



# Behavior Change Models Dominate Health Communication Research on Stunting 2020-2025

Lidwina Mutia Sadasri<sup>1\*</sup>, Rajiyem Rajiyem<sup>1</sup>, Y.A. Nunung Prajarto<sup>1</sup>

<sup>1</sup>Communication Science Department, Universitas Gadjah Mada, Yogyakarta, Indonesia

\*Coesspoding Author Email : [lidwina.mutia@ugm.ac.id](mailto:lidwina.mutia@ugm.ac.id)

**Abstract.** General Background: Health communication plays a crucial role in addressing public health challenges, including stunting, which remains a significant concern in many countries. Specific Background: Increasing public attention to stunting management programs and their connection with the Free Nutritious Meal Program (Makan Bergizi Gratis) highlights the need to understand how communication strategies shape healthy living behaviors. Knowledge Gap: However, there is limited synthesized evidence on how health communication theories and interventions are applied in stunting-related contexts, particularly based on recent scholarly publications. Aims: This study aims to develop a comprehensive understanding of the relationship between health communication and healthy living behaviors in the context of stunting through a literature review approach. Results: The analysis of ten Scopus-indexed articles published between 2020 and 2025 shows that health communication research predominantly focuses on behavior change theories and intervention models. The findings emphasize that communication strategies are widely used to support awareness and adoption of clean and healthy living behaviors, particularly in Indonesia and countries with similar characteristics. Novelty: This study provides a structured mapping of communication theories and interventions applied in stunting-related research based on recent Scopus publications. Implications: The findings highlight the importance of strategic health communication campaigns in supporting stunting prevention and control, offering a reference for designing integrated communication approaches in public health programs.

**Keywords:** health, communication, media, literature, stunting

## 1 Introduction

Health issues and the relationship between communication and health are nothing new. Supported by previous health emergencies, such as the COVID-19 pandemic, health awareness has increased. Various institutions have also embraced this awareness. However, based on a field study conducted by researchers in 2022-2023 on health communication, specifically on the issue of stunting, there remains a problem resulting in the high prevalence, and in 2024, based on the data from the Health Ministry, the number is still in 19,8% [1]

Stunting has become a major public health issue, as evidenced by increased news coverage. A January 11, 2022, article on the Kompas.com news site stated that

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President Joko Widodo (Jokowi) instructed his staff to reduce Indonesia's stunting rate to 14 percent by 2024. This represents a reduction from the 2021 stunting rate of 24.4%. The news article also stated that President Joko Widodo appointed the National Population and Family Planning Agency (BKKBN) to implement efforts to accelerate the reduction of the national stunting rate.

In a CNN Indonesia news report published on March 24, 2022, Jokowi reiterated his call for regional governments to work hard to reduce stunting rates. He delivered this instruction during a working visit to South Central Timor Regency, East Nusa Tenggara (NTT), an area with a high stunting rate. These two articles demonstrate the potential of news reporting to inform the public and foster public understanding of stunting through selective reporting.

The study of health information is nothing new. In journal articles focused on health communication, the keyword "health information" is closely associated with messages surrounding patients and healthcare professionals. Baker & Watson (2020) stated that patients seek health information online because they find consultation times too short, are dissatisfied with the amount of information they receive during medical appointments, and use health information to determine whether they need professional assistance [2]. This study investigates health communication research on the topic of stunting. Analysis of a systematic review of the relevant literature suggests that the multifactorial causes and long-term impacts of stunting, as well as the role of communication in prevention and control efforts.

## 2 Methodology

This study was developed to explore the relationship between health communication and public engagement, in line with the research question "How is the development of studies related to health communication and public engagement in academic journals?" Related terms, including health communication campaigns, communication strategies, and science communication, will be searched across various published journals. Articles will be reviewed individually for relevance. The method used is a scoping review to examine existing literature related to health communication and public engagement in an effort to map characteristics and identify knowledge gaps [3]. The designed procedure focuses on publications compiled in the Scopus database for 2020-2025. The study objects will be collected through a general search of journals using the keywords communication, health, and stunting. The next stage begins with reviewing abstracts and full manuscripts, then categorizing them based on health communication sub-disciplines and social science scopes.

