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Community movement to prevent stunting in the area of Tambaksari District Puskesmas Rangkah Surabaya

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ABSTRACT

Stunting refers to the condition of a child's height being shorter than the height of his age, which is caused by a lack of nutritional intake for a long time in the first 1000 days of life (HPK), diabetes, or kidney failure; hampering Indonesia's demographic bonus where the ratio of the non-working age population to the working age population decreases; threat of reducing intelligence level by 5-11 points. In addition to nutritional factors, stunting is caused by a lack of public knowledge, especially pregnant women, mothers of toddlers and posyandu cadres. The purpose of this community empowerment is to increase the knowledge of posyandu cadres and the community in the Rangkah Surabaya Health Center area through health promotion by forming the Community Movement Prevent Stunting (GEMAS), academic and technical related to the implementation of Posyandu. The provision of stunting education is expected to be able to carry out posyandu activities optimally on target. Cadre education activities showed an increase in general knowledge of posyandu cadres, attitudes and actions of cadres and knowledge about stunting.

KEYWORDS
Cadre Education;
stunting;
Rangkah Health Center
Area Surabaya

1. Introduction

Most people may not know what stunting is [1]. Stunting is a growth disorder in children, namely the child's height is lower than the age standard caused by the lack of nutritional intake of children in the long term. According to the 2018 Basic Health Research (Riskesdas) conducted by the Health Research and Development Agency (Litbangkes), the prevalence of stunting in Indonesia in 2018 reached 30.8%, this figure is still quite high because it is still above the standards set by the World Health Organization. (WHO) which is below 20%, so that Indonesia is one of the areas experiencing acute malnutrition. Reducing stunting is the main target of the Global Nutrition Target in 2025 and the second SDGs target is no stunting status. The Indonesian government has set a target for accelerating stunting prevention with a prevalence of 16% by 2024, so that efforts to reduce stunting prevalence are carried out in various ways. Beal [2] formulated the factors that cause stunting in Indonesia including non-exclusive breastfeeding for the first 6 months, low household socioeconomic status, premature birth, short birth length and height, low maternal education, children from households with inadequate latrines, untreated drinking water, and low household economic status. In addition to the above factors, the incidence of stunting is also influenced by community and community factors, including poor access to health care, living in rural areas, community education, culture, agricultural systems, food, water, sanitation, and the environment. Several researchers have conducted stunting research which is used for this community service literature. The impact of income-generating activity programs on undernourished children and mothers in very poor rural Bangladeshi households was investigated by Goto [3]. Effect of malaria, soil-borne helminths and malnutrition on hemoglobin levels among school-age children in Muyuka, Southwest Cameroon: A cross-sectional study on outcomes investigated by Sumbele [4]. The importance of genetic zinc biofortification of common peas in reducing human zinc deficiency in sub-

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Saharan Africa was investigated by Philipo [5]. Phytophthora rot in alpine delphiniums caused by Phytophthora sp. kelmania was investigated by Kondo [6].

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Ethiopia's high prevalence of child undernutrition explains: prevalence and main correlation analyzes based on nationally representative data were recently investigated by Gebreegziabher [23]. Trends in malnutrition and morbidity in Somalia between 2007 and 2016: results from 291 cross-sectional surveys studied by Martin-Canavate [24]. The incidence and predictors of mortality among children coinfected with tuberculosis and human immunodeficiency virus in a public hospital in Southern Ethiopia was studied by Dawit [25]. Food insecurity in South Africa: Evidence from NIDS-CRAM wave 5 studied by van der Berg [26]. The economic evaluation of an agricultural-based early childhood development and nutrition intervention center in Malawi was investigated by Gelli [27]. Household structure and stunting and overweight in children in Indonesia were investigated by Ciptanurani [28]. Factors Affecting the Growth of Children aged 12-24 Months in Tanga Region, Tanzania studied by Elverud [29]. The prevalence and factors associated with stunting in schoolchildren in Dori, Burkina Faso were studied by Ouédraogo [30]. Solanum germplasm screening (sections Lycopersicon and Juglandifolia) for reaction against tomato brown rugose fruit virus (ToBRFV) was studied by Jewehan [31]. Accumulating prevalence and associated factors for chronic malnutrition among children under five in East Africa: A multilevel analysis investigated by Tesema [32]. Factors Affecting Nutritional Status of Children 6-11 Years Old: A Case Study of Megacity India investigated by Chakraborty [33]. The development of qPCR assays to measure Aspergillus flavus biomass in maize and the use of biocontrol strategies to limit aflatoxin production were investigated by Mitema [34]. Conflict and Child Malnutrition: A Systematic Review of Emerging Quantitative Literature researched by Sassi [35]. Prevalence and determinants of anemia severity in children aged 6-59 months in sub-Saharan Africa: A stratified ordinal logistic regression analysis was studied by Tesema [36]. The interaction between gut microbiota and skeletal muscle was investigated by Gizard [37]. Evaluating interventions to improve child nutrition in the Eastern Democratic Republic of the Congo was studied by Doocy [38].

