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## Rethinking School Nutrition via Community Engagement: A Review with Implications for Indonesia's MBG Program

Adnan Achiruddin Saleh<sup>1\*</sup>, Suparman Abdullah<sup>2</sup>, Rahmat Muhammad<sup>2</sup>, Muhammad Yusran Amir<sup>3</sup>, Sulvinajayanti<sup>1</sup>

<sup>1</sup>Faculty of Ushuluddin, Adab and Dakwah, State Islamic Institute of Parepare, Parepare, Indonesia

<sup>2</sup>Faculty of Political Science and Social Science, Hasanuddin University, Makassar, Indonesia

<sup>3</sup>Faculty of Public Health, Hasanuddin University, Makassar, Indonesia

\*Authors Correspondence: [adnanachiruddinsaleh@iainpare.ac.id](mailto:adnanachiruddinsaleh@iainpare.ac.id)/+6282187701987

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### ABSTRACT

Community engagement has become a growing concern in the implementation of school nutrition programs, particularly in addressing issues of child malnutrition, food insecurity, and educational outcomes. However, definitions and levels of participation remain conceptually fragmented across various studies. This study aims to systematically review the scope, forms, and implications of community engagement in school-based nutrition programs. A Systematic Literature Review (SLR) was conducted on 89 Scopus-indexed publications from 1984 to 2025 using the PRISMA 2020 protocol. Thematic analysis was employed to identify the conceptual, methodological, and contextual variations of community involvement. Data were collected through document analysis of peer-reviewed journal articles focusing instead on qualitative synthesis. The study examined forms of engagement based on eight participation levels and five thematic domains. Results show that the relevance of the topic has increased significantly, especially in the last decade, with a marked rise in academic interest from diverse institutions. While collaborative practices such as cross-sector coordination, parental involvement, and grassroots food initiatives are often promoted, most programs operate at symbolic or consultative levels, rarely advancing to full empowerment. Contextual cases, such as Indonesia's Free Nutritious Meals Program (MBG), illustrate both the promise and challenge of operationalizing community engagement at scale. This review concludes that future research must adopt a more theory-informed and practice-oriented approach to community participation, supported by clearer frameworks, inclusive governance models, and culturally adaptive implementation strategies.

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## INTRODUCTION

Community engagement has gained widespread recognition as a cornerstone in the design and implementation of health and nutrition programs worldwide. As global public health systems strive to address persistent disparities in access and outcomes, particularly in low-resource settings, participatory approaches are increasingly valued.<sup>1</sup> Community-Based Nutrition Programs (CBNPs) are pivotal in improving nutritional status, food security, and public health awareness,<sup>2</sup> while also aligning with global development goals such as the Sustainable Development Goals (SDGs).<sup>3,4</sup> However, despite their potential, the long-term success of such programs is often undermined by inadequate stakeholder involvement during planning, implementation, and evaluation stages, resulting in fragmented outcomes and limited local ownership.<sup>5</sup>

At the national level, various countries have adopted school-based interventions that emphasize community participation as a key determinant of success.<sup>6</sup> For instance, the Healthy, Hunger-Free Kids Act (HHFKA) in the United States has advanced policies that integrate families, schools, and civil society into comprehensive nutrition programs.<sup>7</sup> These strategies have shown promising results in improving dietary behavior and increasing health equity among school-aged children. Nonetheless, studies also indicate ongoing challenges, including inconsistent stakeholder engagement, varied implementation capacity across regions, and conflicting policy agendas. Civil Society Organizations (CSOs) have emerged as influential actors in shaping nutrition governance, advocating for accountability and ensuring program relevance through grassroots involvement.<sup>8</sup>

In Indonesia, community involvement has been key to adapting school nutrition programs to local contexts. The PROGAS initiative (1996–1998) showcased effective participation from parents, farmers, and village leaders, ensuring continuity during the 1997 crisis through culturally appropriate, locally sourced meals.<sup>9,10</sup> Its 2015 revival enhanced children's diets, promoted local food use, and empowered women in community-based food preparation.<sup>11,12</sup>

Recent studies further underscore the importance of community participation in

school nutrition programs. For example, in Canada, an observational study of the REACH school network found that school food program participation is linked with reduced food insecurity among students, particularly when supported by community involvement in program design and delivery.<sup>13</sup> In Indonesia, a systematic review of home-school-based interventions showed that parental engagement drives increases in fruit and vegetable consumption among children and adolescents (JUSINDO).<sup>14</sup> Similarly, in the United States, research on the Community Eligibility Provision (CEP) demonstrates that the school's community food environment moderates student participation in free meal programs, emphasizing the role of policy together with local stakeholder engagement.<sup>15</sup> These findings suggest that since 2022, global and local evidence increasingly align with the view that strong community engagement not only enhances program reach but also promotes equity, responsiveness, and sustainability.

