

# Hybridization Model of Local and Medical Knowledge for Postcolonial and Biopolitical-Based Stunting Interventions

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## ABSTRACT

### Keywords:

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Local  
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*Stunting is a multidimensional issue extending beyond nutrition to include social, cultural, and political aspects. This study explores how medical and local knowledge interact in stunting interventions using Michel Foucault's concept of biopolitics and a postcolonial perspective. This study used a systematic narrative review of 25 articles. The analysis was conducted using thematic synthesis to address three main focuses: the power relations between medical and local knowledge, biopolitical practices in stunting interventions, and the marginalization or possible hybridization of local knowledge within a postcolonial framework. Results, medical interventions often dominate through standards, indicators, and health protocols, yet their effectiveness is limited when disconnected from cultural contexts. Local knowledge shapes acceptance and sustainability, especially when mediated by traditional or religious institutions. The biopolitical perspective highlights how mothers' and children's bodies become objects of surveillance and normalization, while the postcolonial perspective reveals epistemic hierarchies that sideline local knowledge. Conclusion, combining biomedical perspectives with local knowledge creates a pathway that is both ethically grounded and sustainable in addressing stunting. The study offers guidance for building culturally responsive interventions while promoting epistemic justice in public health policy.*

## INTRODUCTION

Stunting is still one of the main public health problems that has a multidimensional impact, goes beyond nutrition issues alone, and affects the quality of life and human development in various countries, including Indonesia (Bhutta et al., 2020; Has et al., 2024). This problem is often understood reductionistly as a problem of nutritional deficiencies, even though social, cultural, and political factors play a significant role in shaping family and community health practices (Hadna et al., 2022a; Walls et al., 2021). In the Baduy indigenous people, for example, stunting is perceived as a genetic problem, so modern medical interventions are not easily accepted (Putri et al., 2025). Other studies in Zambia, India, and Karanganyar also highlighted the influence of food taboos, prelacteal practices, and traditional rituals on children's nutritional status and maternal health (Astuti et al., 2024a; Honkavuo, 2021a). This fact confirms the existence of an epistemic tension between dominant medical knowledge and local knowledge rooted in beliefs, cultures, and social institutions. However, the literature also shows the

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great potential of indigenous food systems and biocultural heritage in supporting nutritional security when recognized in public policy (Swiderska et al., 2022).

Within the framework of Michel Foucault's theory, health intervention can be understood as a biopolitical practice that regulates the body and life through surveillance, standards, and medical protocols (Perkins, 2022; Zimmer, 2025). Through growth indicators and medical classification, the child's and mother's bodies are positioned as objects of normalization, while families are directed to be subjects of obedience to state health policies (Adriany & Tesar, 2023a). However, power does not work in a top-down manner, but operates through a network of social relations that opens up space for resistance, negotiation, and adaptation. Studies in Nias, for example, show that the church is an important actor bridging medical knowledge with local religious values thereby increasing the acceptance of interventions (Meher et al., 2023a). This is in line with the view that power is always productive, giving birth not only to obedience but also to the possibility of hybridization of knowledge (Meher et al., 2023a; Meher & Zaluchu, 2025). Thus, stunting intervention is a power-knowledge arena that is not only medical but also political, social, and cultural.

The postcolonial perspective reinforces this analysis by showing that the marginalization of local knowledge in health interventions is a colonial legacy that continues in modern policy structures (Tesar & Pangastuti, 2024; Tomori & Palmquist, 2022). The global discourse on stunting tends to place international indicators and standards as the sole truth, while community practices are only positioned as targets for change (Ruano, 2021). In the Indonesian context, the use of program convergence language in health policy can be read as a form of population governance similar to the colonial practice of the VOC which used the language of freedom and order to control society (Tomori & Palmquist, 2022). In these situations, local knowledge is often only instrumentally utilized, without being recognized as a legitimate epistemic source. Therefore, it is important to place the hybridization of medical and local knowledge not only as a technical strategy, but also as an effort to decolonize public health knowledge.

In terms of research, there are gap obvious. The literature on stunting has largely addressed nutritional determinants, economic factors, or parenting practices, but there are few studies that examine how power relations between medical and local knowledge work in interventions, particularly through biopolitical and postcolonial frameworks (Adriany & Tesar, 2023a; Laksono et al., 2024). Studies of local practices do exist, but they are often treated as a inhibiting factor rather than a source of legitimacy (Astuti et al., 2024a; Honkavuo, 2021a). Similarly, biopolitical and postcolonial studies in the context of child health are still rarely used systematically to analyze stunting. Thus, there has been no research that has specifically integrated the two theoretical frameworks through narrative literature reviews to build a hybrid intervention model.

This research offers novelty by presenting a conceptual model of hybridization of local and medical knowledge as a more ethical, adaptive, and sustainable stunting intervention strategy. The novelty of this research lies in the simultaneous use of Michel Foucault's biopolitical and postcolonial perspectives in analyzing the literature on

stunting interventions. While most studies only emphasize aspects of nutrition or medical practice, this study reveals that the body of mother and child is not only governed by medical protocols, but also becomes an arena of cultural negotiation fraught with colonial and epistemic power relations (Adriany & Tesar, 2023a; Putri et al., 2025; Tesar & Pangastuti, 2024). In this way, the research contributes to the expansion of biopolitical and postcolonial theories in the field of child health while strengthening the concept of epistemic justice in public health policy.