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children under five in Bandja village, Cameroon, Africa was studied by Dapi Nzefa [42]. Nutritional status and psychomotor development of children aged 12-18 months in a post-intervention study were investigated by Rikhotso [43]. Successful Enucleation of the Large Pancreatic Head Schwannoma was investigated by Yamaguchi [44]. Association of vitamin A deficiency with early childhood stunting in Uganda: A population-based cross-sectional study was investigated by Ssentongo [45]. Contextual Factors and Spatial Patterns of Child Nutrition in Burkina Faso Province were investigated by Chuang [46].

Qualitative and quantitative research from the literature study conducted by Bhutta [47] in 5 countries (Nepal, Ethiopia, Peru, Kyrgyz Republic, Senegal), shows that several countries have been able to reduce the prevalence of child stunting, through interventions from within and outside the health sector, contributing comparable from the health and nutrition sector (40% of change) and other sectors (50%), with nutrition sensitive and nutrition specific intervention strategies. Improvements in maternal education, maternal nutrition, maternal and newborn care, and reduced spacing between pregnancies were strong contributors to changes in stunting reduction. From these problems, the contribution of this community service activity is to prevent stunting at the Rangkah Health Center which is one of the health centers in the city of Surabaya. This Rangkah Health Center serves various puskesmas programs, one of which is reducing the incidence of stunting in the Rangkah area. This has been done by Wardani and the team who formed the Prevent Stunting (Centing) group in the Rangkah Health Center area of Surabaya. This community service activity greatly helps the work program of the Rangkah Health Center through cadre training to provide increased knowledge and prevention of stunting for cadres in the Rangkah Health Center area.

2. Method

Community Service Activities that will be carried out include:

1. Cadre training in optimizing stunting prevention
2. Counseling on preparation for stunting prevention

Place or Location of Activity

The place for this community service activity will be carried out in the Work Area of the Rangkah Health Center Surabaya. Target : The direct target in this activity is health cadres and mothers who have toddlers in the Work Area of Puskesmas Rangkah Surabaya.

Activity Implementation Method:

1st month:

Week I: Coordination with Puskesmas and sub-districts regarding plans for Peer group activities and Cadre Training, mothers with toddlers and the community.

Weeks II-IV: prepare a meeting plan on optimizing the preparation for stunting prevention

2nd month:

Week V: held training for Posyandu cadres, village midwives to build commitment from cadres.

Weeks VI-VII: Coordination with the Puskesmas regarding the results of the meeting and the plan for proposing a decision letter from the Kelurahan regarding training on optimizing stunting prevention

Week VIII: Giving material to cadres, while the material to be delivered is the purpose of Peer group activities and cadre training

3rd month:

Assistance is carried out together with the team from the Puskesmas/kelurahan midwife for cadres related to the duties of the cadres. Mentoring is carried out through peer group activities and training related to knowledge on preventing stunting and providing motivation to cadres

3rd -4 Month: Evaluation

Month 5: Completion of reports

Community Service Activities in the form of the "Community Movement to Prevent Stunting" were held in September 2021 inviting 21 Cadres of the Rangkah Surabaya Health Center by Providing Stunting Prevention Materials at the Swiss Berlin Hotel Surabaya, followed by peer group activities and training by forming a stunting prevention community group to increase the knowledge of cadres . This activity began with an opening by the Head of the Midwifery Department, Poltekkes, Ministry of Health, Surabaya.

3. Results and Discussion

The results of data collection showed that participants had never received training/peer group activities on "Community Movement to Prevent Stunting at the Rangkah Health Center Surabaya"

a. Participant Characteristics

Table 1. Characteristics of Cadre Mothers.