Launched in January 2025, the Free Nutritious Meals Program/*Makanan Bergizi Gratis (MBG)* aims to serve 15–16.5 million beneficiaries including students and pregnant or lactating women via over 5,000 service units.<sup>16,17</sup> By mid-2025, over 6.38 million had been reached through more than 1,000 kitchens across 34 provinces.<sup>18</sup> MBG prioritizes food from local MSMEs and cooperatives, aligning menus with nutritional standards and leveraging schools as health-promoting hubs.<sup>19</sup>

These community-led initiatives closely align with global frameworks of community-based school feeding, in which village structures are leveraged to ensure program relevance, equity, and sustainability. Moreover, the Indonesian experience highlights how local ownership and grassroots innovation can strengthen food security and social cohesion.<sup>20,21</sup>

Despite increasing attention, there remains a lack of synthesized academic evidence on how “community engagement” is defined, categorized, and implemented in the context of school nutrition programs. Most studies to date focus on biomedical outcomes or policy-level interventions without adequately exploring community engagement as a multidimensional construct encompassing power dynamics, participatory governance, and localized food practices. Consequently, there is a limited understanding of the mechanisms through which participation

contributes to program success, what forms of engagement are most effective, and how different levels of involvement translate into sustainable outcomes. This gap in the literature calls for a more structured and thematic exploration of the field to inform both scholarship and practice.

This study seeks to conduct a Systematic Literature Review (SLR) to examine the conceptual and practical dimensions of community engagement in school nutrition programs. The research is guided by four main questions: (1) To what extent does the topic of community engagement in school nutrition programs remain relevant and significant for future scholarly inquiry? (2) How is current research on community engagement in school nutrition programs distributed across authorship, institutions, and thematic domains? (3) What are the theoretical and practical implications of community engagement in nutrition programs from the perspective of future research? and (4) What forms and levels of community participation are reported in school-based nutrition programs, and how are these operationalized across different implementation contexts? This SLR intends to contribute to the existing literature by offering a comprehensive synthesis of definitions, practices, and levels of community engagement in school-based nutrition initiatives across global and local contexts.

## **MATERIAL AND METHOD**

This study employed a Systematic Literature Review (SLR) guided by the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparency, rigor, and reproducibility in selecting and analyzing scholarly works.<sup>22</sup> The aim was to explore the forms and implications of community engagement within school nutrition programs from a global scholarly perspective.

### **Data Source and Search Strategy**

A comprehensive search was conducted using the Scopus database on June 2, 2025. The query combined the following keywords using Boolean operators: “community engagement”, “school nutrition”, and “health promotion”.

This search yielded an initial pool of 192,276 documents. To ensure focus and quality, the following inclusion and exclusion criteria were

applied: 1) Language: Only English-language publications were included. Articles in Portuguese, French, Russian, and other non-English languages were excluded; 2) Access Type: Only Open Access articles (Gold, Green, Bronze) were retained to ensure transparency and replicability; 3) Document Type: Book reviews, editorials, conference proceedings, and book chapters were excluded; 4) Keyword Relevance: Articles that did not explicitly address school-based nutrition or community involvement were removed during title and abstract screening.

Following this process, 89 articles were deemed eligible for full-text review and included in the analysis. These articles span from 1984 to 2025, representing over four decades of academic discourse on the topic.

### **Analytical Approach**

This study adopted a manual thematic analysis approach to allow for deeper interpretation of the literature content. Thematic synthesis was conducted by systematically coding each document to identify: 1) Definitions of community engagement; 2) Levels of participation (from “none” to “empowerment”); 3) Thematic focuses (e.g., participatory planning, stakeholder partnerships); 4) Conceptual and practical implications relevant to school nutrition programs.

The choice to apply qualitative thematic synthesis rather than bibliometric mapping was made to enable a more nuanced understanding of the evolution of conceptual frameworks, the policy relevance of community-based nutrition efforts, and the socio-contextual meanings of community engagement in diverse settings. This approach has been recognized as effective for synthesizing qualitative and policy-relevant research, especially in public health contexts.<sup>23,24</sup>

A qualitative thematic synthesis was applied to analyze the selected studies. Articles were read iteratively, and inductive coding was used to capture definitions, operationalization, and levels of community engagement. Two coders independently analyzed an initial sample of 15% of the articles to develop a shared coding framework, with intercoder reliability established through discussion-based consensus. The finalized codebook was applied consistently across all documents to ensure analytical

transparency and conceptual coherence.<sup>25</sup> Thematic domains were constructed through conceptual clustering, and engagement levels were subsequently mapped against Arnstein’s Ladder of Participation.<sup>26,27</sup>

**RESULTS**

This study follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure methodological transparency and reproducibility.<sup>28</sup> A structured search was conducted in Scopus on June 2, 2025, using the terms “community engagement,” “school nutrition,” and “health promotion,” yielding 192,276 records. Articles were screened based on language (English only), access type, document type, and relevance to “school nutrition program.” After eligibility checks, 89 articles were included. The selection process is summarized in the PRISMA flowchart.

