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PERCEPTIONS OF STUNTING REDUCTION TEAMS ON SOCIAL SUPPORT FOR MATERNAL BEHAVIOR CHANGE: A HEALTH PROMOTION APPROACH IN SURAKARTA

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ABSTRACT

Introduction: Stunting reduction is a central focus of the 2025 global nutrition targets and a key indicator for the Sustainable Development Goal of zero hunger. Indonesia remains among the countries with the highest stunting prevalence in Asia, with Central Java and Surakarta reporting rates above the WHO standard. Despite various government interventions, stunting prevention efforts are still predominantly institution-driven, with limited emphasis on behavioral change through health promotion. This study aimed to develop a social support model by exploring the perceptions of stunting reduction acceleration teams regarding the influence of social support on maternal behavior in Surakarta. **Method:** A mixed-methods approach was used, combining a cross-sectional survey of 100 team members at public health center and district levels with in-depth interviews of five representatives from different districts. The study assessed emotional, instrumental, and informational support as exogenous variables.
Result: Quantitative analysis using the Spearman test revealed significant correlations between all types of social support and maternal stunting prevention behaviors (emotional ρ=0.41, instrumental ρ=0.38, informational ρ=0.44; all $p<0.01$). Qualitative findings indicated that instrumental support, such as direct provision of nutritious food, was perceived as the most impactful, while emotional encouragement from peers and cadres was crucial for sustaining maternal motivation. **Conclusion:** These results underscore the importance of strengthening social support networks through community-based health promotion strategies, such as reactivating mother support groups and training cadres for emotional support. Reinforcing these networks is essential for effective stunting reduction interventions in Surakarta and similar contexts.

Keywords: Stunting, Social Support, Maternal Behavior, Perception

INTRODUCTION

Stunting, characterized by compromised physical and cognitive development stemming from chronic malnutrition, remains an enduring public health concern worldwide. The World Health Organization (WHO) and UNICEF have identified the reduction of stunting as a central goal within the global nutrition agenda for 2025, acknowledging its profound implications for cognitive capacity, educational outcomes, and long-term economic productivity (Leppin *et al.*, 2018). Despite notable advancements at the international level, stunting still impacts millions of children, particularly in low- and middle-income nations, where structural and behavioral determinants converge to sustain cycles of undernutrition (Islam *et al.*, 2023).

Indonesia, ranking as the fourth most populous country globally, has prioritized stunting reduction at the national level; nevertheless, it continues to exhibit one of the highest prevalence rates of stunting in Asia, following only India and China (Alhasni *et al.*, 2025). According to data from the 2022 Indonesian Nutrition Status Survey (SSGI), the national prevalence of stunting among children under five was recorded at 21.6%. Although this figure reflects progress relative to previous years, it remains above both the government's target of 14% by 2024 and the WHO's threshold for a chronic public health issue (Victora *et al.*, 2021). Within Central Java—one of Indonesia's most densely populated provinces—the prevalence reached 20.8% in 2022, marking the highest rate on the island of Java, with Surakarta (Solo) exhibiting comparable statistics (Yusriadi *et al.*, 2024).

The persistent elevation in stunting rates within Central Java and Surakarta highlights the multifaceted nature of the issue, influenced by an interplay of socio-economic, cultural, and behavioral determinants. Although governmental initiatives have *emphasized* both nutrition-specific and nutrition-sensitive strategies, such as micronutrient supplementation, breastfeeding advocacy, and improved sanitation, these measures have predominantly been institution-led and have placed limited emphasis on community involvement and behavioral transformation (Hayden, 2022).

Emerging literature underscores the pivotal influence of maternal behaviors in stunting prevention, especially during the first 1,000 days of life—a critical interval often described as the "window of opportunity" for optimal child growth and development (Marni *et al.*, 2021). Maternal knowledge, caregiving practices, and health-seeking actions are strongly shaped by the surrounding social milieu, including family members, peers, and community health workers (Acoba, 2024). Crucially, interventions in Indonesia have frequently neglected the significance of social support networks in fostering and maintaining positive maternal behaviors (Triananinsih and Ridwan, 2025). This oversight creates a significant gap, as behavioral adherence is rarely sustained without a supportive environment.