Characteristics of Cadre Mother		Frequency	Percentage
Age (years)	30-40	3	14.29
	41-50	7	33.33
	51-70	11	52.38
Work	Working	2	9.52
	Doesn't work	19	90.48
Education	Middle School/Equivalent	3	14.29
	High School/Equivalent	16	76.19
	D3/D4/S1/S2/S3	2	9.52
	Total	21	100

The characteristics of cadres are shown in table 1. The table shows that most of the training participants are 51-70 years old (52.38%), most of the cadre mothers are not working (90.48%), only 9.52% are still working and most of the training participants have high school education. /Equivalent (76.19%).

b. Knowledge

Table 2 Results of Evaluation of Cadre Knowledge on Peer Group and Training Activities

Stunting Knowledge		Before		After	
		Total	Percentage	Total	Percentage
Peer group activities	Good	10	25	27	67.5
	Just	16	40	12	30
	Less	14	35	1	2.5
Training	Good	6	28.57	18	70
	Just	13	61.90	2	27.5
	Less	2	9.53	1	2.5

The results of the Knowledge Evaluation of Cadres in Peer Group and Training activities are shown in Table 2. The table shows that most of the pre-test cadres had less knowledge related to stunting and after being given peer group activities, there was an increase in knowledge about stunting from 25% to 67.5%. Most of the pre-test results for female cadres had poor knowledge and after being given training, the knowledge of female cadres about stunting increased from 10% to 70%.

Father's and mother's education, father's occupation, mother's activity, family income and genetics are factors that have a significant effect on stunting toddlers. More educated parents are also a strong predictor of better child growth. Increasing the knowledge of parents, especially mothers, can also be obtained from increasing the knowledge of cadres who always accompany pregnant women and mothers of toddlers. From table 2, it can be seen that the majority of female cadres have experienced an increase in health education about stunting prevention. Mrs. cadres felt that there was an increase in knowledge related to stunting prevention health education. From the interview results it was found that the female cadres felt that the training was very beneficial for herself and as a cadre because she could

later share this knowledge on preventing stunting with the people in her area. The underlying determinants of stunting, unsanitary environments such as open defecation, poor sanitation infrastructure, and difficulty accessing primary maternal health services, including optimal antenatal care and deliveries in health facilities or with skilled birth attendants, all contribute to growth substantially child.

The results of Sopiatun's research showed that the frequency of knowledge and attitudes after training increased by 89.1% and 60.9%, so it was concluded that there was an effect of posyandu cadre training on stunting prevention knowledge although there was no effect of posyandu cadre training on stunting prevention attitudes. The training provided by cadres has more influence on the cadre's knowledge than the cadre's attitude. Similar results were also obtained by Martha and the team, which showed that almost all training participants showed follow-up activities through the Whatsapp group, in the form of campaigns and education for cadres and other mothers during activities at posyandu, Islamic study forums, village activities, sports activities, as well as visits to each family and neighbors, etc. Empowering cadres and traditional birth attendants through early education on the detection and prevention of stunting can meet expectations and be effective in encouraging the role of cadres and traditional birth attendants in the community.

Fig. 1. Example of a figure caption. *(figure caption)*

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From table 2 it is known that peer group activities and training can increase the knowledge of elderly female cadres about health education by 70%. This is consistent with what was said that training can increase the knowledge of cadres. The characteristics of a person also affect the knowledge possessed. In this case, age, experience, occupation, as well as educational aspects affect knowledge and information on maternal characteristics socio-demographically affecting breastfeeding management and knowledge of stunting. Information is a source of knowledge, a person's knowledge will increase if he receives a lot of information. The level of education, support and information from health workers and families regarding breastfeeding to mothers is needed in increasing the intelligence and skills of mothers to provide exclusive breastfeeding to babies. The long-term effect of the activity process, in this case, is increasing the knowledge of female cadres regarding stunting.

Building Commitment to Assisting Pregnant Women, Toddlers and Adolescents

The commitment of female cadres in supervising pregnant women through posyandu activities is shown in Figure 1. This figure shows that this activity was obtained from interviews with female cadres that the female cadres were ready to assist pregnant women, toddlers and adolescents. The female cadre is also committed to being willing to take the time to share knowledge about stunting prevention in her area. This is in line with the increased knowledge of mothers who play a role in reducing the incidence of stunting. During this pandemic, experience, knowledge and information can be communicated through the Whatsapp group, and also if there are problems regarding the growth and development of pregnant women, toddlers and adolescents they can be discussed. With efforts to increase perceptions of benefits, minimize perceptions of obstacles in understanding stunting and increase self-efficacy towards oneself and improve attitudes related to activities will be able to improve mother's behavior in overcoming stunting prevention problems both directly and indirectly through increased commitment to plans to Act.

Supporting factors

The supporting factors for community service activities regarding health education regarding stunting prevention are:

1. Collaboration with the Health Office, Rangkah Health Center is going well

2. Many female cadres feel that training on Health Education regarding stunting prevention is very useful.

3. Collaboration between female cadres and the Rangkah Health Center is very good and responsive.

4. Coordinating midwives, village midwives and health workers in Rangkah who were very participatory in Health Education training on stunting prevention.

