

DEVELOPMENT OF COMMUNICATION STRATEGIES AND FACTORS AFFECTING PERCEPTION, UNDERSTANDING, AND COMMUNICATION EFFECTIVENESS OF THE UNIVERSAL HEALTH COVERAGE SYSTEM IN BANGKOK METROPOLITAN AREA

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ABSTRACT

Purpose – This study aims to investigate the causal factors affecting perception, understanding, and communication effectiveness regarding the Universal Health Coverage system in the Bangkok Metropolitan Area, and to develop guidelines for enhancing communication strategies.

Methodology – A mixed-methods approach was employed. Quantitative data were collected through questionnaires from 400 hundred cardholders who had utilized medical services in the metropolitan area and analyzed using structural equation modeling. Qualitative data were gathered through in-depth interviews and focus group discussions with health communication experts, system administrators, and citizen representatives, followed by thematic content analysis.

Results – Quantitative findings revealed that source credibility and social learning are the most critical driving factors. They indirectly influence perception, understanding, and communication effectiveness through the mediating roles of health literacy and persuasive communication. Conversely, the mere presence of communication channels showed no statistically significant effect. Qualitative insights supplemented these findings, emphasizing the need for easily accessible channels, credible personnel, and clear information to bridge the gap between systemic misconceptions and actual service experiences.

Implications – Communication strategy development should prioritize building credibility through medical personnel and promoting social interaction via community networks over merely increasing the number of communication channels. Enhancing communication effectiveness requires an integrated approach encompassing tailored channels, official endorsements, rights education, persuasive techniques, and systematic evaluation, implemented alongside service quality improvements.

Originality/Value – This research advances health communication literature by demonstrating that in an information-rich urban context, source credibility and social learning supersede the availability of channels as primary catalysts for health literacy and persuasion. It offers a novel integrated causal model and actionable strategies specifically tailored for a highly diverse metropolitan population.

Keywords: Universal health coverage, Communication effectiveness, Structural equation modeling source credibility, Social learning, Health literacy

Research Type: Research Article

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INTRODUCTION

The Universal Coverage Scheme (UCS), commonly known as the “Gold Card” serves as a cornerstone of Thailand's public health welfare. According to data from the National Health Security Office (NHSO) in 2023, there are up to 47.73 million Gold Card users nationwide, with Bangkok Metropolitan Area boasting the highest concentration at 3.55 million people. These statistics underscore the scale and importance of the system in creating health security for the majority of the country's population (National Health Security Office, 2023).

However, despite the system's broad coverage, significant challenges remain. The satisfaction survey results for the system's operations in fiscal year 2022 revealed a distinct gap: efforts to raise public awareness creation and information dissemination were still not as effective as they should be, reflecting problems with “Communication Effectiveness” as directly conceptualized by Berlo (1960). This problem not only serves as a barrier preventing citizens from accessing and fully utilizing their rights, but also contradicts the universal goal of achieving “Health Service Accessibility” as defined by the World Health Organization (World Health Organization, 2021).

Empirical Review and Research Gap Previous empirical studies in middle-income countries have highlighted the critical role of communication in public health systems. For instance, research in China demonstrates that both traditional and digital health information channels significantly influence health literacy among citizens, although trust in these sources remains a defining factor. Similarly, studies in Indonesia indicate that persuasive communication campaigns led by health ministries are vital for driving public health behavioral changes. However, existing literature predominantly focuses on isolated elements of health communication such as merely analyzing channels or message framing and largely overlooks the complex, simultaneous interplay between source credibility, social learning, and persuasive communication within the specific context of Universal Health Coverage (UCS). Furthermore, empirical evidence regarding UCS communication effectiveness in highly diverse metropolitan areas within upper-middle-income countries like Thailand remains notably limited.

Originality of the Study Addressing this research gap, this study presents a novel integrated causal model. It uniquely combines Berlo's SMCR model, Source Credibility, and Social Learning as antecedent factors, while positioning Health Literacy and Persuasive Communication as mediators to explain UCS perception and understanding. By employing a mixed-methods approach utilizing PLS-SEM to analyze complex structural relationships alongside in-depth qualitative analysis for contextual depth this research offers original theoretical insights and actionable 360-degree communication strategies specifically tailored for a highly diverse metropolitan population like the Bangkok Metropolitan Area.

For this reason, research to understand the factors affecting communication effectiveness is extremely necessary. This research synthesized relevant conceptual frameworks and theories to explain complex causal relationships by considering antecedent factors that may affect communication success, including Communication Channels (Berlo, 1960), Source Credibility (Hovland et al., 1953), and Social Learning (Bandura, 1977). It is anticipated that these factors will exert influence through mediating variables, namely Health Literacy (Nutbeam, 2000) and Persuasive Communication (Petty & Cacioppo, 1986), which will ultimately affect the dependent variables Perception and Understanding (Gibson, 1966) and Communication Effectiveness of the system. Consequently, this study establishes two primary objectives: first, to examine the causal factors shaping public perception, understanding, and communication effectiveness regarding the UCS in the Bangkok Metropolitan Area; and second, to formulate strategic communication guidelines tailored to enhance these outcomes.