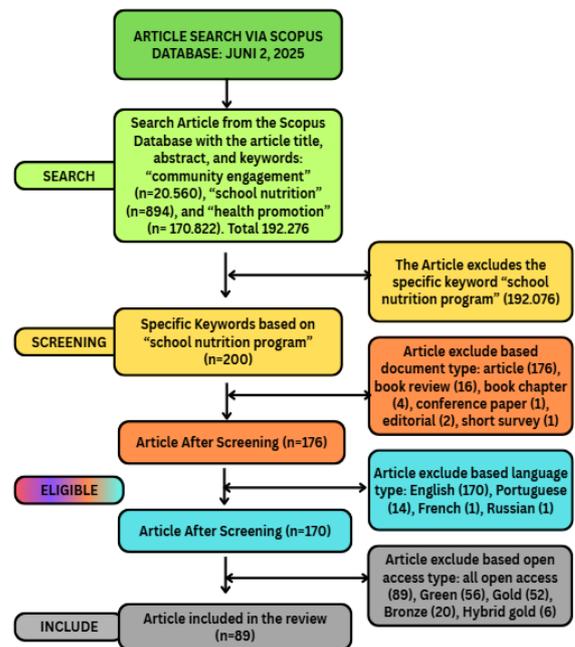
A total of 192,276 articles were initially identified through the Scopus database. These articles span a publication period from 1984 to 2025, reflecting a substantial body of global and regional research over four decades (Figure 1). This study is guided by four research questions (RQ): (1) To what extent does the topic of community engagement in school nutrition programs remain relevant and significant for future scholarly inquiry? (2) How is current research on community engagement in school nutrition programs distributed across authorship, institutions, and thematic domains? (3) What are the theoretical and practical implications of community engagement in nutrition programs from the perspective of future research? and (4) What forms and levels of community participation are reported in school-based nutrition programs, and how are these operationalized across different implementation contexts? These questions guide the conceptual synthesis presented in this review.

RQ1: To what extent does the topic of community engagement in school nutrition programs remain relevant and significant for future scholarly inquiry?

Over four decades, interest in community engagement in school nutrition programs has grown, driven by rising concerns over malnutrition and sustainable solutions. After limited attention from 1985 to 2011, scholarly output

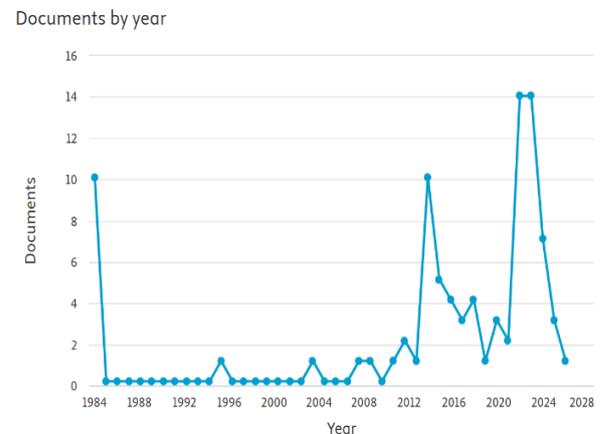
increased sharply from 2013, peaking in 2022–2023 with 14 publications annually. The 1984 spike and recent surge suggest both early exploration and renewed relevance, while the post-2023 decline likely results from incomplete indexing of 2025 data (Figure 2).

The 5-year moving average reveals a steady rise in interest since 2011, marking community engagement in school nutrition as an increasingly significant research topic. This trend highlights its growing relevance for future studies in food security, education, and participatory public health governance.



Source: Primary Data, 2025

**Figure 1. Systematic Literature Review Information Flow Using PRISMA**



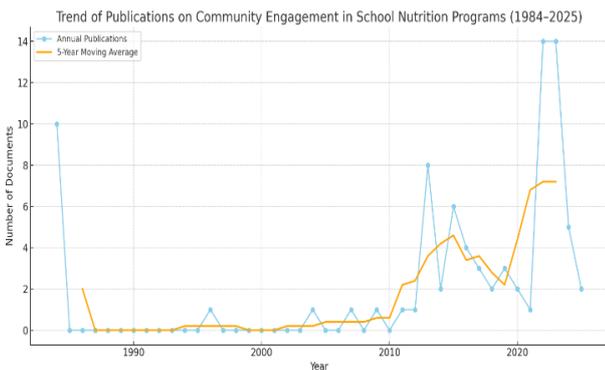
Source: Primary Data, 2025

**Figure 2. Number of school Nutrition Program Publication**

Figure 3 illustrates a 41-year publication trend (1984–2025) on community engagement in school nutrition. After an early spike in 1984, activity was minimal until a resurgence in 2009 and peak output in 2022–2023. The recent decline likely reflects indexing delays rather than waning interest.