Theoretical frameworks in health promotion, such as Social Cognitive Theory, the Information-Motivation-Behavioral Skills (IMB) model, and the COM-B framework, highlight the dynamic relationship among individual capability, motivation, and opportunity, with social support emerging as a critical determinant for behavior modification (Beatty *et al.*, 2024). Social support—spanning emotional, instrumental, and informational domains—has been shown to enhance the adoption and maintenance of health-promoting practices, notably among mothers in resource-constrained environments (Saleh *et al.*, 2021).

Community-driven interventions, including the mobilization of mother support groups and the training of community health workers (cadres), have proven effective in

lowering stunting rates and improving child nutrition outcomes across various contexts (Soviyati *et al.*, 2023). These strategies capitalize on existing social networks to deliver practical support, emotional reinforcement, and knowledge dissemination, thereby addressing both structural and behavioral impediments to stunting prevention (Marni *et al.*, 2021).

However, despite the expanding body of evidence, research remains limited regarding the perspectives of stunting reduction teams—those directly engaged in program implementation—on the impact of social support on maternal behavior. Gaining insight into these perceptions is crucial for developing health promotion strategies that are contextually appropriate, resonate with local community dynamics, and leverage the potential of social capital (Alhasni *et al.*, 2025).

This investigation seeks to address this gap by formulating a model of social support for maternal behavior change in stunting prevention and control within Surakarta, Central Java. By exploring the viewpoints of stunting reduction acceleration teams, the study aims to elucidate how various forms of social support—emotional, instrumental, and informational—shape maternal behaviors relevant to stunting prevention.

The principal objectives of this study are threefold: (1) to evaluate the perceived influence of different types of social support on maternal stunting prevention practices; (2) to identify obstacles and enabling factors in the effective provision of social support; and (3) to inform the development of community-based health promotion interventions that reinforce social support structures for sustainable stunting reduction.

In summary, this research is positioned at the crossroads of health promotion theory, social support frameworks, and practical stunting reduction efforts. It responds to the pressing need for integrated, community-oriented approaches that transcend institution-centric paradigms and place behavioral change among mothers at the forefront of stunting prevention strategies in Indonesia and comparable settings.

METHOD

This research adopted a mixed-methods approach, integrating both quantitative and qualitative methodologies to achieve a thorough understanding of the role social support plays in influencing maternal behavior change within the context of stunting prevention. The decision to employ a mixed-methods design is grounded in its unique capacity to capture quantifiable relationships between variables while also uncovering the rich, context-specific experiences of key stakeholders (Fristiwi, Nugraheni and Kartini, 2023).

The study was situated in Surakarta, Central Java—a region notable for its persistently high stunting rates and socio-demographic diversity. Data collection was conducted across five districts, encompassing both urban and peri-urban locales, during the period of January to March 2024. The study population consisted of members of stunting reduction acceleration teams at the sub-district and public health center levels, all of whom engage directly in the planning and execution of stunting prevention initiatives.

For the quantitative phase, an observational analytic cross-sectional design was implemented. A cross-sectional survey was administered to 100 team members at the public health center and district levels. Quota sampling ensured proportional representation from each district and enabled the capture of variation across gender, age, educational background, occupation, and duration of service among team members. The main exogenous variables examined included emotional, instrumental, and informational

support, while the primary endogenous variable was maternal behavior pertinent to stunting prevention.

Structured questionnaires served as the primary data collection instrument for the quantitative component, capturing socio-demographic information, the frequency and nature of social support provided, and observed maternal behaviors. Prior to the main data collection, the instrument underwent rigorous validation, involving a pilot study with 30 non-participating team members in a neighboring district. Internal consistency was confirmed using Cronbach's Alpha (alpha > 0.70), and construct validity was assessed through expert review and confirmatory factor analysis (CFA) to ensure the scales accurately measured the theoretical constructs of social support. Univariate analysis described the distribution of each variable, while bivariate analysis utilizing the Spearman correlation test explored associations between types of social support and maternal behavior. Where applicable, multivariate analysis was conducted to adjust for potential confounding variables and to assess the comparative impact of each form of support.