Research Objectives

1. To study causal factors affecting perception, understanding, and communication effectiveness of the Universal Health Coverage system in Bangkok Metropolitan.
2. To serve as a guideline for developing communication strategy affecting perception, understanding, and communication effectiveness of the Universal Health Coverage system in Bangkok Metropolitan.

LITERATURE REVIEW

A systematic review of related literature and theories is an extremely important step for creating a clear research conceptual framework and leading to the establishment of hypotheses that can be tested with empirical data to create understanding of causal relationships and lead to comprehensive research hypothesis development.

Communication Channels of SMCR (Source-Message-Channel-Receiver) model by Berlo's (1960) clarifies that channels are the medium that carries messages from sender to receiver, playing an important role in determining the efficiency of the communication process. Selecting channels appropriate for the message and receiver is therefore a fundamental factor affecting communication success.

Source Credibility, the theory of Hovland et al. (1953), explains that the effectiveness of persuasion depends primarily on the receiver's perception of the source. It consists of three main components Expertise, or knowledge and ability regarding the subject being communicated; Trustworthiness, or sincerity and absence of hidden interests; and Attractiveness, or the charisma and personality of the source.

Social Learning of Albert Bandura's theory (1977) indicates that humans learn new behaviors through observation and modeling the behavior of others in society. It involves four processes Attention, Retention, Reproduction, and Motivation, which are important mechanisms for transmitting knowledge and attitudes in social contexts.

Nutbeam (2000) health literacy is classified into three levels 1) functional health literacy, which consists of basic reading and writing skills, 2) interactive health literacy, involving the ability to communicate and actively participate, and 3) critical health literacy, which is the ability to critically analyze information and apply it to control life situations, an essential skill that enables citizens to manage their own health.

Persuasive Communication of the Elaboration Likelihood Model (ELM) by Petty and Cacioppo (1986) explains that attitude change occurs through two main routes the Central Route, where the receiver uses detailed analytical thinking about content, and the Peripheral Route, where the receiver uses environmental factors such as source credibility as shortcuts in decision-making.

Perception and understanding of Gibson's theory (1966) explains that perception is the process by which individuals interpret information from environmental stimuli through sensory experiences and prior experience to create meaning and understanding of the world around them.

Communication Effectiveness according to Kreps and Thornton's (1992) health communication theory, communication effectiveness means success in transmitting messages so that receivers develop correct understanding, leading to attitude adjustment and health behavior change according to set objectives.

Taken together, these seven foundational frameworks—spanning channel selection, source credibility, social learning, health literacy, persuasion, perception, and communication effectiveness provide complementary lenses for understanding health communication. However, they were largely developed in pre-digital contexts, and each carries empirical limitations when applied to contemporary, highly mediated environments. The ELM, for instance, has been criticized for its limited explanatory power in low-literacy populations who may rely disproportionately on peripheral cues, while Berlo's SMCR model underrepresents the interactive, networked nature of present-day digital channels. Recent empirical evidence therefore becomes essential to assess how these constructs operate jointly under current conditions.

Recent empirical studies (2023 – 2025) emphasize the evolving dynamics of health communication in the contemporary digital era. While diverse communication channels, particularly digital platforms, are increasingly utilized to disseminate health information extending Berlo's (1960) channel logic into networked environments current literature indicates that their effectiveness remains heavily contingent upon source credibility and social contexts

(Caeiros et al., 2024; Fitzpatrick, 2023). Consistent with Hovland et al. (1953), contemporary research confirms that source credibility is still a paramount driver of health awareness and positive behavioral responses (Donovan et al., 2024). Furthermore, recent studies echo Bandura's (1977) social learning and Nutbeam's (2000) literacy framework, underscoring the critical role of social learning and socio-psychological determinants in enhancing health literacy through multifaceted approaches (Wang et al., 2024; Begjani et al., 2024), as well as the continued relevance of persuasive communication techniques in the ELM tradition for fostering patient compliance (Chen & Wang, 2025; Fei et al., 2024). Despite these advancements, there remains a critical gap in understanding how these factors interact simultaneously within the specific operational context of Universal Health Coverage, particularly in highly diverse urban settings such as Bangkok a gap that the present mixed-methods, PLS-SEM study directly addresses.

Research Conceptual Framework

This research conceptual framework integrates various theories to explain the path of influence affecting communication effectiveness. The hypothesis is that communication effectiveness does not depend solely on structural factors such as communication channels according to the SMCR model (Berlo, 1960), but also depends on more complex social and psychological factors. This research therefore anticipates that the Source Credibility theory (Hovland et al., 1953) and Social Learning (Bandura, 1977) will be important mechanisms in overcoming the limitations of channel-focused approaches. Both of these factors will directly influence mediating variables, namely Health Literacy (Nutbeam, 2000) and Persuasive Communication (Petty and Cacioppo, 1986), which will function to transmit influence to the final outcomes Perception and Understanding, and Communication Effectiveness.

