thirdly, the Social Cognitive Theory (SCT): The influence of modeling and learning through observation is notably strong in market communities, where behavioral change is more effective when seen firsthand from other respected traders. This indicates that SCT is particularly relevant in informal community settings.

Fourth, the Diffusion of Innovations: The journey to adopting clean and healthy lifestyles unfolds over time, with only a limited number of vendors identified as early adopters. This observation reinforces the idea that the spread of healthy behaviors must be systematically tracked, utilizing strategies that enhance communication among individuals and expedite the transition to embracing healthy practices as the standard.

Fifth, the theory of persuasive communication and its application in campaigns: This research indicates that traditional campaign methods (which are one-directional and lack context) do not effectively alter behaviors. This highlights the necessity of implementing persuasive communication theory through a more culturally sensitive, visual, and experiential strategy.

In practical terms, the findings of this research can serve as a guide for different stakeholders engaged in urban public health management and initiatives aimed at changing behaviors. Firstly, for Local Governments and Health Services: This study's findings can inform policy development grounded in empirical data to enhance programs promoting clean and healthy living practices, which encompass the improvement of sanitation infrastructure

and regulations pertaining to hygiene in traditional markets.

For Market Managers: A more inclusive approach is essential for fostering a healthy culture within the market setting, such as establishing health promoter groups composed of the traders themselves, offering ongoing training, and implementing a rewards system. For Non-Governmental Organizations (NGOs) and Communities: These results highlight the significance of partnering with local communities to create context-specific, community-oriented interventions, rather than solely relying on general campaigns.

Fourth, for practitioners in Health Communication and Public Campaigns: This research highlights the necessity for campaign strategies to be tailored more specifically to the traits of message recipients, the media utilized, and the socio-cultural environments of the target market. A multi-channel strategy that incorporates credible local figures will yield greater effectiveness. Fifth, for scholars and researchers: This study creates opportunities for further investigation into the application of communication theory within informal and marginalized settings. Additional research can enhance the understanding of how digital media, local social networks, and gender dynamics influence health behaviors in market communities.

#### **Declaration by Authors**

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