The qualitative component comprised in-depth interviews with five purposively selected representatives from various districts, chosen to reflect a spectrum of experiences and perspectives. The selection criteria for these key informants included a minimum of two years of direct involvement in stunting reduction programs, documented success in community mobilization efforts, and representation from different administrative levels (one district coordinator, two public health center heads, and two experienced cadres). Interviews investigated participants' assessments of social support effectiveness, challenges to its delivery, and suggestions for reinforcing support networks. Thematic analysis was employed to discern recurrent patterns and to synthesize insights into overarching themes (Ginting *et al.*, 2023).

Throughout the research process, rigorous ethical standards were maintained. Informed consent was obtained from all participants, and confidentiality was upheld by anonymizing responses and restricting data access to the research team. The study received ethical clearance from the Health Research Ethics Committee of Dr. Moewardi General Hospital (Ethics Approval No: 637/III/HREC/2024).

The integration of quantitative and qualitative findings was realized through a convergent mixed-methods design, whereby both types of data were collected concurrently, analyzed independently, and subsequently merged for interpretation. This integration involved comparing the statistical strength and direction of support types (quantitative) with the described experiences and barriers (qualitative) to achieve a richer, triangulated understanding. This methodological approach enabled a comprehensive exploration of the research problem, facilitating triangulation and highlighting both consistencies and divergences between quantitative results and qualitative insights (Acoba, 2024).

The methodological integrity of this study is supported by the deployment of validated instruments, systematic sampling procedures, rigorous analytical strategies, and strict adherence to ethical protocols. The utilization of a mixed-methods framework enhances the credibility and relevance of the findings, offering actionable guidance for the design and implementation of community-based stunting reduction interventions in Surakarta and similar contexts.

RESULT

The univariate analysis revealed that the majority of respondents were female (91%), with most aged between 31 and 50 years (65%). Educational attainment was

relatively high, with 45% having completed vocational school and 27% holding undergraduate degrees. The occupational distribution indicated a strong representation of health professionals, including midwives, nurses, and nutritionists (37%), alongside civil servants (33%) and housewives (23%). The average length of service within the stunting reduction teams exceeded three years, with 53% having less than five years of experience, 30% between five and ten years, and 17% over ten years.

Table 1. Socio-demographic characteristics of respondents

Variable	Category	Frequency (%)
Gender	Male	9
	Female	91
Mariage status	Married	79
	Widow	7
	Single	14
Education	Junior high school	5
	High school	23
	Vocational school	45
	Undergraduate	27
Occupation	Housewife	23
	Self-employee	4
	Civil servants	33
	Midwife/nurse/nutritionist	37
	Privat sector employee	3
Age	Early adulthood (19-30 y.o)	16
	Mid adulthood (31-50 y.o)	65
	Elderly (>50 y.o)	19
Length of work	< 5 years	53
	5-10 years	30
	> 10 years	17

Bivariate analysis using the Spearman correlation test demonstrated significant positive associations between all forms of social support and maternal stunting prevention behaviors. Emotional support exhibited a moderate correlation with maternal behavior (ρ=0.41, p<0.01), instrumental support showed a slightly lower but still significant correlation (ρ=0.38, p<0.01), and informational support demonstrated the strongest association (ρ=0.44, p<0.01). These correlation coefficients, generally considered moderate in behavioral science literature (where ρ values around 0.40 indicate a meaningful practical relationship), confirm that social support is a relevant factor for maternal behavior change in Surakarta. These findings suggest that while all types of social support are important, informational support may play a particularly pivotal role in influencing maternal behavior.

Table 2. Correlation between types of social support and maternal behavior

Type of Support	Spearman's rho	p-value
Emotional	0.41	<0.01
Instrumental	0.38	<0.01
Informational	0.44	<0.01

Multivariate analysis, after adjusting for socio-demographic factors, demonstrated that each dimension of social support independently influenced maternal behavior, with informational support exhibiting the highest standardized coefficient. This finding highlights the critical role of providing mothers with pertinent knowledge and actionable guidance to drive behavioral change, a result consistent with studies across other Indonesian regions where improvements in health literacy and targeted counseling have been identified as key strategies in maternal and child health outcomes.