Theoretical Justifications for Hypothesized Relationships to provide a rigorous logical structure, the relationships within this framework are theoretically grounded as follows:

Antecedents to Mediators (Channels, Source, and Social to Health Literacy and Persuasion): Theoretically, Communication Channels provide the necessary infrastructure for information dissemination. Accessible channels are a prerequisite for developing health literacy and facilitating persuasive message delivery (Berlo, 1960; Caeiros et al., 2024). However, channels alone are insufficient. Source Credibility acts as a psychological catalyst. When UCS information is delivered by expert and trustworthy sources (e.g., medical professionals or official agencies), receivers are more motivated to engage with complex health information, thereby improving their health literacy, and are more susceptible to attitude change via the Elaboration Likelihood Model's routes (Hovland et al., 1953; Donovan et al., 2024). Simultaneously, Social Learning provides contextual reinforcement. By observing peers, family, or community leaders successfully navigating the UCS system, individuals undergo observational learning that directly enhances their interactive health literacy (Bandura, 1977; Wang et al., 2024). This social proof also functions as a powerful persuasive communication tool, shaping positive attitudes through community interactions.

Mediators to Outcomes (Health Literacy and Persuasion to Perception and Communication Effectiveness): Consequently, these mediating variables drive the final outcomes. Health Literacy equips citizens with the cognitive skills to accurately interpret UCS information, leading to correct perception and understanding (Gibson, 1966; Nutbeam, 2000). This cognitive readiness ultimately results in communication effectiveness, defined as the achievement of correct understanding and subsequent health behavior change (Kreps & Thornton, 1992). Likewise, effective Persuasive Communication shapes positive perceptions and directly contributes to communication effectiveness by aligning citizens' attitudes and actions with UCS objectives (Petty & Cacioppo, 1986).

From this developed conceptual framework and hypotheses, the research designed rigorous research methodology to collect data and test the aforementioned causal relationships using statistical methods. The research conceptual framework according to related objectives is as follows.

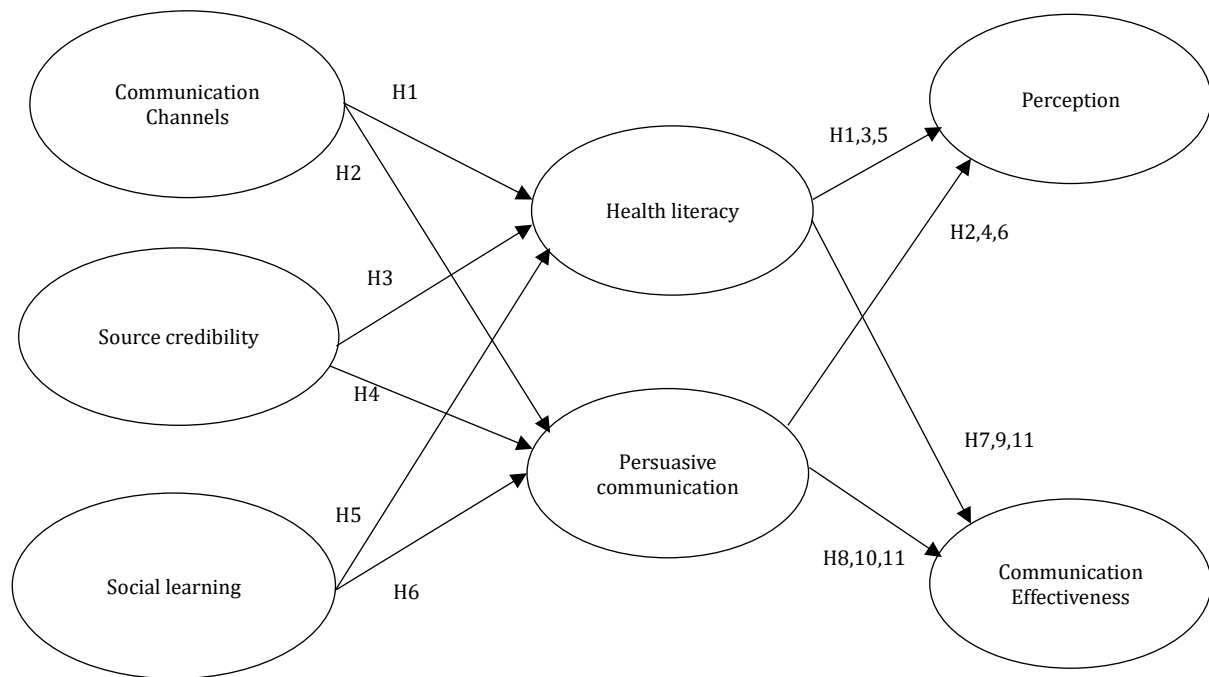


Figure 1. Research Conceptual Framework.