Activity Inhibitors

1. Different characteristics of mothers (age, knowledge, customs, etc.)

2. The time for carrying out activities coincides with the pandemic so that the schedule for complying with health protocols during this covid pandemic must be strictly maintained.

4. Conclusion

Based on the results of the analysis of community service activities, it was found that there was an increase in the knowledge of cadres about stunting prevention and an increase in the skills of cadres in measuring height.

Suggestion

There needs to be assistance from the midwife of the Puskesmas so that activities can continue and according to the guidelines that have been set. There needs to be monitoring from the health center on the results of stunting. Continuous coaching is needed for cadres and skills to support them regarding stunting prevention. The need to give rewards to cadres so that it will increase the motivation of cadres to monitor stunting prevention. Should work together with community elements such as community leaders, PKK, youth organizations, etc. in order to provide support for cadres

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Author Contribution

The contribution of this community service activity is the prevention of stunting at the Rangka Health Center which is one of the Health Centers in the City of Surabaya.

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Conflict of Interest

The authors declare no conflict of interest.

References

[1] N. FUADA, L. LATIFAH, D. YUNITAWAT, and H. ASHAR, "Assessment of Nutritional Status of Children Under-Five in Families of Adolescent Mothers in Indonesia 2013," J. Nutr. Sci. Vitaminol. (Tokyo)., vol. 66, no. Supplement, pp. S425–S431, 2020.

[2] T. Beal, A. Tumilowicz, A. Sutrisna, D. Izwardy, and L. M. Neufeld, "A review of child stunting determinants in <scp>Indonesia</scp>," Matern. Child Nutr., vol. 14, no. 4, p. e12617, Oct. 2018.

[3] R. Goto, J. Devine, C. G. Nicholas Mascie-Taylor, J. Ormand, and A. J. Jufry, "The impact of an income-generating activities programme on children and mothers' undernutrition in extreme poor rural Bangladeshi households," Public Health Nutr., vol. 22, no. 16, pp. 3073–3082, Nov. 2019.

[4] I. U. N. Sumbele, A. J. Nkain, T. R. Ning, J. K. Anchang-Kimbi, and H. K. Kimbi, "Influence of malaria, soil-transmitted helminths and malnutrition on haemoglobin level among school-aged children in Muyuka, Southwest Cameroon: A cross-sectional study on outcomes," PLoS One, vol. 15, no. 3, p. e0230882, Mar. 2020.

[5] M. Philipo, P. A. Ndakidemi, and E. R. Mbega, "Importance of common bean genetic zinc biofortification in alleviating human zinc deficiency in sub-Saharan Africa," Cogent Food Agric., vol. 7, no. 1, Jan. 2021.

[6] T. Kondo, K. Otsubo, and K. Kageyama, "Phytophthora rot of alpine delphinium caused by Phytophthora sp. kelmania," J. Gen. Plant Pathol., vol. 88, no. 2, pp. 145–149, Mar. 2022.

[7] C. Ricci, H. Asare, J. Carboo, C. Conradie, R. C. Dolman, and M. Lombard, "Determinants of undernutrition prevalence in children aged 0–59 months in sub-Saharan Africa between 2000 and 2015. A report from the World Bank database," Public Health Nutr., vol. 22, no. 09, pp. 1597–1605, Jun. 2019.

[8] L. Mhoswa et al., "A Genome-Wide Association Study for Resistance to the Insect Pest Leptocybe invasa in Eucalyptus grandis Reveals Genomic Regions and Positional Candidate Defense Genes," Plant Cell Physiol., vol. 61, no. 7, pp. 1285–1296, Jul. 2020.

[9] L. A. IVANOVA, J. S. KOVALENKO, A. I. MOSKVINA, A. A. SHELUKHA, L. V. RUZHITSKAYA, and I. Y. TANIN, "FAMILY CASE OF CONGENITAL ADRENAL CORTEX DYSFUNCTION(clinical case)," Bull. Contemp. Clin. Med., vol. 25, no. 1, pp. 83–90, Feb. 2021.

[10] M. Ameri and K. Ayazpour, "Molecular analysis of Tomato Yellow Leaf Curl Virus in Fars province, Iran," Indian Phytopathol., vol. 75, no. 1, pp. 197–201, Mar. 2022.

[11] J. Delarue, "Fatty acids: a role for Africa?," Proc. Nutr. Soc., vol. 78, no. 4, pp. 532–539, Nov. 2019.

[12] M. A. Usman and N. Gerber, "Irrigation, drinking water quality, and child nutritional status in northern Ethiopia," J. Water, Sanit. Hyg. Dev., vol. 10, no. 3, pp. 425–434, Sep. 2020.

