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Neglected Water, Sanitation and Hygiene Aspects in Preventing Childhood Stunting

Ni Made Utami Dwipayanti¹, Sang Gede Purnama¹

¹Department of Public Health and Preventive Medicine,
Faculty of Medicine, Udayana University

*Correspondence:

Approximately 165 million (25,7%) children globally experience chronic malnutrition or stunting.¹ In Indonesia, 29.6% of children under five are recorded as short and very short.² The stunting prevention framework underlines that stunting prevention needs to be carried out with a comprehensive approach targeting specific nutritional factors such as the adolescents' and young couples' health, pregnancy supplements, exclusive breastfeeding, child feeding, as well as sensitive nutritional factors such as food security, mental health during pregnancy, women empowerment, access to clean water and sanitation, and family health services.¹

Stunting or under-height children within the same age group is possible a late symptom of prolonged exposure to pathogens and infections that lead to 'nutritional enteric failure'.³ The failure of various interventions in improving children's growth is often caused by a lack of attention to influence of enteric nutrition disorders, which occurs through interconnected pathways: dietary insufficiency, enteropathy, microbiome dysbiosis, and systemic inflammation.³ One of the causes of environmental enteropathy is repeated exposure to pathogens contamination in the living environment, which is closely related to access to clean water, sanitation, and hygiene behavior (WASH).^{4,5}

Experts recommend that WASH programs should be comprehensive and adapted to the exposure situation and local enteric disease burden.¹⁷ However, the WASH and nutrition interventions implemented are often not fully integrated to address these factors comprehensively. For example, factors related to the personal hygiene of caregivers, mainly when preparing infant food, the water quality, and the hygienic condition of sanitary facilities, are found to significantly influence stunting and diarrhoea in Bali.^{20,21} However, the current implementation of the Community-Based Total Sanitation (STBM) program in Indonesia still prioritizes access to toilets over the following pillars related to personal hygiene and household access to safe water and food. Access to toilets also often does not guarantee the hygiene of facilities or safe disposal practices for toddlers in the household and thus does not break the chain of faecal pathogen contamination in the environment. WASH program in other countries is also reported to rarely focus on infant food hygiene, and hygiene of children's playgrounds from poultry manure and soil.²²

These aspects of personal hygiene, food hygiene, and environmental hygiene are also rarely integrated with nutrition-specific interventions, which focus more on dietary patterns and supplementation. The complex problem of stunting requires comprehensive solutions, including integrating different aspects of specific and sensitive nutrition into existing programs. For example, specific nutrition interventions should also provide a complete package of information regarding the impact of sensitive nutritional factors appropriate to local conditions. Information related to the influence of personal hygiene, food hygiene, and environmental hygiene on children's growth, for example, is also communicated by midwives, nurses, and

cadres (not only by sanitarians) in Posyandu. Conversely, nutrition-sensitive interventions such as STBM should promote specific nutritional linkage to improve children's growth in the community. Program egos are best left aside for successful integration. The coordination and collaboration failure between health workers (midwives, nurses, and doctors) and WASH staff (sanitarians, engineers) has added to the disease burden due to environmental contamination from poor sanitation and clean water access.²³ Although it is often reported that there are many programs in place by different sectors, integrating information and implementation remains challenging in the field. Health workers have many opportunities and competencies to improve WASH practices and access in the community, including promoting, implementing rules, and policies and evaluating the impact of WASH.²³ The involvement of health workers in WASH interventions has been shown to have a more significant, sustainable and cost-effective impact on improving community health.²³

In conclusion, personal hygiene, food hygiene, and environmental hygiene are WASH aspects that reduce repeated pathogen exposure to children, leading to chronic malnutrition problems. Currently, these aspects need more emphasis in childhood stunting prevention programs and should be integrated into the existing sensitive and specific nutrition interventions to improve outcomes in children's health. More importantly, stakeholders and interprofessional collaboration are required to accelerate progress.

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