From the research conceptual framework, the following research hypotheses emerge;

- H1 Communication channels have an indirect effect on perception with health literacy as a mediating variable.
- H2 Communication channels have an indirect effect on perception with persuasive communication as a mediating variable.
- H3 Source credibility has an indirect effect on perception with health literacy as a mediating variable.
- H4 Source credibility has an indirect effect on perception with persuasive communication as a mediating variable.
- H5 Social learning has an indirect effect on perception with health literacy as a mediating variable.
- H6 Social learning has an indirect effect on perception with persuasive communication as a mediating variable.
- H7 Communication channels have an indirect effect on communication effectiveness with health literacy as a mediating variable.
- H8 Communication channels have an indirect effect on communication effectiveness with persuasive communication as a mediating variable.
- H9 Source credibility has an indirect effect on communication effectiveness with health literacy as a mediating variable.
- H10 Source credibility has an indirect effect on communication effectiveness with persuasive communication as a mediating variable.
- H11 Social learning has an indirect effect on communication effectiveness with health literacy as a mediating variable.
- H12 Social learning has an indirect effect on communication effectiveness with persuasive communication as a mediating variable.

METHODOLOGY

Population, Sample, and Key Informants

The population used in this research consists of those eligible for and having used medical treatment services in the Universal Health Coverage system (30-baht treats all diseases) in Bangkok Metropolitan Area, totaling 3.55 million people or 7.52% (National Health Security

Office, 2023). The quantitative research sample consists of those eligible for and having used medical treatment services in the Universal Health Coverage system (30-baht treats all diseases) in Bangkok Metropolitan Area, totaling 400 people, calculated using Yamane's (1973) formula. Key informants include 2 health communication experts, 1 health insurance system administrator, and 3 focus group discussions with citizen representatives, selected purposively.

Research instruments included 1) in-depth interview forms and 2) researcher-created questionnaires. The measurement model demonstrated strong reliability and convergent validity, with Cronbach's alpha values ranging from 0.81 to 0.94, composite reliability (CR) between 0.87 and 0.95, and average variance extracted (AVE) ranging from 0.57 to 0.79.

For this research, the researcher submitted an application for human research ethics certification and received approval from Krirk University's Human Research Ethics Committee, with research project certification number 020300/59, certification date March 19, 2025.

The data analysis process was systematically conducted to align with the mixed-methods approach, enabling the triangulation of quantitative and qualitative findings for a comprehensive understanding of the phenomena: 1) Quantitative Analysis: Data were analyzed using descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was explicitly selected due to its robustness and high suitability for testing complex causal relationships and predicting target constructs simultaneously within the structural model, without requiring strict data normality. 2) Qualitative Analysis: Data collected through in-depth interviews and focus groups were rigorously analyzed using thematic content analysis. The analytical process involved several systematic steps: first, transcribing the audio recordings verbatim; second, performing open coding to extract significant statements and keywords; third, categorizing these codes into broader themes aligned with the research conceptual framework (e.g., source credibility, social learning, health literacy); and finally, synthesizing the core themes to deeply explain the causal mechanisms and contextualize the quantitative results.

RESULTS

Quantitative Research Results

The demographic profile of the respondents reveals that the majority were female (61.00%). In terms of age, the largest group was 66 years and older (59.00%), followed by those aged 46-55 (21.00%). Over half of the participants held a bachelor's degree (51.00%), with another 33.00% possessing higher degrees. Regarding employment, retirees formed the largest segment (23.00%), closely followed by private company employees and self-employed individuals (21.00% each). The most common average monthly income fell between 15,000 and 30,000 baht (27.00%), followed by the 30,001 – 50,000 baht bracket (21.00%). Furthermore, 47.00% of respondents were single, while 44.00% were married. Geographically, District 13 had the highest representation at 10.00%, followed by District 2 at 8.00%.

Descriptive statistics of research variables which consist of means and standard deviations of all main latent variables in the research can be shown in Table 1.

Table 1. Means and Standard Deviations of Latent Variables.