In the framework state of the art, this research occupies a unique position among the existing literature. Global health studies that emphasize medical and nutrition (Bhutta et al., 2020; Has et al., 2024), an anthropological study that focuses on local practices (Astuti et al., 2024a; Honkavuo, 2021a; Putri et al., 2025), while a policy study that addresses the failure of government programs (Hadna et al., 2022a; Walls et al., 2021). On the other hand, biopolitics-based and postcolonial research has not been explicitly applied to produce a conceptual model of hybrid interventions (Adriany & Tesar, 2023a; Perkins, 2022; Tesar & Pangastuti, 2024; Tomori & Palmquist, 2022). By bringing together all these findings in the narrative framework of the literature review, this study provides a new synthesis that positions the hybridization of local and medical knowledge as an epistemic transformation strategy as well as public policy.

Thus, the objectives of this study are: first, to analyze how medical and local knowledge is produced, negotiated, and practiced in stunting interventions; second, explaining how health biopolitics works through medical standards and how communities respond; and third, exploring the extent to which postcolonial perspectives can explain marginalization while opening up space for knowledge hybridization. This research's contribution not only expands the academic understanding of stunting as a multidimensional issue, but also offers a practical framework for health policies that are more inclusive, culturally sensitive, and epistemically justice-oriented. With this focus, the research is expected to make a significant contribution to the development of health sociology, nutritional anthropology, and critical social theory, as well as pave the way for more sustainable stunting interventions.

## RESEARCH METHOD

This study applied a *narrative literature review* to identify and synthesize research on stunting interventions within biopolitical and postcolonial frameworks. Articles were retrieved from major academic databases such as Scopus, Web of Science, and ProQuest using the keywords "stunting," "local knowledge," "biopolitics," "postcolonial," and "hybridization." Inclusion criteria covered empirical and conceptual studies on stunting or maternal and child health interventions that discussed the relationship between medical and local knowledge, published between 2019 and 2024 in English or Indonesian. Studies focusing solely on technical nutrition aspects without social dimensions, as well as grey literature, were excluded. A total of 25 articles met the criteria and were analyzed thematically to identify core patterns related to cultural,

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medical, and policy factors, as well as the dynamics of local-medical knowledge, biopolitics, and postcolonial perspectives.

## **FINDINGS/ SYNTHESIS OF LITERATURE**

### **Synthesis of Cultural Factors**

Cultural factors emerge as key variables that determine how stunting is understood, responded to, and negotiated in the daily lives of families and communities. Studies in the Baduy indigenous community confirm that stunting is often perceived as a genetic problem rather than a result of malnutrition, so modern medical interventions have the potential to be rejected when they are considered to interfere with the integrity of traditional values and order (Putri et al., 2025). Similar findings are present in ethnography in Zambia that show that the practice of pregnancy and childbirth is deeply rooted in traditions and cultural actors such as birth control shamans, while the modern medical system is seen as less sensitive to local social contexts (Honkavuo, 2021b). In the context of Central Java, food taboos, prelacteal practices, short birth intervals, and the absence of exclusive breastfeeding show how cultural norms in households are intertwined with nutritional behaviors and children's health outcomes (Astuti et al., 2024b). The literature from India adds a dimension to the loss of traditional methods amid limited access to modern medical services, thus reinforcing the argument that local-medical tensions are not simple dichotomy, but rather a dilemma of access, trust, and acceptance (Negi & Abdul Azeez, 2022). At the same time, the biocultural heritage of indigenous communities in different parts of the world demonstrates the adaptive capacity and sustainability of local food systems that have high nutritional value, but are vulnerable to being pushed to the periphery by Western epistemology and agricultural modernization (Swiderska et al., 2022). If this cultural dimension is ignored, stunting interventions are likely to experience resistance, miscommunication, or partial adaptation that is not sustainable, because it does not negotiate local meanings about the body, health, and food. Therefore, the literature emphasizes the urgency of reading stunting as a phenomenon embedded in the life world of the community, where identity, rites, gender relations, and the authority of knowledge mutually determine acceptance of formal medical practice (Honkavuo, 2021b). Overall, cultural factors change direction from education to knowledge co-production in which local actors appear not just objects, but subjects who assess, filter, and modify nutritional messages according to their meaning horizons (Honkavuo, 2021b; Putri et al., 2025).