RQ2: How is current research on community engagement in school nutrition programs distributed across authorship, institutions, and thematic domains?

The geographic spread of publications shows the U.S. leading with 35+ studies, followed by South Africa and Brazil, reflecting strong policies and local engagement models. Countries like Canada, Ethiopia, and Japan contribute fewer studies but add regional diversity. The Global South emphasizes equity and food security, while the Global North focuses on health promotion integration (Figure 4).

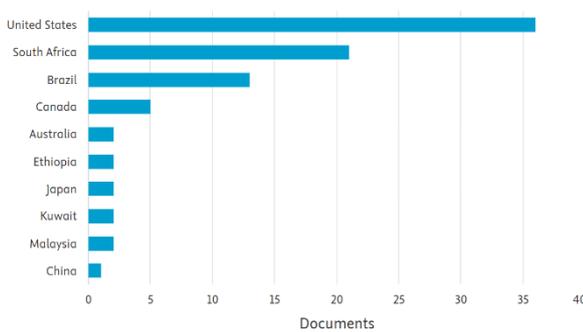


Source: Primary Data, 2025

**Figure 3. Moving Average**

Documents by country or territory

Compare the document counts for up to 15 countries/territories.



Source: Primary Data, 2025

**Figure 4. Network of Article by Country or Territorial (Top 10 Country)**

Figure 5 shows a journal shift from early clinical focus led by the *American Journal of Clinical Nutrition* to more public health-oriented outlets like *Public Health Nutrition*, *Nutrients*, and *BMC Public Health*. This reflects growing multidisciplinary interest in participatory models, especially post-2020, aligning with broader public health and policy concerns.

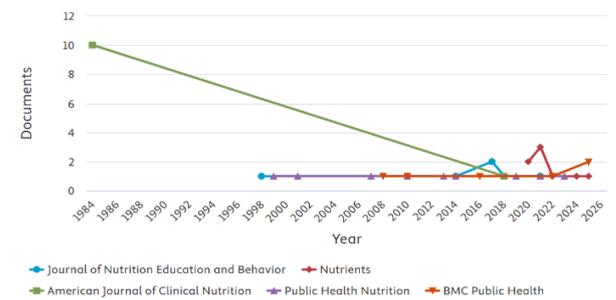
The chart below illustrates author contributions to the field of community engagement in school nutrition. Gale, S. and Haveman-Nies, A. lead with four publications each, indicating their strong influence. Prescott, M.P., Priore, S.E., and Battjes-Fries, M.C.E. follow with three publications, while several others such as Brown, B., Bucher, T., and Collins, C.E. have two. Overall, the distribution reflects a collaborative and multidisciplinary landscape, not dominated by a single scholar, but shaped by diverse perspectives. This pattern signals a growing and inclusive academic interest in community participation within school-based nutrition initiatives (Figure 6).

To understand how community engagement operates in school nutrition, five thematic domains were identified from 89 studies: Emergency Response & Logistics, Consumption Trends, Fruit Consumption Patterns, Nutrition & Education Link, and Execution & Leadership. These categories highlight key program focuses and illustrate how stakeholders families, educators, local leaders, and volunteers support child nutrition outcomes through varied forms of engagement (Table 1).

Documents per year by source

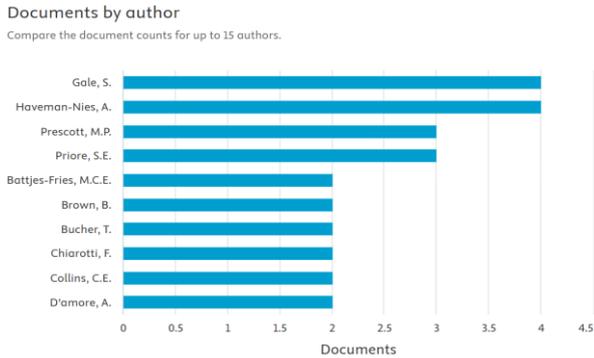
Compare the document counts for up to 10 sources.

Compare sources and view CiteScore, SJR, and SNIP data



Source: Primary Data, 2020

**Figure 5. Documents per Year by Source**



Source: Primary Data, 2025

**Figure 6. Documents by Author**

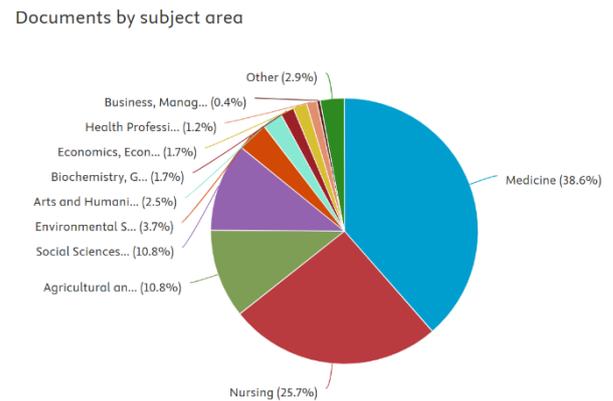
RQ3: What are the theoretical and practical implications of community engagement in nutrition programs from the perspective of future research?