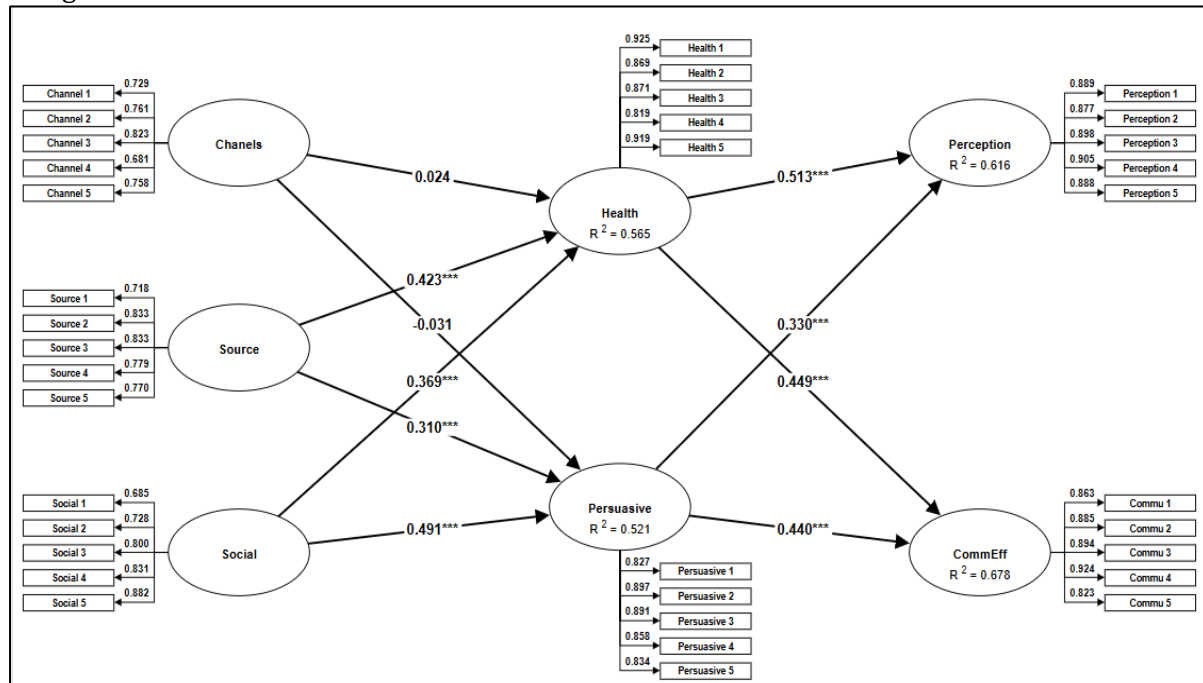
(n = 400)				
Latent Variable	Mean	S.D.	Skewness	Kurtosis
Communication Channels	2.65	0.79	0.41	0.37
Source Credibility	3.34	0.74	-0.12	0.22
Social Learning	3.23	0.72	0.15	0.78
Health Literacy	3.12	0.88	-0.28	0.23
Persuasive Communication	3.29	0.83	-0.44	0.19
Perception and understanding	3.02	0.90	-0.14	-0.16
Communication Effectiveness	3.06	0.81	-0.11	0.57

Note *Statistically significant at .05 level.

From Table 1, it was found that the means of latent variables, ranked from highest to lowest, are Source Credibility (Mean = 3.34, S.D. = 0.74), followed by Persuasive Communication (Mean =

3.29, S.D. = 0.83), Social Learning (Mean = 3.23, S.D. = 0.72), Health Literacy (Mean = 3.29, S.D. = 0.83), Communication Effectiveness (Mean = 3.06, S.D. = 0.81), Perception and Understanding (Mean = 3.02, S.D. = 0.90), and Communication Channels (Mean = 2.65, S.D. = 0.79).

Structural Equation Modeling (PLS-SEM) Analysis and Hypothesis Testing Results. Shown in Figure 2 and Table 2.



Note *Statistically significant at .05 level.

Figure 2. Causal Factor Model Affecting Perception, Understanding, and Communication Effectiveness of the Universal Health Coverage System in Bangkok Metropolitan Area.

Table 2. Summary of Research Hypothesis Testing Results.

Independent Variable	Mediating Variable	Dependent Variable	β	Indirect Effect	Total Effect	f^2	R^2	Statistical value	p	Test Results
Channels	Health	Perception	0.02	0.01	0.04	0.01	0.57	0.53	0.60	Not supported
Source	Health	Perception	0.42	0.21	0.63	0.15		7.78	0.00*	Supported
Social	Health	Perception	0.37	0.19	0.56	0.15		8.66	0.00*	Supported
Channels	Persuasive	Perception	-0.03	0.00	-0.03	0.00	0.52	-0.65	0.51	Not supported
Source	Persuasive	Perception	0.31	0.10	0.41	0.07		5.95	0.00*	Supported
Social	Persuasive	Perception	0.49	0.16	0.65	0.23		11.72	0.00*	Supported
Channels	Health	CommEff	-0.03	-0.01	-0.04	0.01	0.57	0.53	0.60	Not Supported
Source	Health	CommEff	0.42	0.19	0.61	0.15		7.78	0.00*	Supported
Social	Health	CommEff	0.37	0.17	0.54	0.15		8.66	0.00*	Supported
Channels	Persuasive	CommEff	-0.03	0.00	-0.03	0.00	0.52	-0.65	0.51	Not Supported
Source	Persuasive	CommEff	0.31	0.14	0.44	0.07		5.95	0.00*	Supported
Social	Persuasive	CommEff	0.49	0.22	0.71	0.23		11.72	0.00*	Supported

Findings from Table 2 reveal that the structural equation model supported 8 of the 12 hypotheses tested, while the remaining 4 hypotheses were not supported. The analysis of total effects of variables in the structural equation model using PLS-SEM revealed that out of 12 hypotheses, 8 hypotheses were supported, and 4 hypotheses were not supported. The research findings demonstrated a significant trend that almost all causal factors exerted indirect effects on the dependent variables Perception and Communication Effectiveness (CommEff) through two mediating variables; Persuasiveness (Persuasive) and Health Literacy (Health), with statistical significance at the 0.05 level.