### **Synthesis of Medical Factors and Policy**

In the medical and policy realms, the literature describes two major trends: strengthening maternal capacity through education and expanded health services, and the use of incentive-based policy instruments to change behavior. The UNICEF-inspired maternal empowerment model places mothers at the center of change, emphasizing

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nutritional literacy, access to services, and caregiving capabilities as pillars of stunting prevention (Has et al., 2024). However, evaluations of conditional cash assistance programs show that economic interventions alone are not enough, because without behavioral support, adequate health services, and culturally sensitive cross-sectoral strategies, the impact on stunting reduction is likely to be minimal (Hadna et al., 2022b). The results of the national survey show that even families with relatively good economic resources are still stunted, so factors such as early breastfeeding initiation, education and maternal age, child gender, and geographical conditions explain more variations in nutritional status than economic support alone (Laksono et al., 2024). Furthermore, a multilevel analysis of the determinants of stunting confirms that the dimensions of households and communities cannot be separated from the broader structure of services and social environments, challenging policy approaches that place too much emphasis on one lever of intervention (Mulyaningsih et al., 2021). From the biomedical side, the discussion on *Environmental Enteric Dysfunction* (EED) provides a physiological explanation of how environmental conditions and subclinical infections affect nutrient uptake, but at the same time reminds that solutions do not stop at supplementation interventions or sanitation improvements without reaching out to behaviors and cultures (Mohseni et al., 2019). At the cross-country policy scale, lessons learned from exemplary countries show success when interventions are multisectoral and consistent, but implementation still requires adaptation to variations in social and cultural contexts (Bhutta et al., 2020). Thus, an effective policy architecture must balance medical-biological rationality with social arrangements that enable families and communities to meaningfully and sustainably change practices (Hadna et al., 2022b; Has et al., 2024). The important implication is to shift the focus from "solution package transfer" to "ecological orchestration of interventions" that considers service structures, cultural norms, and policy incentives in an integrated manner (Laksono et al., 2024; Mulyaningsih et al., 2021).

### **Synthesis of Biopolitical and Postcolonial Dimensions**

A number of works in this collection read stunting through a biopolitical and postcolonial lens, highlighting how the maternal and child bodies are constructed as objects of management, measurement, and normalization. An analysis of Foucauldian discourse in Indonesia shows how educational policies and practices embody knowledge-power regimes that produce obedient bodies through categorization, indicator targets, and habituation of practices that are considered healthy, but often eliminate structural determinants that are not covered by the measurement matrix (Adriany & Tesar, 2023b). In early childhood education, the colonial residue appears to be the dominance of Western models that shift local values and the experience of Indonesian children, thus showing that the standardization of pedagogy and health often implies an epistemic hierarchy of colonial heritage (Tesar & Pangastuti, 2024). At the theoretical level, biopolitics describes modern procedures for regulating life and risk so that populations can be managed through health procedures, surveillance, and

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calculation, which are relevant to understanding the rationality of contemporary stunting interventions (Zimmer, 2025). The political dimension of nutrition shows how networks of international actors, industry, and governments influence health agendas, instruments, and narratives, so that nutrition policy is never neutral from power relations (Walls et al., 2021). Historical perspectives on freedom and governance in the VOC region provide context for how the narrative of governance contains colonial legitimacy that shapes the practice of regulating life, a pattern that can continue in the way the modern state organizes public health (Tomori & Palmquist, 2022). In the context of Africa and the rest of the Global South, the colonial footprint of health governance and community participation shows how health projects can reproduce inequalities if standards and procedures are not negotiated with local knowledge, so that the politics of body management becomes a site of legitimacy competition (Ruano, 2021). In Indonesia, the use of incentive and surveillance instruments through nutrition indicators and program compliance shows a *Governmentality* that manages populations through a combination of education, measurement, and incentive sanctions, which at the same time demand that critics not narrow the problem to the individual without structurally defining the determinants (Hadna et al., 2022b). Thus, a biopolitical-postcolonial lens helps to read stunting interventions as life-setting practices that require epistemic correction so as not to get caught up in a hierarchy of knowledge and technocratic rationality that ignores local experiences (Adriany & Tesar, 2025b; Tesar & Pangastuti, 2024).

### **Synthesis of Family Factors**

The family emerged as a major arena in which cultural norms, policy demands, and medical practices were negotiated in daily life. Quantitative evidence shows that factors of maternal age and education, employment, and breastfeeding practices are strongly associated with stunting even in affluent households, thus showing that parenting and nutrition decisions are not determined by a single economic variable alone (Laksono et al., 2024). Multilevel analysis confirms that households operate in a broader social ecology, where community and health service factors strengthen or weaken the family's capacity to carry out recommended nutritional practices (Mulyaningsih et al., 2021). At the same time, domestic norms such as dietary taboos, prelacteal feeding, and birth spacing mark how family authority, traditions, and gender relations affect children's nutritional outcomes (Astuti et al., 2024b). The maternal empowerment model positions the family as the locus of intervention, but its effectiveness depends on the matching of messages with respected values in the household as well as environmental support that makes it possible for ideal practices to be realistically adopted (Has et al., 2024). The intersection between family values and medical advice is also evident in Indian studies that show a decline in the quality of traditional methods in the absence of adequate access to modern services, leaving households stuck in a difficult choice

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between old practices that lose legitimacy and new services that are expensive or distant (Negi & Abdul Azeez, 2022). The experiences of Zambian women underscore the role of extended families and cultural actors in pregnancy and childbirth decisions, which teach lessons that behavioural change strategies need to include informal decision-makers at the household level (Honkavuo, 2021b). In the context of exemplary countries, successful sustainable stunting reduction occurs when policies strengthen the supportive environment of families through affordable primary services, consistent counseling, and context-sensitive integrated nutrition programs (Bhutta et al., 2020). Therefore, this synthesis of literature places the family as the center of gravity of intervention, a place where medical rationality meets cultural habitus to jointly determine the nutritional outcomes of children (Astuti et al., 2024b; Laksono et al., 2024).