Thematic analysis of the qualitative data from in-depth interviews revealed several salient themes. Firstly, instrumental support—encompassing the direct provision of nutritious foods, facilitation of access to health services, and practical assistance with childcare—was consistently regarded as the most impactful in shaping maternal behavior. Participants emphasized that tangible resources and hands-on support were indispensable for enabling mothers to implement recommended practices, especially within households facing economic constraints. This reliance on material aid strongly echoes findings from other resource-limited settings throughout the Indonesian archipelago, confirming that practical and economic barriers often supersede purely motivational issues.

Secondly, emotional support was identified as essential for maintaining maternal motivation and sustained engagement. Encouragement from peers, family members, and community health volunteers (cadres) was described as crucial in helping mothers overcome feelings of isolation, exhaustion, and discouragement. Respondents observed that mothers who regularly received emotional reinforcement were more likely to persist in health-promoting behaviors despite encountering obstacles.

Thirdly, informational support emerged as a fundamental driver of behavioral change. The delivery of clear, accessible, and contextually appropriate information—through counseling, group education sessions, and home visits—empowered mothers to make informed decisions regarding child nutrition, hygiene, and health-seeking behaviors. Respondents underscored the necessity of tailoring information to the specific needs and literacy levels of mothers.

Furthermore, a consistent set of barriers to the effective provision of social support were identified: Limited resources, irregular participation in mother support groups, and inadequate training for cadres in delivering emotional support were cited as significant impediments. Participants expressed concern that, without sufficient investment in capacity building and community mobilization, the potential of social support networks would remain underexploited.

Nevertheless, there was broad agreement among respondents regarding the importance of revitalizing mother support groups and strengthening the capacity of cadres to deliver comprehensive social support. Participants advocated for ongoing training, opportunities for peer learning, and the integration of social support activities within existing health promotion programs.

Table 3. Summary of qualitative themes and illustrative quotes

Theme	Key Findings	Illustrative Quote
Instrumental Support	Direct provision of food, practical help most effective	"When we give nutritious food directly, mothers are more likely to follow the advice."
Emotional Support	Peer and cadre encouragement sustains motivation	"Support from other mothers and cadres keeps them going, especially when they feel tired."

Informational Support	Knowledge transfer empowers behavior change	"Mothers need clear information, not just instructions."
Barriers	Resource constraints, inconsistent group participation, cadre training gaps	"Sometimes, cadres are not confident in giving emotional support."
Recommendations	Reactivate support groups, train cadres, integrate support into programs	"We need more training and regular meetings for mothers."

The qualitative data thus provide a nuanced understanding of the mechanisms through which social support influences maternal behavior, highlighting both the strengths and limitations of current approaches in Surakarta.

DISCUSSION

The results of this investigation reaffirm the pivotal role of social support in facilitating maternal behavior change for stunting prevention. The observed associations between emotional, instrumental, and informational support and maternal practices are congruent with established health promotion frameworks, which argue that a supportive social milieu is instrumental in driving behavioral change (Hutten *et al.*, 2021). Specifically, the findings align closely with Social Cognitive Theory by illustrating that cadres and peers act as vital sources of social reinforcement and models for observational learning, thereby enhancing maternal self-efficacy in adopting health behaviors (Soviyati *et al.*, 2023).

The predominance of informational support in the quantitative findings is consistent with recent scholarship that underscores the value of maternal knowledge and educational interventions in stunting prevention (FOOD and AFFORDABLE, 2022). Programs that deliver clear and actionable information—whether through counseling, group sessions, or digital platforms—have demonstrated efficacy in improving maternal behaviors related to nutrition, hygiene, and health service uptake (Unicef, 2021). Critically, the strong quantitative association found in Surakarta suggests that the strategic focus on knowledge transfer directly impacts the Capability and Motivation components of the COM-B framework, making it the most potent variable among the types of support in this context. This study advances the literature by illustrating that informational support is not only essential, but also exhibits the strongest association with positive maternal behaviors within the Surakarta context.

In addition, the qualitative evidence highlights the immediate and practical significance of instrumental support in enabling mothers to adopt recommended practices. This is especially pertinent in environments characterized by limited resources, where access to nutritious foods, health care, and practical assistance is often restricted (Marni *et al.*, 2021). Instrumental support, as perceived by the stunting reduction teams, functions primarily by addressing structural and economic barriers, effectively enhancing the Opportunity component of the COM-B model. The provision of material resources, together with direct support from cadres and peers, helps to mitigate structural barriers and facilitates the application of knowledge to everyday practice (Fristiwi, Nugraheni and Kartini, 2023).