The supported hypotheses can be classified into two main groups according to the dependent variables. The first group concerns the influence on Perception. The findings indicated that Source significantly influenced Perception ($\beta = 0.63, t = 7.78, p < 0.05$), with a direct effect of 0.42 and an indirect effect through mediating variables of 0.21, yielding $f^2 = 0.15$ and $R^2 = 0.57$. This demonstrates that the credibility and quality of information sources play a crucial role in shaping audience perception both directly and indirectly. Additionally, Social factors significantly influenced Perception at a high level ($\beta = 0.56, t = 8.66, p < 0.05$), with a direct effect of 0.37 and an indirect effect of 0.19, yielding $f^2 = 0.15$. This finding reflects that social context, social norms, and reference group influence are critically important in determining individual perception.

Regarding the influence through the mediating variable of Persuasiveness, both Source and Social factors significantly influenced Perception through the persuasiveness mechanism. Source yielded a total effect of 0.41 ($\beta = 0.31$, indirect effect = 0.10, $t = 5.95, p < 0.05, f^2 = 0.07, R^2 = 0.52$), while social factors produced a total effect of 0.65 ($\beta = 0.49$, indirect effect = 0.16, $t = 11.72, p < 0.05, f^2 = 0.23$), representing the highest coefficient in this group. This indicates that persuasiveness serves as a crucial mechanism for transmitting influence from causal factors to perception, particularly influence from social factors.

The second group concerns the influence on Communication Effectiveness (CommEff), which exhibited a similar pattern. Source significantly influenced Communication Effectiveness through the mediating variable of Health Literacy ($\beta = 0.61, t = 7.78, p < 0.05$), with a direct effect of 0.42 and an indirect effect of 0.19, yielding $f^2 = 0.15$ and $R^2 = 0.57$. This demonstrates that quality information sources not only affect perception but also influence overall communication effectiveness by enhancing audience health literacy. Similarly, Social factors significantly influenced Communication Effectiveness through Health Literacy ($\beta = 0.54, t = 8.66, p < 0.05$), with a direct effect of 0.37 and an indirect effect of 0.17, yielding $f^2 = 0.15$. This finding indicates that social context plays an important role in enhancing health literacy and communication effectiveness.

Moreover, when considering the influence through the mediating variable of Persuasiveness on Communication Effectiveness, Source yielded a total effect of 0.44 ($\beta = 0.31$, indirect effect = 0.14, $t = 5.95, p < 0.05, f^2 = 0.07, R^2 = 0.52$), while Social factors produced a total effect of 0.71 ($\beta = 0.49$, indirect effect = 0.22, $t = 11.72, p < 0.05, f^2 = 0.23$), representing the highest coefficient in the entire model. This reflects that social factors strongly influence communication effectiveness both directly and indirectly through the persuasiveness mechanism.

Conversely, all four unsupported hypotheses were related to Communication Channels. The analysis revealed that Channels did not significantly influence Perception through Health Literacy ($\beta = 0.0241$, indirect effect = 0.0124, total = 0.0365, $t = 0.53, p = 0.60, f^2 = 0.0006$) nor through Persuasiveness ($\beta = -0.03$, indirect effect = 0.00, total = -0.03, $t = -0.65, p = 0.51, f^2 = 0.00, R^2 = 0.52$). Similarly, Channels did not significantly influence Communication Effectiveness through Health Literacy ($\beta = -0.0312$, indirect effect = -0.0103, total = -0.0415, $t = 0.53, p = 0.60, f^2 = 0.0009$) nor through Persuasiveness ($\beta = -0.03$, indirect effect = 0.00, total = -0.03, $t = -0.65, p = 0.51, f^2 = 0.00$). This finding reflects that although communication channels are important factors in designing communication strategies, in the context of this study, channels did not exert direct or indirect influence on the dependent variables through either mediating variable. This may be attributed to the contemporary digital era where audiences can access information through diverse channels, rendering any single specific channel less critical than the content and source of information.

Qualitative Research Results

Through content analysis of the in-depth interviews and focus groups, the qualitative findings were systematically organized into four core themes regarding the communication of the Universal Health Coverage (UCS) system. Representative quotations from key informants are provided to substantiate each theme:

Theme 1: Tailored Communication Channels for Diverse Demographics Informants agreed that communication channels must be diversified and tailored to target audiences, particularly

middle and lower-income citizens. Citizens emphasized the need for accessible platforms, while experts highlighted the importance of high-visibility offline media.

"Information should reach the grassroots level simply and without complexity, utilizing all channels including social media, free TV, and village health volunteers (VHV)." (Focus Group Participant)

"Proactive communication should utilize offline channels with clear explanations and images on mass transit systems like MRT, BTS, and public buses, alongside consistent community outreach." (Health Communication Expert)

Theme 2: Source Credibility and Trust Building Both citizens and experts identified systemic personnel such as doctors, primary care nurses, and NHSO officials as the most credible sources of information. The clarity of the message was cited as the ultimate factor in building trust.