### **Synthesis of Global Dimensions**

The global dimension in this literature shows how food politics, nutrition knowledge, and public health regimes cross national boundaries and shape local practices. Nutrition politics analysis shows that international power structures influence agenda-setting, program design, and evaluation standards, so it is not uncommon for industry and donor preferences to stand out in the policy landscape (Walls et al., 2021). At the same time, the biocultural heritage of indigenous communities in different parts of the world attests to the existence of reservoirs of knowledge and practices that are adaptive, sustainable, and nutritious, but become fragile when global policies do not provide epistemic recognition and institutional support (Swiderska et al., 2022). In the biomedical space, the concept of EED is becoming a global reference to explain the biological mechanisms of stunting that are related to the environment, but debates about social and cultural determinants remind us that science needs to go hand in hand with realistic strategies for changing the context of life (Mohseni et al., 2019). Theoretical work on biopolitics broadens horizons by showing how the regulation of life and risk on a planetary scale including pandemics and climate change shapes policy frameworks and emergency language that then flow into local health practices (Zimmer, 2025). In Indonesia, the postcoloniality of early childhood education illustrates how global standards can shift the horizon of local values, so that it seriously requires reconceptualization so that health curriculum and practices do not become channels of epistemic domination (Tesar & Pangastuti, 2024). Cross-border learnings show that successful stunting reduction occurs when countries take advantage of global opportunities (funding, knowledge) but still tie them to local strategies that engage communities and ecosystems of primary services (Bhutta et al., 2020). Thus, the global dimension should not be read as a mere threat, but as a structure of opportunities that demands political literacy so that international resources can be combined with local knowledge equally (Swiderska et al., 2022). The essence of his criticism is to reject one world, one recipe, and replace it with a plurality of paths that learn from each other, share evidence, and respect epistemic differences (Swiderska et al., 2022; Walls et al.,

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2021). Within this framework, stunting is the gateway to rethink food-health governance that is fair, inclusive, and resilient to global shocks (Mohseni et al., 2019; Zimmer, 2025).

### **Synthesis of Local and Medical Knowledge Relations**

The relationship between local knowledge and medical knowledge appears as a field for negotiation, friction, and hybridization opportunities. Policy analysis in Indonesia shows that uniform and bureaucratic national approaches often fail to address the diversity of contexts, reducing the effectiveness of interventions and widening the gap with local practices (Meher et al., 2023b; Meher & Zaluchu, 2025). In situations like this, local actors who have cultural authority can act as a bridge, such as a study in Nias that shows local churches as an effective channel for stunting education and the formation of citizens' trust in health services (Meher et al., 2023b). The literature also highlights the importance of recognizing indigenous communities' biocultural heritage and food systems as a source of legitimacy of knowledge and practice that can be combined with medical standards, rather than simply positioned as barriers (Swiderska et al., 2022). Conversely, when modernization takes place without recognition of local knowledge and access to quality services remains low, communities risk a "double vacuum", i.e. despite the cultural capital that once underpinned food security, but has not yet fully benefited from the modern medical system (Negi & Abdul Azeez, 2022). From the perspective of maternity services, hybridization can take place at a community-recognized level of values and morals, so that the legitimacy of services rests on the coherence between local norms and clinical procedures, rather than on the supremacy of one over the other (Perkins, 2022). On the other hand, two policy studies highlighting local approaches emphasize that successful integration requires cross-level coordination, so that community innovation does not stop at a small scale and is cut off from structural support (Meher et al., 2023b). Thus, a productive local-medical knowledge relationship requires an intervention design that recognizes bargaining positions, legitimacy language, and respected networks of actors, so that medical knowledge does not exist as an instrument of coercion, but rather as a co-production product (Meher & Zaluchu, 2025; Swiderska et al., 2022). The key to its synthesis is to move from education to epistemic dialogue that makes room for local definitions of healthy, growing, and eating well (Swiderska et al., 2022). When these dialogues are well curated, medical interventions gain a strong social foothold while suppressing cultural resistance that previously blocked behavioral change (Negi & Abdul Azeez, 2022; Perkins, 2022).

### **Synthesis of Local Adaptation Mechanisms**

Local adaptation mechanisms affirm that communities are not passive to intervention, but rather select, negotiate, and transform according to their values and conditions. The study in Nias shows how the local church plays a role as a social trust enforcer needed