The subject distribution reveals a health science dominance, with Medicine (38.6%) and Nursing (25.7%) comprising over 64% of publications, highlighting a biomedical focus that often sidelines community roles. Social Sciences and Agricultural Sciences (10.8% each) reflect growing attention to food systems and behavior, while Environmental Science (3.7%) introduces sustainability themes (Figure 7). Underrepresented fields like Economics, Management, and Humanities point to gaps in leadership, cost-effectiveness, and cultural narratives. This imbalance underscores the need for interdisciplinary approaches that frame communities as active co-creators in school nutrition governance.

Understanding the theoretical and practical implications of community engagement in school nutrition programs begins with clarifying its varied definitions across studies. The term

encompasses a broad spectrum from basic volunteer roles to complex collaborations among families, educators, health workers, and institutions. Table 2 summarizes this definitional diversity, offering a foundation to interpret how engagement is conceptualized and implemented in both theory and practice.

The institutional distribution of publications highlights how academia, private industry, and research bodies shape models of community engagement in school nutrition programs. Private entities like Unisys reflect the role of technology in scaling interventions, while Global South universities contribute culturally grounded strategies (Figure 8). Research organizations emphasize measurable health outcomes, and institutions from high-income countries provide adaptable frameworks. Together, these affiliations underscore the multisectoral and interdisciplinary foundation for advancing engagement and policy innovation.



Source: Primary Data, 2025

**Figure 7. Documents by Subject Area**

**Table 1. Five Core Thematic Domain of Community Engagement**

Thematic Domain	Definition	Focus of Community Engagement
Emergency Response & Logistics	Interventions implemented during crises (e.g., pandemics, natural disasters) to ensure continued food access.	Mobilizing volunteers, managing logistics, adapting service delivery in emergencies.
Consumption Trends	Observed patterns of food choices and eating behaviors among school-aged children.	Nutrition education, parental involvement, promoting healthy eating campaigns.
Fruit Consumption Patterns	Specific focus on students' intake, preferences, and attitudes toward fruit consumption.	School gardening programs, engaging students and parents in food activities.
Nutrition & Education Link	The connection between children's nutrition and educational outcomes such as attendance and academic performance.	School-community collaboration, meal planning, teacher and parent participation.
Execution & Leadership	Governance, coordination, and local leadership involved in the implementation of school nutrition programs.	Shared decision-making, staff training, and local community leadership.

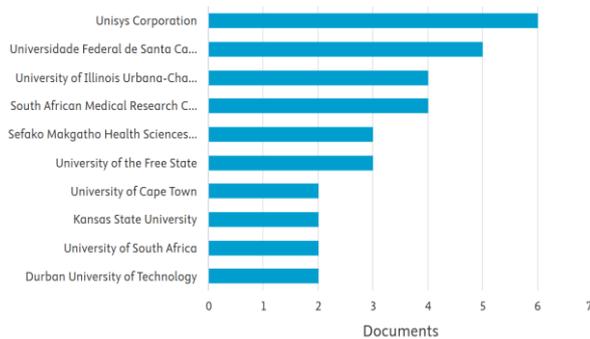
Source: Primary Data, 2025

**Tabel 2. Definition of Community Engagement in School Nutrition Program**

Level of Community Engagement	Interpretative Explanation
Volunteers Implement Feeding Programs	Reflects community involvement at the operational level, though without influence on decision-making. Suitable for early-stage community participation.
Call for Multi-Stakeholder Collaboration	Indicates a systemic approach and recognition of cross-sector collaboration (government, schools, families). Supports the "whole-of-society" model in health promotion.
Collaboration among Teachers, Students, and Nutritionists	Represents more horizontal, school-based engagement through internal actor collaboration. Highlights the importance of school-level governance and peer participation.
Parental and Teacher Influence as Models	Focuses on social role modeling as a behavioral change strategy. Suggests indirect yet influential participation that aligns with behavioral health theories.
Stakeholder Collaboration in Nutrition Response Strategies	Reflects involvement in strategic planning and programmatic response. Suggests a readiness for systemic integration and supports strategic co-creation.
Emphasis on Cross-Sector Collaboration Including Families	Underscores that child nutrition requires multisectoral solutions. Practically aligned with the "collective impact" framework for public policy implementation.

Source: Primary Data, 2025

Documents by affiliation  
Compare the document counts for up to 15 affiliations.