"We trust government officials and doctors the most because they are the direct caretakers of the information and provide highly reliable data." (Focus Group Participant)

"The most critical factor in building credibility is the clarity of information (100% agreement). We should use diverse, eye-catching media and select well-known public figures as presenters, not just young celebrities." (Health Communication Expert)

Theme 3: Bridging Service Experiences and Systemic Misconceptions A significant barrier to communication effectiveness is the negative experience at service points and entrenched misconceptions regarding the quality of care. Citizens pointed to systemic disparities, while experts recognized the urgent need to correct these misunderstandings.

"Some hospital staff use inappropriate language with UCS cardholders... There is also a belief that the medicine provided is different from those who pay out-of-pocket." (Focus Group Participant)

"The main challenge is the misconception that drug and treatment qualities are below standard, which is completely false. The current system is highly comprehensive and offers better quality than many other schemes." (Health Communication Expert)

"The government must adjust hospital systems to prevent disparities, reduce complex procedures, and foster a more positive attitude among service teams." (Focus Group Participant)

Theme 4: Strategic and Technological Innovations To resolve communication gaps and complex procedures (such as contacting the 1330 hotline or hospital transfers), administrators proposed technological solutions to streamline information and services.

"We should develop a specific, comprehensive 'All-in-One App.' Users can enter their 13-digit ID number to access all health information, rights usage methods, and even emergency ambulance calls in one place. This will allow for targeted communication for vulnerable groups." (Health Insurance System Administrator)

Summary of Qualitative Findings From the thematic analysis above, the main challenge in communicating the Universal Health Coverage system in the Bangkok Metropolitan Area arises from the gap between citizens' perceptions based on actual service point experiences and the system's intended message. Addressing this requires a flexible, hybrid communication strategy. It must balance technological innovations for precision and accessibility (High-Tech) with empathetic, ground-level trust-building through credible personnel (High-Touch). This integrated approach will lead to reducing perception gaps, improving user experiences, and building sustainable confidence in the National Health Security system.

DISCUSSION AND IMPLICATIONS

The quantitative research results from Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis revealed that communication channels (H1, H7) had no statistically significant influence on health literacy ($\beta = 0.02, -0.03, p > 0.05$) and persuasive communication ($\beta = -0.03, p > 0.05$). This finding is inconsistent with Berlo's (1960) SMCR theory, which posits that Communication Channels serve as the medium that conveys messages from sender to receiver and play a crucial role in determining communication process effectiveness. However, this finding aligns with recent international empirical studies. For instance, Fitzpatrick (2023) and Caeiros et al. (2024) indicated that while diverse channels provide access, their mere presence does not

guarantee health literacy improvement if there are barriers regarding the trustworthiness of the information. Similarly, Fei et al. (2024) found that in health information-seeking behaviors, the abundance of channels (especially new media) is utilized least if they are perceived as lacking credibility. This also aligns with Kreps and Thornton (1992), who stated that communication effectiveness depends on the congruence between message and context, rather than on channels alone.

The quantitative research findings showed that source credibility had a highly significant influence on health literacy (H2, H8: $\beta = 0.42$, $p < 0.05$) and persuasive communication (H5, H11: $\beta = 0.31$, $p < 0.05$), with very high effect sizes. Social learning had a very high influence on health literacy (H3, H9: $\beta = 0.37$, $p < 0.05$) and the highest influence on persuasive communication (H6, H12: $\beta = 0.49$, $p < 0.05$). Focus group participants clearly stated that “the most credible information sources are personnel within the system, including doctors, NHSO officers, government officials, and primary care nurses” (100 percent of participants agreed), and they wanted “easily accessible channels, including social media (Facebook, LINE, TikTok), community leaders, and village health volunteers” (66.7 percent emphasized channels with social interaction).

This finding is consistent with the theories of Hovland et al. (1953) and Bandura (1977) and is strongly supported by recent international empirical research. For source credibility, Donovan et al. (2024) and provided empirical evidence that perceived source credibility significantly influences health awareness, behavioral responses, and opinion change over time. Furthermore, regarding social learning, recent studies by Wang et al. (2024) and Begjani et al. (2024) demonstrated that interpersonal dynamics, social interactions, and community-based learning significantly enhance health literacy and self-efficacy. This demonstrates that in the Thai context, learning through social networks is particularly important due to: (1) community culture where Thai people value relationships and word-of-mouth experience sharing; (2) greater trust in advice from community leaders, village health volunteers, and people around them than in mass media; and (3) learning from examples of seeing community members use services with good results.