## 3 Stunting and Health Communication

The first definition of stunting was a height-for-age deficit associated with protein-energy malnutrition. Stunting is defined as a height-for-age less than or equal to the 5th percentile of the United States reference population, known as the Harvard standard. The current definition of stunting offered by the World Health Organization (WHO) uses a z-score. A stunted child has a height-for-age that is at least two standard

deviations below the median height-for-age, represented by a height-for-age z-score of less than -2 [4]. Stunting is both a reflection of a poor childhood environment and a predictor of poor future health and quality of life.

Despite the high global prevalence of stunting, the underlying pathogenesis of linear growth failure remains poorly understood. From epidemiological studies, it is clear that suboptimal breastfeeding and complementary feeding practices, recurrent infections, and micronutrient deficiencies are important proximal determinants of stunting. Linear growth failure also occurs in the complex interaction of more distal community and societal factors, such as access to health and education services, political stability, urbanization, population density, and social support networks, which have been outlined in the WHO Conceptual Framework on Childhood Stunting [5]

Stunting is a significant predictor of child development, especially during the first 1,000 days of life (from conception to a child's second birthday). In fact, approximately one-third of children in low- and middle-income countries, under the age of 2 years, are likely to be stunted [6]. Reducing stunting in children is the first of six goals in the Global Nutrition Targets for 2025 and a key indicator in the second Sustainable Development Goal, namely Zero Hunger [7]. Community and social factors are the only elements in the contextual determinants of child stunting in the WHO framework. Sub-elements include political economy, health and health care, education, society and culture, agriculture and food systems, and water, sanitation, and the environment.

Childhood stunting is the best indicator of overall child well-being and an accurate reflection of social inequality. Stunting is the most common form of childhood malnutrition, affecting millions of children worldwide. Despite its high prevalence and consensus on how to define and measure it, stunting often goes unrecognized in societies where short stature is the norm [8]. Stunting significantly impacts adult height, which in women affects the health and survival of their children, as well as their own reproductive health, and in men has been linked to economic productivity. Second, the process of stunting reflects damage that affects long-term health and development. [9]

In the Indonesian context, stunting is defined by the Ministry of Health of the Republic of Indonesia as a condition where a person's height is shorter than the average height of other people or their age [1]. Beal found that the root causes of stunting in Indonesia are a lack of maternal education, food, air, sanitation, and the environment [7]

Studies suggest that misperceptions about children's short stature are genetic rather than a result of malnutrition and although researchers found a significant relationship between risk perception and health behavior, it is understood that such misperceptions about stunting can be counterproductive to strategies for addressing it because mothers and other primary caregivers tend to accept their children's short stature as genetic; and as a result, they have less intention to address stunting risk factors [10].

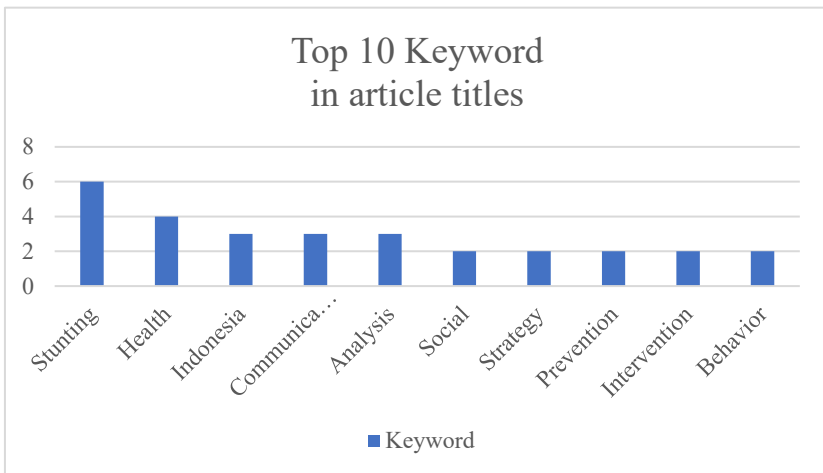
Communication distribution efforts are often implemented to raise awareness of issues within a community, state, or region. Communication campaigns to reduce stunting in Indonesia have utilized Social Cognitive Theory by having actors who are culturally or ethnically similar to the audience's desired behavioral models [11].