Source: Primary Data, 2025

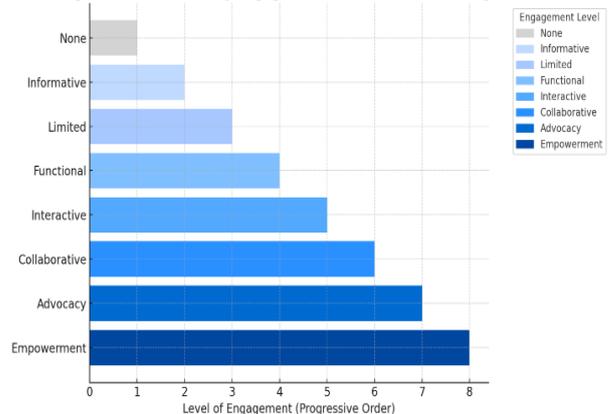
**Figure 8. Network Country Visualization**

RQ4: What forms and levels of community participation are reported in school-based nutrition programs, and how are these operationalized across different implementation contexts?

Understanding community engagement levels is key to evaluating how school nutrition programs function across contexts. The developed framework, ranging from Level 0 (None) to Level 7 (Empowerment) and color-coded from gray to deep blue illustrates the spectrum from passive involvement to full community co-leadership (Figure 9). This model helps interpret RQ4 by clarifying participation depth and its implications for equity, accountability, and program sustainability.

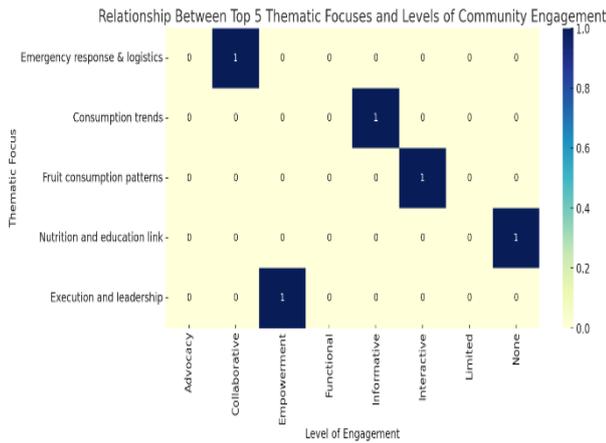
The heatmap shows clear associations between five school nutrition themes and specific levels of community engagement. For instance, "Emergency Response & Logistics" links to collaborative engagement, while "Consumption Trends" and "Fruit Consumption Patterns" correspond to informative and interactive roles, respectively. Notably, "Nutrition and Education Link" shows no engagement, whereas "Execution and Leadership" reflects full empowerment (Figure 10). These patterns highlight how participation varies by theme and call for context-specific engagement strategies to improve outcomes.

Progression of Community Engagement in School Nutrition Programs



Source: Primary Data, 2025

**Figure 9. Progression of Community Engagement in School Nutrition Programs**



Source: Primary Data, 2025

**Figure 10 Relationship Between Thematic and Level of Community Engagement**

## DISCUSSION

### Integration of Findings Across Research Questions

The synthesis of findings across the four research questions illustrates a complex and evolving landscape of community engagement in school nutrition. RQ1 identifies a steady publication growth from 2013–2023, indicating sustained scholarly and policy relevance aligned with global equity-driven health priorities.<sup>29,30</sup> This momentum intensified post-COVID-19, re-

flecting the urgent call for community-led, resilient nutrition systems.<sup>31,32</sup>

RQ2 reveals the field’s interdisciplinary nature, with contributions spanning education, policy, and local governance. Diverse authorship and thematic clustering underscore how nutrition programs now involve broader stakeholder networks, linking food systems with social protection and participatory governance.<sup>33–35</sup>

In RQ3, varying definitions of “community engagement” suggest a continuum from passive volunteerism to empowered multisectoral leadership. While some programs align with higher rungs of Arnstein’s Ladder,<sup>36</sup> most remain tokenistic. Institutional affiliations also reveal disparities in capacity and empowerment levels across regions.<sup>37</sup>

RQ4 highlights how engagement varies contextually, structured and policy-led in high-income countries, versus grassroots and informal in LMICs like Indonesia and parts of Sub-Saharan Africa.<sup>38</sup> Deeper engagement correlates with adaptive, culturally relevant practices.<sup>39</sup>

Collectively, the integration shows that community engagement functions as both theory and strategy. Future research must move beyond symbolic inclusion toward genuine shared governance, an aspiration aligned with contemporary public health ethics and nutrition frameworks.<sup>40,41</sup>

**Table 3. Relationship Between Thematic Focuses and Levels of Community Engagement**

Thematic Focus	Level of Community Engagement	Interpretative Explanation
Emergency Response & Logistics	Collaborative	Involves multi-stakeholder coordination, requiring joint action for effective logistics and distribution during emergencies.
Consumption Trends	Informative	Communities are recipients of nutritional information or campaigns with minimal feedback or control in intervention design.
Fruit Consumption Patterns	Interactive	Allows for mutual feedback and engagement, such as incorporating student preferences into fruit offerings or meal designs.
Nutrition and Education Link	None	Reflects a top-down approach with limited or no input from community actors in integrating nutrition with educational frameworks.
Execution and Leadership	Empowerment	Communities are actively leading program execution, such as managing school kitchens or planning menus, indicating full ownership and decision-making power.