Although less prominent in quantitative analyses, emotional support emerged as a crucial element in sustaining maternal motivation and resilience. The qualitative data

reveal the vital importance of encouragement, empathy, and peer support in assisting mothers to navigate the complexities of child-rearing and health-related behavior modification (Hutten *et al.*, 2021). This observation aligns with contemporary research emphasizing the protective effect of social networks on health behaviors and their capacity to buffer the impact of stress and adversity (Marni *et al.*, 2021), directly fueling a mother's Motivation to persist with challenging and sustained health practices.

Identified barriers to effective social support—including limited resources, irregular participation in support groups, and deficiencies in cadre training—mirror broader obstacles encountered in the implementation of community-based health promotion initiatives. From a policy perspective, overcoming these systemic challenges necessitates a significant shift towards dedicated budget allocation for non-infrastructure support and continuous, structured investment in capacity development and ongoing supervision for community health workers. The integration of social support mechanisms into existing health system frameworks (Mindarsih *et al.*, 2024).

The utilization of a mixed-methods approach in this study enhances both the credibility and relevance of the findings by allowing for the triangulation of quantitative and qualitative perspectives. By incorporating the viewpoints of stunting reduction teams, the research yields practical recommendations for designing contextually sensitive interventions that leverage local social capital and community structures. However, this study is subject to several limitations, including the cross-sectional design, which precludes inferences of causality. Furthermore, the reliance on the perceptions of the reduction teams, rather than the mothers themselves, may introduce response bias and limit the generalizability of the findings concerning the actual impact on maternal behavior.

The implications of these results extend beyond the Surakarta context. They carry significant programmatic relevance, suggesting that stunting reduction programs must be re-engineered to explicitly integrate and fund all three dimensions of social support simultaneously. Community-oriented strategies that fortify social support systems—through the revitalization of mother support groups, cadre training, and embedding social support within health promotion efforts—have shown effectiveness across diverse settings. Such approaches are particularly salient in urban and peri-urban environments, where social cohesion may be diminished and institutional interventions less impactful (Mindarsih *et al.*, 2024).

In summary, this study offers a substantive contribution to health promotion theory by elucidating the practical linkages between social support and maternal behavior within the Indonesian setting. The evidence presented highlights the imperative for integrated, community-based approaches that prioritize maternal behavior change as a cornerstone of stunting prevention.

CONCLUSION

This research provides compelling evidence that all forms of social support—emotional, instrumental, and informational—are significantly linked to maternal behaviors relevant to stunting prevention in Surakarta. Insights from stunting reduction teams emphasize the necessity for comprehensive, community-driven health promotion strategies that reinforce networks of social support.

Informational support proved to be the most influential in shaping maternal practices, underscoring the importance of equipping mothers with pertinent knowledge and practical guidance. Instrumental support, particularly the direct allocation of

resources and hands-on assistance, was identified as essential for enabling mothers to implement recommended actions, especially in settings characterized by resource scarcity.

Emotional support, facilitated through peer encouragement and cadre involvement, plays a critical role in sustaining maternal motivation and endurance. The reactivation of mother support groups and the enhancement of cadre competencies to deliver holistic social support are recommended as pragmatic measures to promote positive maternal behaviors and expedite progress in stunting reduction.

Addressing impediments such as resource limitations, inconsistent group participation, and gaps in cadre training will require ongoing investment and steadfast policy support. The integration of social support interventions within established health promotion programs presents a promising avenue for achieving sustainable improvements in child nutrition and overall development. Furthermore, based on these findings, future research should focus on developing and rigorously testing tailored intervention models that specifically enhance cadre capacity for emotional support delivery and assess the long-term impact of revitalized mother support groups on sustained behavioral change.

Ultimately, the findings from this study are pertinent not only to Surakarta but also to other urban and semi-urban areas facing persistent stunting challenges. By embedding social support within health promotion policies and practices, stakeholders can cultivate more resilient and empowered communities that are better equipped to sustain advancements toward the eradication of stunting.

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