Stunting prevention through communication, information, and education, accompanied by empowerment, can begin by explaining the importance of a holistic approach involving communities and individuals in preventing nutritional problems in

children. One approach that has proven effective is Social and Behavior Change Communication (SCC), which uses various media to convey information about healthy eating patterns and good feeding practices. Studies show that a combination of these communication approaches is more effective than a single approach and that interventions involving more contact with the target can increase the impact of behavior change [12] A strong focus on linear growth retardation and stunting has enabled successful nutrition advocacy, but with this focus comes confusion and misunderstanding about the meaning of linear growth retardation and stunting among researchers, donors, and institutions active in the field of nutrition [13]

#### 4 Discussion and Analysis

This research was developed based on journal publications with the keywords "health communication" and "stunting cases" from 2020 to 2025. Through mapping using the Scopus database, 10 publications were identified that met these criteria. Based on publication mapping, researchers mapped the detailed identities of the publications. Researchers mapped the keywords used in the publications. Ten keywords were generated that appeared in 10 publications, including "stunting" (6), "health" (4), "Indonesia" (3), "communication" (3), "analysis" (3), "social" (2), "strategy" (2), "prevention" (2), "intervention" (2), and "behavior" (2). If mapped in graphic form as shown below in **Figure 1**:



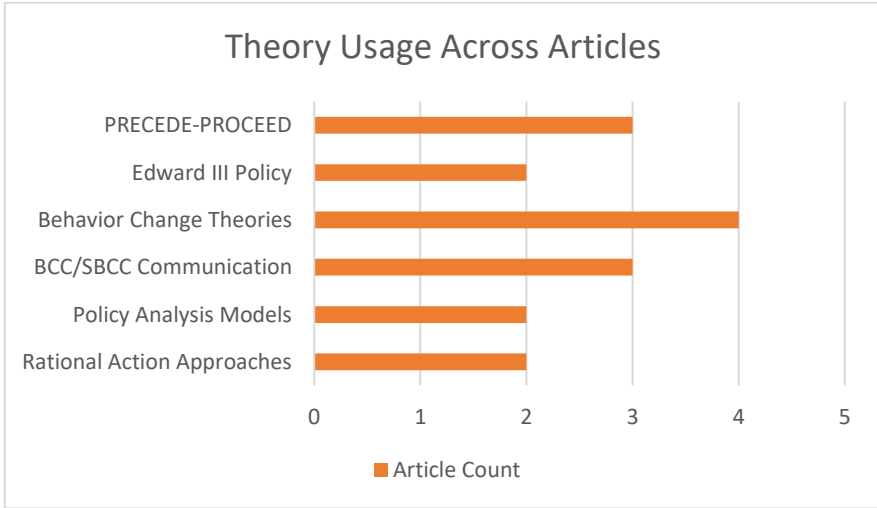
**Fig. 1.** Keyword Mapping

In this section, the researcher divides the discussion into three parts: the health communication theory used, the methods practiced in various previous studies, and opportunities for future research development. Based on the 10 articles mapped, there are at least six major theories used as analytical tools in the research.