Source: Primary Data, 2025

### Theoretical and Conceptual Integration

This review aligns with key theoretical frameworks on participation and empowerment in public health. Arnstein's Ladder of Citizen Participation situates most school nutrition programs in mid-level engagement centered on consultation or symbolic inclusion while few demonstrate full authority sharing, highlighting enduring structural barriers.<sup>36,42</sup> Similarly, Empowerment Theory positions engagement as a process for communities to gain control over health determinants.<sup>43</sup> Examples such as participatory kitchen planning and community-led food procurement illustrate movement toward genuine empowerment when decision-making is shared.

The Social Ecological Theory further contextualizes engagement across multiple levels individual to policy, showing that multi-level interventions, including school culture and policy advocacy, yield stronger, sustainable impacts.<sup>44,45</sup> In addition, Diffusion of Innovations Theory helps explain how models like Indonesia's MBG program gain traction, with replication facilitated by early adopters, institutional support, and policy frameworks.<sup>46</sup>

Health Governance Theory underscores accountability and legitimacy as essential elements of engagement. Programs with inclusive monitoring and community dialogue foster greater trust and durability.<sup>47</sup> Overall, the findings affirm that community engagement is not merely an activity, but a structural and rights-based approach that influences health, education, and food system outcomes.

### Comparison with Previous Studies

This review aligns with prior literature affirming community engagement as central to school nutrition program success, echoing evidence of improved student outcomes and program sustainability through parent associations and local procurement.<sup>48,49</sup> Unlike previous descriptive reviews, however, this study offers a refined typology of eight engagement levels and five thematic domains, adding depth to how participation is conceptualized and operationalized.

Earlier studies often viewed engagement as binary (present/absent), whereas this review reveals a continuum influenced by institutional capacity and governance frameworks, echoing

findings from Erzse A., et al (2023) regarding structural barriers to participation.<sup>38</sup> Moreover, the thematic categorization example, emergency logistics, consumption patterns, and execution, provides a novel framework for understanding engagement as both process and outcome.

Although localized studies have demonstrated context-specific community roles,<sup>9,50</sup> this review integrates findings across 89 articles from Africa, Asia, and North America, identifying cross-regional patterns. National initiatives like Indonesia's MBG illustrate a growing institutional shift toward participatory nutrition governance, resonating with decentralization trends in other LMICs.

Departing from bibliometric analyses,<sup>51,52</sup> this thematic synthesis yields deeper contextual and theoretical insight. By mapping engagement practices, it contributes not only to scholarship but also to practical strategies for designing inclusive, culturally grounded nutrition interventions.

### Theoretical Interpretation of Community Engagement Variation

The variation in community engagement across school nutrition programs reflects a continuum of participation, aligning with Arnstein's ladder from minimal involvement to shared decision-making.<sup>36,53</sup> Engagement levels are shaped by institutional openness, trust, and historical stakeholder relationships. Lower levels (1–3) often serve delivery functions without empowerment, echoing critiques of tokenistic participation,<sup>54</sup> while higher levels (6–8), as seen in Latin America and Southeast Asia, demonstrate transformative practices aligned with Empowerment Theory.<sup>55</sup>

The role of social capital is central; strong community networks and shared leadership, as explained by Putnam (2000), are linked to deeper engagement, evident in collaborative practices such as menu planning and local sourcing.<sup>56</sup> Program function also influences engagement depth: crisis responses often limit participation, whereas educational initiatives foster co-design, reflecting principles from systems thinking and implementation science.<sup>57,58</sup>

Contextual factors are crucial. Participation is not universal but "situated," shaped by cultural,

institutional, and resource-specific dynamics.<sup>59</sup> Thus, engagement diversity reflects more than program design, it signals systemic readiness, governance norms, and community capacity, highlighting the need for context-responsive, equity-oriented participation models.

These findings align closely with Arnstein's Ladder of Citizen Participation, which conceptualizes engagement as a hierarchical process from non-participation to full empowerment. Across the reviewed studies, most school-based nutrition initiatives were positioned within the middle rungs of *consultation* and *collaboration*, with only a few reaching *partnership* or *citizen control*. This pattern reflects persistent structural and institutional barriers that limit true community empowerment such as, centralized decision-making and short-term project cycles, rather than a lack of community willingness to participate. Theoretically, this confirms the argument of Empowerment Theory, which frames participation not merely as involvement in activities but as the transfer of decision-making power and resource control. Practically, school nutrition programs that foster shared governance and participatory evaluation tend to achieve higher sustainability and ownership, reinforcing the link between empowerment and long-term impact.