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for nutritional messages to be received, so that medical language gains legitimacy through respected cultural channels and symbols (Meher et al., 2025a). Two policy studies added that effective local adaptation requires structural support, so that community innovation is not cut off from financing, training, and referral systems, without which good practices are difficult to grow and survive (Meher & Zaluchu, 2025). In the context of indigenous foods, adaptation mechanisms are seen in efforts to care for local varieties, processing techniques that maintain nutritional value, and solidarity networks that sustain the resilience of vulnerable families, while negotiating with markets and policies (Swiderska et al., 2022). At the household level, daily adaptation to medical advice takes place through a compromise between domestic norms, economic affordability, and access to services, as seen in the adjustment of breastfeeding practices, the introduction of MP-ASI, and the management of birth distances (Astuti et al., 2024b). Maternity services that successfully cultivate social legitimacy tend to combine clinical practices with recognition of local values and community morals, so that patients do not feel patronized or deprived of their identity (Perkins, 2022). In indigenous communities that view stunting as a genetic factor, a possible form of adaptation is to design educational materials that connect biological reason with local cosmology, rather than frontally negates those beliefs (Putri et al., 2025). The experiences of women and extended families in Zambia remind us that informal decision-makers parents, in-laws, birth attendants need to be involved from the beginning of intervention design, as they are the nodes of translating messages into real practice (Honkavuo, 2021b). At the theoretical-practice level, sustainable local adaptation requires a shift from top-down education to the co-production of knowledge and care, linking clinical standards with local meanings about the body, relationships, and food (Swiderska et al., 2022). Thus, the mechanism of local adaptation is not simply the "acceptance" of interventions, but rather a creative process that produces hybrid forms, in which medical knowledge belongs to the community through symbolic, institutional, and material negotiations. (Meher et al., 2023b; Meher & Zaluchu, 2025). The end result is an intervention that is not only technically effective, but also socially legitimate, because it is rooted in a shared understanding of what it is to grow healthy and how to achieve it in a changing world (Astuti et al., 2024b; Perkins, 2022).

The results of the synthesis show that medical knowledge dominates stunting interventions through health protocols, indicators, and standards, as shown by various studies in Indonesia and other countries (Adriany & Tesar, 2023b; Bhutta et al., 2020; Has et al., 2024). However, this dominance does not always result in program effectiveness. For example, the Baduy indigenous people reject medical programs because stunting is perceived as a genetic factor, not nutrition (Putri et al., 2025). This indicates the existence of *epistemic tension* between medical standards and local truth regimes. Similar tensions arise in Zambia, India, and Karanganyar, where food taboos, prelacteal practices, and traditional rituals shape maternal and child health practices (Astuti et al., 2024b; Honkavuo, 2021b). This is where it is seen that although medical

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knowledge seeks to regulate the body through indicators, public acceptance is highly dependent on cultural legitimacy.

Foucault's biopolitical framework helps explain the mechanism. Through surveillance, normalization, and body regulation, stunting interventions operate as a form of population regulation (Perkins, 2022; Zimmer, 2025). However, the literature also shows that power is not absolute. Local communities are resisting and negotiating, for example through the role of the church in Nias which bridges medical knowledge with spiritual value (Meher et al., 2023b). Thus, biopolitics not only gives rise to obedience, but also opens up space for local resistance and adaptation. This is where the potential for hybridization is seen: when local institutions are involved, interventions become more sustainable.

From a postcolonial perspective, the marginalization of local knowledge in stunting interventions is not just a policy consequence, but a reflection of colonial legacies that put Western epistemology in a dominant position (Ruano, 2021; Tesar & Pangastuti, 2024; Tomori & Palmquist, 2022). For example, the concept of convergence of nutrition programs in Indonesia is still heavily influenced by the global logic of indicators, not by the logic of local communities. Thus, the hybridization of local and medical knowledge serves not only as a technical strategy, but also as an effort to decolonize knowledge.

The analysis of the family as a power-knowledge arena shows that maternal education factors, breastfeeding practices, and gender relations play a large role in determining the success of interventions (Astuti et al., 2024b; Laksono et al., 2024). However, families are not just recipients of interventions, but active actors who reinterpret medical protocols in daily practice. When medical knowledge is not contextual, the family prefers the traditional path, but when integration occurs, the family becomes an agent of transformation.

Ultimately, the scientific discourse relating to environmental enteric dysfunction emphasizes the critical significance of sanitation and hygiene as important biological determinants. Nonetheless, this revelation simultaneously illuminates the inherent constraints of medical reductionism, where causal factors lack social legitimacy and sanitation protocols are often ignored. As a result, the incorporation of medical understanding with related local practices can represent the most ethical, adaptive, and sustainable approach (Mohseni et al., 2019).

### **Synthesis of Public Policy Factors**

Public policy on the issue of stunting shows the tension between the need for standardization and the demand for contextual differentiation. Studies on conditional cash assistance in Indonesia show that incentive-based interventions do not necessarily change parenting and nutrition practices, especially when transaction costs are high and service support is inadequate, so the impact on stunting reduction is limited (Hadna et al., 2022b). Nutrition politics analysis asserts that policy is often shaped by economic interests and the power of global actors, so that the technical narrative masks the battle of values and priorities that determine the allocation of resources (Walls et al., 2021). At

the implementation level, a uniform and bureaucratic approach is often incompatible with the diversity of social practices and food ecology in the regions, making it difficult for local innovation to grow or strengthen legitimacy in the eyes of citizens (Meher et al., 2023b). The historical perspective on governance in the VOC era provides an overview of how the language of freedom and order was used to organize the population, an important lesson to test the language of contemporary nutritional order so as not to repeat hierarchical relations (Tomori & Palmquist, 2022). Lessons from exemplary countries show that cross-sectoral integration and funding sustainability are prerequisites, but milestones are achieved when policies empower and resources for local adaptation and community networks (Bhutta et al., 2020). Thus, effective policies not only design targets and indicators, but also reorganize the social support architecture so that families and communities are able to practice recommendations without excessive burden. In this context, public policy should facilitate the co-production of knowledge between health workers and local actors, so that clinical standards translate into practices that can be implemented in complex social realities (Meher et al., 2023b). Finally, policy evaluation needs to move beyond single outcomes toward measures of processes that capture social legitimacy, access equity, and community adaptability, so as not to rule out hybrid pathways that differ from standard prescriptions (Hadna et al., 2022b). Such a framework resists the tendency to technocratize and opens up space for evidence-based innovation rooted in citizen experience (Walls et al., 2021).