First is the PRECEDE-PROCEED Model. This model is used for comprehensive social assessments and planning interventions that target community perceptions and

behaviors related to stunting. This model is human-centered and utilizes a culturally sensitive approach in intervention design. This model is applied to understand community misconceptions and to develop effective stunting prevention programs [14]. Then Edward III Policy Implementation Model. This model focuses on factors influencing the success of policy implementation, including communication sources, attitudes, and bureaucratic structures. This model is used to analyze the implementation challenges of stunting reduction policies in Indonesia. This model emphasizes the importance of adequate resources and clear, consistent communication for effective policy outcomes [15]. The third is the Theory-Driven Behavior Change Model. The models used in the reviewed articles include the theory of planned behavior, protection motivation theory, the integrated behavioral model for WASH (IBM-WASH), and the RANAS model. This model guides intervention plans to promote hygienic behaviors such as handwashing and water treatment to prevent diseases associated with stunting. Key psychosocial factors mediating behavior change are self-efficacy, response efficacy, perceived susceptibility, and knowledge [16].

There is also Behavior Change Communication and Social Behavior Change Communication Theories. This theory focuses on interpersonal communication, media use, and social community mobilization as strategies to change healthy and nutritious lifestyles. This theory is used as an intervention framework to promote complementary feeding practices and reduce stunting prevalence [17]. The next model is the Policy Analysis Model. This policy analysis model is sourced from authors Grindle, Van Meter and Van Horn, Mazmanian and Sabatier. This model framework analyzes policy content, implementation context, organizational characteristics, and the external environment that influence policy success. This model also emphasizes the dynamic and iterative nature of policy development and implementation. This model is applied to assess the effectiveness of stunting policies and challenges at various levels of governance [15]. The last is the Rational Action and Reasoned Action Approach. This approach is used to predict and change behavior by understanding interests, attitudes, and norms. This approach supports interventions designed to target nutritional practices in pregnant women and children [16] [15]. These theories provide perspectives from multiple levels—from individual psychosocial factors to policy implementation and organizational frameworks. The theory also contains information related to interventions and policies to prevent and reduce stunting, specifically in the Indonesian context and similar to the context of low-middle-income countries. The graph below shows the use of theories in the 10 journal articles studied (**Figure 2**)

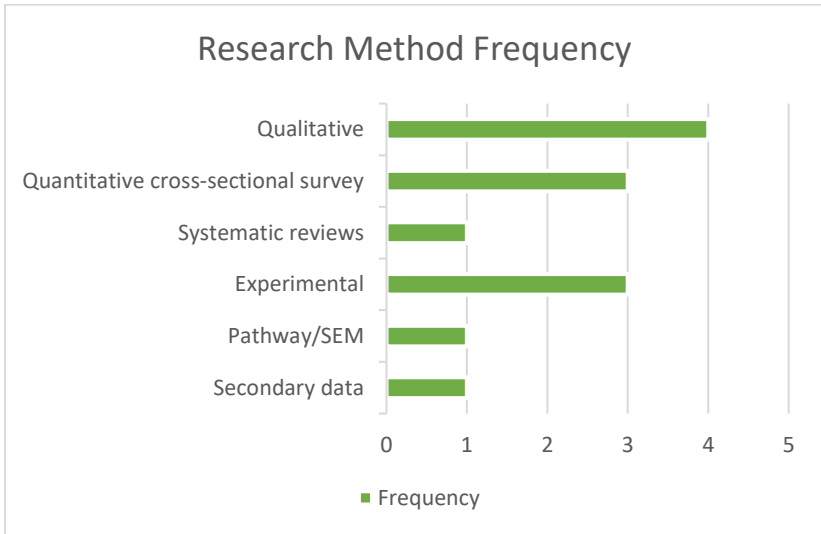


**Fig. 2.** Theoretical Mapping

The graph shows the most frequently used theories related to behavior change, both ranked first and second. The PRECEDE-PROCEED model ranked third. Three other theories were used twice in the articles: the Rational Action approach, the Policy Analysis Model, and the Edward III Policy.