The study found that health literacy and persuasive communication functioned as important mediating variables with statistical significance ($p < 0.05$), with high R^2 values for dependent variables. Qualitative data supplemented the understanding that people wanted “information on procedures for using their rights (66.7 percent) and comprehensive benefit information (33.3 percent),” while encountering “difficulties in contacting the 1330 hotline, hospital transfers, and limitations in selecting healthcare facilities.” This indicates that the problem is that people lack literacy about the system, which is a significant barrier to accessing services. This finding strongly aligns with recent international empirical studies, such as Lee et al. (2021) and McCormack et al. (2022), which highlight that functional and critical health literacy are indispensable prerequisites for navigating complex healthcare systems and making informed health decisions.

Experts proposed using the AIDA technique (Attention, Interest, Desire, Action) by “communicating the facts that the Gold Card system has higher quality and is more comprehensive than other rights schemes in many dimensions” to correct misconceptions and create positive attitudes toward the system. This is consistent with recent findings by Burns (2023) and Scholl (2021), who demonstrated that persuasive communication in health contexts significantly influences attitude change and patient compliance. Furthermore, the application of models like AIDA in health communication has been empirically supported by Ogah and Abutu (2022) as an effective strategy to bridge the gap between citizen knowledge and desired behavioral outcomes.

Therefore, data integration reveals a clear mechanism: source credibility combined with social learning helps create health literacy, which leads to better reception of persuasive communication, resulting in awareness and understanding, ultimately leading to communication effectiveness. Recent studies by Bugshan et al. (2022) and Udoudom et al. (2023) corroborate this integrated mechanism, emphasizing that health awareness campaigns alone are insufficient without multifaceted socio-psychological support. An important finding is that even with source

credibility, “frequently encountered negative experiences, including unequal service delivery,” mean that good communication cannot compensate for poor service experiences. People proposed to “reduce service disparities, improve staff attitudes, and reduce complex procedures.” This gap indicates that developing communication effectiveness must be implemented in parallel with elevating service quality; otherwise, communication will not achieve its goals.

Data from this research clearly demonstrates that if we want to elevate the communication effectiveness of the Universal Health Coverage system to achieve success, it is necessary to shift the paradigm from focusing on “channels” to emphasizing “sources” and “social processes,” which will be the core of building credibility. Learning through social networks is the key to unlocking the system’s potential, leading to sustainable health literacy creation, and enabling people to fully access and utilize their rights efficiently. The main limitation of this research is that data collection was conducted only in Bangkok Metropolitan Area, which has demographic characteristics and media usage behaviors different from other areas. The obtained results therefore may not be generalizable as representative of the entire national population.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

This study examined communication levels affecting perception, understanding, and communication effectiveness of Universal Health Coverage in the Bangkok Metropolitan Area to develop communication strategy guidelines and identify factors influencing perception, understanding, and communication effectiveness of the Universal Health Coverage system in Bangkok. Data were collected from a specific sample group of eligible beneficiaries who had previously utilized medical treatment services under the Universal Coverage Scheme (30-baht scheme covers all diseases) from service units within the National Health Security System in the Bangkok Metropolitan Area (13 districts), comprising 527 primary care units and 105 main contractor units such as government hospitals, private hospitals, and public health centers, proportionate to the population of eligible beneficiaries who had used medical treatment services under the Universal Coverage Scheme (30-baht scheme covers all diseases). The minimum sample size was 400 respondents, with additional qualitative data collection to triangulate quantitative findings from 6 key informants including 2 health communication experts, 1 health insurance system administrator, and 3 citizen representatives. The research period spanned from April 1, 2025 to June 30, 2025.

Future research should follow (1) Use CB-SEM analysis with large sample sizes to precisely test theories. (2) Study diverse samples such as provinces, disabled persons, elderly, low-income individuals. (3) Compare communication channel effectiveness for specific groups by age and education level. (4) Develop additional causal models with new variables such as trust, community participation, cultural factors. (5) Study effects of interactive communication through digital platforms. And (6) Conduct longitudinal studies to track long-term health behavior changes.

CONCLUSION

This study demonstrates that effective health communication within Thailand’s Universal Health Coverage (UHC) system relies fundamentally on source credibility and social learning, rather than the mere proliferation of communication channels. The findings reveal that when citizens receive information from trusted figures such as medical professionals and community leaders and participate in peer-learning networks, they develop higher health literacy and are more receptive to persuasive messaging. Consequently, these socio-psychological mechanisms are the true drivers of communication effectiveness and accurate system perception. Theoretically, this research challenges conventional channel centric communication models by establishing that in an information saturated era, credible messengers and social validation are paramount. It contributes a paradigm shift toward a source-and-social-process-centric approach in health communication literature. Practically, translating these findings into actionable strategies requires policymakers to move beyond simply increasing media presence. Instead, strategic focus and resource allocation should prioritize empowering community networks, training volunteers in persuasive communication, and utilizing authenticated medical personnel to foster “rights

literacy." An integrated approach that combines tailored demographic platforms with community driven feedback loops will optimize citizen healthcare utilization. Finally, while this study provides robust evidence within the highly diverse Bangkok Metropolitan Area, future research should explore other regional contexts and cultural variations in social learning mechanisms. Such investigations will further generalize these insights and refine region-specific communication strategies for nationwide UHC optimization.

CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest found in this research.

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