## RESULTS AND DISCUSSION

### **Production, negotiation, and practice of medical knowledge vs. local knowledge and the influence of epistemic tensions on program effectiveness**

The synthesis findings suggest that medical knowledge and local knowledge are produced through different legitimacy regimes, and the epistemic tension between the two greatly influences the effectiveness of stunting interventions. In the Foucauldian framework, medical knowledge does not exist as a "neutral truth," but rather as an inherent effect of power relations on institutions, protocols, and indicators that standardize the definitions of healthy-sick, normal-abnormal, and flourishing (Adriany & Tesar, 2023a). This is where the process of knowledge production occurs through the normalization and classification of the child and maternal bodies, which is then reinforced by indicator-based measurement, reporting, and evaluation practices calibrated in policies (Hadna et al., 2022b; Walls et al., 2021). In contrast, local knowledge relies on communal memory, customary authority, religious authority, and daily practices, as seen in the Baduy community who interpret stunting as a genetic factor an epistemology consistent with local cosmology and human-environmental relations (Putri et al., 2025). When medical knowledge enters without a medium of local legitimacy, resistance, misperception, or simply pseudo-compliance arises that do not change domestic practices, as shown in an ethnographic study of pregnancy/childbirth

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in Zambia where traditional actors (childbirth shamans/extended families) hold the authority of health decisions (Honkavuo, 2021b).

Epistemic negotiation occurs when local institutions act as a bridge for the legitimacy of medical knowledge, for example the role of the local church in Nias in strengthening the acceptance of nutritional interventions through symbolic language and community trust networks (Meher & Zaluchu, 2023). At this point, we see how Foucauldian power/knowledge does not close the space of agency; rather, power is dispersed and negotiated through plural actors, spaces, and practices, so that the co-production of knowledge becomes possible when medical language is translated with local "grammar" (Adriany & Tesar, 2023a; Meher et al., 2023a). At the household level, food and childcare decisions are shaped by gender relations, food taboos, prelacteal practices, birth spacing, and family infrastructural experiences with health services; These factors are intertwined and produce nutritional outcomes that cannot be reduced to one determinant (Abreha et al., 2020; Astuti et al., 2024b; Laksono et al., 2024). Epistemic tensions become evident when medical standards call for changes in eating/breastfeeding habits but infrastructure, transactional costs, and domestic norms are not supportive, so that programs appear "effective" in compliance indicators but weak in meaningful practice changes (Hadna et al., 2022b; Has et al., 2024).

The effectiveness of the program is greatly influenced by the ability of the intervention to read the epistemic power field. The policy literature shows that programs that rely solely on conditional money transfers or one-way education are often insufficient, as they do not touch the legitimacy nodes of knowledge at the family-community level (Hadna et al., 2022b; Meher & Zaluchu, 2023). From a Foucauldian horizon, this failure can be understood as a mismatch between the desired normalization regime and the local knowledge habitus that historically-locally forms its own "truth regime" (Adriany & Tesar, 2023a). On the other hand, the literature on indigenous food systems and biocultural heritage suggests that when local knowledge is recognized and integrated for example through recipes, food varieties, and care rites, hybrid spaces will emerge that strengthen the nutritional resilience of vulnerable families (Swiderska et al., 2022). Thus, the production, negotiation, and practice of knowledge are always in the orbit of power, and the effectiveness of the program increases when medical knowledge is presented not as a coercive discipline, but as a result of co-production that gains legitimacy from local institutions and languages (Astuti et al., 2024b; Meher & Zaluchu, 2023).

### **How health biopolitics works through standards, indicators, protocols and community responses (negotiation/resistance)**

In a Foucauldian framework, health biopolitics works through techniques that govern life at the population level, directing the body's practices through normalizations, protocols, and indicators that create a horizon of "right" behavior (Adriany & Tesar, 2023a). The findings of the synthesis show that anthropometric standards, program

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convergence indicators, and intervention protocols become key tools to make the maternal and child bodies measurable, comparable, and directable; in other words, biopolitics is present as an administrative technology of daily life (Hadna et al., 2022b; Walls et al., 2021). These standards regulate the flow of resources (e.g. CCT requirements), construct risk profiles, and normalize dieting/breastfeeding through education, counseling, and surveillance, so that families are invited to become compliant subjects (Mulyaningsih et al., 2021; Swiderska et al., 2022).