Based on the theory mapping, they can be fundamentally categorized into several paradigms. The most prominent paradigms include the constructivist or interpretive paradigm, demonstrated by the PRECEDE-PROCEED model used in a qualitative study of community perceptions. In its application, this theory emphasizes subjective meaning, social context, and community engagement in healthy lifestyle behaviors. The positivist paradigm is also evident in the Planned Behavior, IBM-WASH, and RANAS theories, which also employ quantitative methods through surveys and experiments. Practically, these theories focus on measuring behavior, statistical relationships, and concluding causal relationships.

Mapping methodological aspects is also one of the aspects examined in this literature review. There are at least six types of methodology that have emerged, including qualitative studies, quantitative surveys, systematic reviews, experimental/quasi-experimental, pathway/SEM analysis, and secondary data analysis as shown in **Figure 3** below:



**Fig. 3.** Methodology Mapping

The horizontal bar chart above shows the frequency of research methodologies used in the 10 articles. This chart highlights that qualitative studies and experimental/quasi-experimental designs were the most common methods, followed by quantitative cross-sectional surveys. In contrast, other methods, such as systematic reviews, path modeling, and secondary data analysis, were used less frequently.

In qualitative studies, the methods applied included interviews, focus groups, and thematic analysis. These methods are used in research that maps social perceptions and involves the local context. Meanwhile, the quantitative surveys in the articles used structured questionnaires with statistical analysis commonly used in research to examine the relationships between variables. The studies addressing the issues of health communication and stunting reviewed in this research focused on prevalence, behavior, and satisfaction assessments.

Another method used was systematic reviews, which synthesize relevant literature to examine the effectiveness of interventions in the context of health communication. Some articles in this study also used experimental/quasi-experimental methods, including randomized controlled trials (RCTs), which involve randomly assigning participants to either a treatment or control group to test the effects of an intervention. By comparing the results of the two groups, researchers can determine whether an intervention causes an observable difference, making it an accurate method for establishing causal relationships in the context of health communication and stunting.

Pathway analysis/SEM was conducted in the selected articles. Essentially, this analysis is also used as part of survey research as part of statistical analysis. The emphasis of this analysis is on testing hypotheses about relationships between variables with the aim of understanding the determinants of service satisfaction. This is particularly relevant when examining how health communication interventions are evaluated for future program development. Another analysis, secondary data analysis, is also found in the articles, which utilize existing datasets as the object of study. This

facilitates the primary researcher in studies analyzing impacts on large populations. In addition to the single method specifically described in the articles, the authors also use mixed methods when studying stunting, combining quantitative and qualitative measurements with various evaluation designs.

## 5 Conclusion

The results of mapping health communication and stunting studies across the 10 documented publications indicate limited coverage of stunting as a term referring to malnutrition-related problems in the specific context of Indonesia. This is because the majority of articles, five of which were studied, originated from Indonesia. The other five articles originated from Macedonia, the United Kingdom, Peru, and Tanzania. When examined, other terms used to characterize stunting in health communication studies include growth faltering, undernutrition, malnutrition (specifically chronic malnutrition), childhood growth issues or growth failure, and nutritional status that supports stunting. These terms are often used interchangeably or can be explored in descriptive narratives about child development and growth in the context of nutrition and health communication.

The literature review on stunting highlights its multifactorial causes and long-term impacts, as well as the role of communication in prevention and control efforts. The findings of this research highlight the importance of health communication in improving maternal and child nutrition, raising awareness, and encouraging behavioral change in the community.

In the ten articles reviewed, the communication theory mapping used focuses on interventions in health communication, with the majority focusing on theories and models for behavior change. This is particularly relevant in Indonesia and other countries with similar characteristics, where massive strategic health communication campaigns are implemented to raise awareness of basic, clean, and healthy living behaviors. When linked to public engagement, health communication plays a crucial role in encouraging public participation through effective communication strategies. In fact, the integration of digital platforms and social media has significantly increased the reach and impact of health communication, enabling more dynamic and interactive public engagement. However, the current research has not been able to truly link public engagement because the narrative of the stunting issue itself remains a communication problem that requires serious investigation.

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