### Relevance of Findings in the Indonesian and Global Context

Community engagement is central to global school nutrition strategies, as exemplified by the Home-Grown School Feeding (HGSF) model promoted by the World Food Programme. In countries like Kenya, Ghana, and Brazil, integrating community actors, farmers, parents, local monitors, has bolstered food security, transparency, and local economies. Studies by Aurino (2023) and Drake (2017) further affirm that participatory models improve dietary diversity, school attendance, and sectoral accountability.<sup>60,48</sup>

In Indonesia, this global alignment is embodied in the Free Nutritious Meals Program (MBG), launched in early 2025 through multi-sectoral coordination. Targeting 15–16.5 million beneficiaries, MBG emphasizes local food sourcing, community involvement, and nutritional education, reaching over 6 million individuals and establishing 5,000 food units by

mid-2025.<sup>16</sup> Schools act as community hubs, fostering empowerment and localized implementation.

Yet, challenges remain, regional disparities in capacity and limited participatory frameworks risk reducing engagement to symbolic acts. Research by Alhasni (2025) and Syitra (2025) stress the need for structured, inclusive governance in decentralized nutrition programs.<sup>61,62</sup> This review affirms MBG's potential as a community-driven model but highlights the importance of ongoing participatory evaluation to secure its impact and sustainability.

This review synthesized 89 Scopus-indexed articles on community engagement in school nutrition programs, offering conceptual and operational insights. However, several limitations must be noted. First, the exclusive reliance on Scopus may have excluded valuable grey literature or local case studies, potentially limiting contextual depth. Second, while qualitative thematic analysis enabled rich exploration, its subjective nature and lack of inter-coder reliability checks reduce methodological robustness.

Third, although the time span (1984–2025) captures key developments, recent innovations like Indonesia's MBG may be underrepresented, calling for ongoing, real-time research. Fourth, this review did not assess the correlation between engagement levels and measurable outcomes (e.g., nutrition or education indicators), leaving a gap in impact analysis.

Finally, a lack of clear definitions and theoretical grounding such as, empowerment theory or Arnstein's ladder, limits conceptual advancement. Future research should broaden data sources, adopt mixed methods, track emerging programs longitudinally, and integrate participatory governance theory to strengthen both empirical and normative dimensions of community engagement.

However, the interpretation of these patterns should be approached cautiously. Because the dataset was drawn exclusively from Scopus-indexed, English-language, open-access sources, relevant insights from grey literature, government reports, or non-English publications, particularly in low- and middle-income contexts like Indonesia may have been underrepresented. This introduces a potential *language and access bias*, limiting the inclusivity of perspectives from

grassroots organizations and local implementation actors. Consequently, while the theoretical relationship between engagement and empowerment is evident in the analyzed literature, future research should expand evidence bases to include multilingual, non-indexed, and community-generated documentation to capture more diverse and context-rich understandings of participation.

## CONCLUSION AND RECOMMENDATION

This review of 89 peer-reviewed articles confirms that community engagement remains a critical and increasingly emphasized component in school nutrition programs. The analysis highlights not only growing academic interest but also diverse operational practices, ranging from basic volunteering to empowered co-management, across themes like emergency logistics, dietary behavior, education integration, and leadership. These findings underscore the strategic role of community participation in enhancing program sustainability, equity, and responsiveness.

It is therefore recommended that future interventions embed community engagement within well-defined theoretical and participatory frameworks. Particularly in programs like Indonesia's MBG, inclusive governance, inter-sectoral coordination, and community feedback mechanisms should be prioritized. Future research should further explore how different levels of engagement shape outcomes and adapt participatory strategies to varying cultural and institutional contexts.

## AUTHOR CONTRIBUTIONS

All authors contributed substantially to the completion of this study. AAS was primarily responsible for the conceptualization of the research, the overall study design, and the drafting of the initial manuscript, while also providing supervision throughout the process. SA and S contributed to the literature review and policy analysis, particularly in interpreting the findings within governance and social science perspectives, as well as revising the manuscript critically. RM focused on data extraction, thematic coding, methodological validation, and the preparation of figures and tables that supported the analysis. MYA contributed by

analyzing the public health implications, contextualizing the results with Indonesian school nutrition programs such as PROGAS and MBG, and ensuring final academic clarity during the editing stage. All authors participated in the discussion, reviewed the final version of the manuscript, and approved it for submission. AAS = Adnan Achiruddin Saleh; SA = Suparman Abdullah; S = Sulvinajayanti; RM = Rahmat Muhammad; MYA = Muhammad Yusran Amir.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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