However, the community's response is not single: there is compliance, adaptation, negotiation, and even resistance. In affluent families who continue to experience stunting, it appears that formal adherence to services does not automatically lead to the internalization of ideal practices, as domestic decisions are influenced by the complex link between norms, access to services, and the burden of care (Laksono et al., 2024). In communities with strong cultural authority, biopolitics meets with moral-local regimes so that health protocols are negotiated through values and symbols that are legitimate for the community, as seen in the role of the church in Nias that mediates medical language (Meher & Zaluchu, 2023). Zambian ethnographic studies also show that the authority of the child/extended family shaman can "filter" protocols into practices that are considered to be in harmony with tradition, so that the country's biopolitical technology meets the moral technology of the community (Honkavuo, 2021b).

On the biomedical side, the concept of *environmental enteric dysfunction* (EED) shows how the child's body is organized through scientific rationality that links the environment, subclinical infections, and nutrient absorption; this reinforces the claim that interventions should rely on sanitation, hygiene, and nutritious food (Mohseni et al., 2019). However, these findings do not negate the Foucauldian critique, as the technologization of the body through EED still requires social translation so that it does not stop as a normalization project that ignores eating habits and domestic power relations (Adriany & Tesar, 2023a; Astuti et al., 2024b). At the governance level, CCT exhibits a *governmentality* that seeks to modulate behavior through incentives; its effectiveness is limited when indicators and fulfillment conditions are insensitive to the social ecology of the family (Hadna et al., 2022b). The nutrition policy literature emphasizes that indicators are not just a neutral measuring tool, but also a powerful tool that determines what is seen, calculated, and funded (Walls et al., 2021).

Community resistance does not always appear as frontal rejection; often it presents as "incomplete compliance," delay, or a change in the form of practice that leaves local agency space under the hegemony of indicators (Meher & Zaluchu, 2023). When maternity services knit local moral values with clinical procedures instead of imposing a form of discipline, then biopolitics meets community-recognized care ethics, and the results tend to be more sustainable (Perkins, 2022). Thus, health biopolitics works through standards, indicators, and protocols as a power technology, but it always "encounters" local knowledge regimes that negotiate, modulate, or divert normalization projects, resulting in diverse trajectories of impacts that cannot be understood from

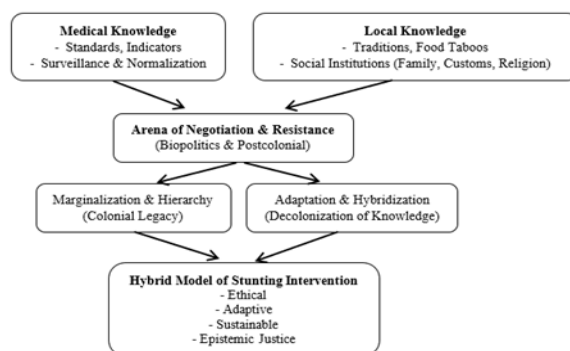
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compliance figures alone (Adriany & Tesar, 2023a; Hadna et al., 2022b; Perkins, 2022; Walls et al., 2021).

### **Postcolonial explanations of marginalization and potential hybridization of local knowledge, as well as the transformation of synthesis into ethical, adaptive, sustainable models of intervention**

Postcolonial perspectives in these literatures help explain why local knowledge is often marginalized: pedagogical and health standards derived from Western models tend to position local practices as "less scientific" or "traditional," so that epistemic authority is unequal from the start (Tesar & Pangastuti, 2024). In Foucauldian language, this is a question of the regime of truth: who can speak, in what language, and by which institutions; as a result, interventions tend to present as one-sided normalization projects that produce compliant subjects, rather than equal partners (Adriany & Tesar, 2023a). This historical dimension is also evident in community governance and participation in Africa, where colonial legacies shape the way health policy interprets participation, often as procedural engagement, rather than as a redistribution of knowledge authority (Ruano, 2021). A longer historical perspective on governance in the VOC region reinforces the understanding that the language of freedom/order is often intertwined with population regulation; This lesson is relevant to assess the language of "convergence" and "consistency of indicators" today so as not to replicate epistemic hierarchies (Tomori & Palmquist, 2022).

However, synthesis shows a lot of hybridization potential. Biocultural heritage and indigenous food systems provide a material-symbolic basis for intervention co-production: local varieties, processing techniques, and eating rites can be coupled with medical guidance to create new socially valid practices while meeting nutritional standards (Swiderska et al., 2022). The Nias study shows that religious institutions are able to translate medical language into local symbols and ethos, restoring trust and strengthening the acceptance of interventions (Meher & Zaluchu, 2023). Policy analysis confirms that local good practices will only survive if supported by a structural network of funding, training, and referrals so that they do not stop as sporadic innovations (Meher et al., 2023b). From this, the above description leads to a hybrid model design: first, recognizing local knowledge as a source of legitimacy (not just a means of risk communication); second, placing trust-building institutions (customs, religions, women's networks) as co-architects, not implementers; third, orchestrating biomedical technologies including EED treatment, primary services, and maternal education into a realistic social ecology (Bhutta et al., 2020; Mohseni et al., 2019; Swiderska et al., 2022). In this model, normalization is not abolished, but transformed into norm negotiation; indicators are still used, but equipped with process indicators that record social legitimacy, family agency, and community knowledge bridges (Meher & Zaluchu, 2023; Walls et al., 2021). Thus, postcolonial hybridization is not a minimal compromise, but rather an ethical design that restores epistemic equality while maintaining public health accountability (Adriany & Tesar, 2023a; Tesar & Pangastuti, 2024).



**Figure 1.** Conceptual Model of Hybridization of Local and Medical Knowledge in Stunting Intervention

The hybridization model of local and medical knowledge in stunting intervention shows that the problem of stunting cannot be understood solely as a nutrition issue, but as an arena for power-knowledge interaction. Medical knowledge is present through standards, indicators, and health protocols that normalize the body of the child and mother, and works through surveillance and recording. However, local knowledge also plays an important role through traditions, food taboos, parenting practices, and spiritual values that are institutionalized in families, traditional leaders, and religious leaders. The meeting between these two knowledges is not always harmonious, as it often leads to negotiation and resistance. From a biopolitical perspective, the maternal and child bodies become objects of medical normalization, while the postcolonial perspective reveals how local knowledge is often marginalized as a colonial legacy. Such negotiations can lead to two paths: marginalization, when medicine dominates and ignores local practice, or hybridization, when the two adapt to produce new forms of intervention. This hybridization opens up opportunities for the creation of more acceptable interventions, as it not only emphasizes medical effectiveness but also recognizes local values. Thus, this model offers an approach to stunting intervention that is ethical, adaptive to the cultural context, sustainable because it is supported by the community, as well as epistemically fair as a strategy for decolonizing public health knowledge.

## CONCLUSION AND IMPLICATION

### Conclusion

This study confirms that stunting interventions are multidimensional, involving power relations between medical and local knowledge. The dominance of medical standards is often limited in effectiveness if it is independent of cultural context, while local practices dictate the acceptance of interventions. The hybridization of both opens up space for more ethical, adaptive, and sustainable interventions. Theoretically, this study expands on Foucault's biopolitical framework and postcolonial perspective to highlight the marginalization of local knowledge while placing hybridization as a strategy for

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decolonizing public health. Empirically, the research maps the role of families, communities, and policies in shaping intervention practices, and emphasizes the importance of integrating local knowledge. Its practical contribution is in the form of a hybridization model as the basis for inclusive policies, with limitations in the amount of literature and the absence of field data. However, this research makes a significant contribution and paves the way for empirical tests of hybridization models in the global context.

### **Research contribution to the field of science**

Theoretically, this study enriches the Foucauldian reading by showing that power/knowledge operates not only in medical institutions, but also through local institutions that give legitimacy, so that biopolitics can be read as a network of negotiated power. Its important contribution lies in the integration of biopolitical and postcolonial analytics to explain how medical standards function as a tool of normalization while simultaneously requiring local legitimacy, as well as how co-production enables ethical transformation. Empirically, this study highlights the role of families and communities through maternal education, breastfeeding practices, food taboos, and access to services as negotiating nodes that explain the success of programs numerically but often fragile in practice. On the policy side, this research drives a shift from a single intervention package to an ecological orchestration of interventions that connects biomedicine, social support, and local authorities. Its practical significance is the offer of a hybrid model that makes local knowledge part of the solution, through bridge institutions, local cosmology-based education, indicators of social legitimacy, as well as structural support of primary services. Thus, this work strengthens the bridge between power/knowledge theory and context-sensitive policy, while advancing the study of stunting as a socio-political problem that demands epistemic justice, not just a technical problem of nutrition

### **Practical implications**

Theoretically, this study extends the application of Foucauldian from the macro level to domestic practice, showing how *governmentality* resonates in households and communities. Biopolitics is combined with postcoloniality to uncover the epistemic hierarchy that distinguishes the "expert" and the "layman," and affirms that indicators are not only a measuring tool, but also a tool of power and learning; Therefore, process indicators such as social legitimacy, local partnerships, and family agency need to be aligned with outcome indicators. Methodologically, this study encourages a study design that combines discourse analysis, ethnography, and policy evaluation to explore standard practices and negotiations. Program evaluations need to understand compliance as a negotiation process through process indicators, case studies, and community network tracking. In terms of policies and practices, interventions should be designed based on bridge institutions (churches/customs), supported by funding,

training, and referrals so that local innovation is sustainable. The priority biomedical component needs to be integrated in a realistic social orchestration, with measures of social legitimacy and family agency as performance indicators. Finally, postcolonial learning needs to be used to reorganize the counseling curriculum and educational materials, so that the language of public health functions as an ecology of dialogue, not a means of domination.

## RECOMMENDATION

Future research needs to deepen ethnographic studies to explore how medical standards are internalized and negotiated in everyday parenting practices, in order to capture power dynamics at the micro level that are missing national surveys. It is also important to develop process indicators that assess social legitimacy and cultural acceptance, as well as to integrate quantitative and qualitative methods so that program evaluation is more comprehensive. From a theoretical perspective, the relationship between biopolitics and postcoloniality needs to be explored further in the context of global health. Finally, research should be directed at designing hybrid models that are adaptive, ethical, and sustainable, and can be tested across contexts.

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