[13] C. H. T. Do, M. L. Børresen, F. K. Pedersen, T. T. Nguyen, H. T. Nguyen, and A. Y. Kruse, "Poor Head Growth Is Associated with Later Mental Delay among Vietnamese Preterm Infants: A Follow-up Study," J. Trop. Pediatr., vol. 67, no. 1, pp. 1–11, Jan. 2021.

[14] H. Asare, A. Rosi, F. Scazzina, M. Faber, C. M. Smuts, and C. Ricci, "Maternal postpartum depression in relation to child undernutrition in low- and middle-income countries: a systematic review and meta-analysis," Eur. J. Pediatr., vol. 181, no. 3, pp. 979–989, Mar. 2022.

[15] A. Comba, E. Demir, and N. Barış Eren, "Nutritional status and related factors of schoolchildren in Çorum, Turkey," Public Health Nutr., vol. 22, no. 1, pp. 122–131, Jan. 2019.

[16] E. D. Majonga et al., "Incidence and Progression of Echocardiographic Abnormalities in Older Children with Human Immunodeficiency Virus and Adolescents Taking Antiretroviral Therapy: A Prospective Cohort Study," Clin. Infect. Dis., vol. 70, no. 7, pp. 1372–1378, Mar. 2020.

[17] M. S. Hossain et al., "Asymptomatic Duodenitis and Helicobacter pylori associated Dyspepsia in 2-Year-Old Chronic Malnourished Bangladeshi Slum-Dwelling Children: A Cross-Sectional Study," J. Trop. Pediatr., vol. 67, no. 1, pp. 1–8, Jan. 2021.

[18] R. Aryeetey, A. Atuobi-Yeboah, L. Billings, N. Nisbett, M. van den Bold, and M. Toure, "Stories of Change in Nutrition in Ghana: a focus on stunting and anemia among children under-five years (2009 – 2018)," Food Secur., vol. 14, no. 2, pp. 355–379, Apr. 2022.

[19] C. Moucheraud et al., "Engagement in Agriculture Protects Against Food Insecurity and Malnutrition in Peri-Urban Nepal," Curr. Dev. Nutr., vol. 3, no. 1, pp. 1–9, Jan. 2019.

[20] M. E. Zapata, A. I. Soruco, and E. Carmuega, "Malnutrition in all its forms and socio-economic indicators in Argentina," Public Health Nutr., vol. 23, no. S1, pp. s13–s20, Aug. 2020.

[21] C. Engelhardt et al., "Age dependency of body mass index distribution in childhood and adolescent inpatients with anorexia nervosa with a focus on DSM-5 and ICD-11 weight criteria and severity specifiers," Eur. Child Adolesc. Psychiatry, vol. 30, no. 7, pp. 1081–1094, Jul. 2021.

[22] S. Song et al., "Complete genomic characterization of a reassortment isolate of Sophora yellow stunt virus from Sophora alopecuroides in China," J. Plant Pathol., vol. 104, no. 2, pp. 781–786, May 2022.

[23] T. Gebreegziabher and N. Regassa, "Ethiopia's high childhood undernutrition explained: analysis of the prevalence and key correlates based on recent nationally representative data," Public Health Nutr., vol. 22, no. 11, pp. 2099–2109, Aug. 2019.

[24] R. Martin-Canavate, E. Custodio, A. Yusuf, D. Molla, D. Fasbender, and F. Kayitakire, "Malnutrition and morbidity trends in Somalia between 2007 and 2016: results from 291 cross-sectional surveys," BMJ Open, vol. 10, no. 2, p. e033148, Feb. 2020.

[25] Z. Dawit, S. Abebe, S. Dessu, M. Mesele, S. Sahile, and D. Ajema, "Incidence and predictors of mortality among children co-infected with tuberculosis and human immunodeficiency virus at public hospitals in Southern Ethiopia," PLoS One, vol. 16, no. 6, p. e0253449, Jun. 2021.

[26] S. van der Berg, L. Patel, and G. Bridgman, "Food insecurity in South Africa: Evidence from NIDS-CRAM wave 5," Dev. South. Afr., vol. 0, no. 0, pp. 1–16, Apr. 2022.

[27] G. A, K. CG, M. A, T. A, K. M, and L. C, "Economic evaluation of an early childhood development center–based agriculture and nutrition intervention in Malawi," Food Secur., vol. 14, no. 1, pp. 67–80, Feb. 2022.

[28] C. Ciptanurani and H. Chen, "Household structure and concurrent stunting and overweight among young children in Indonesia," Public Health Nutr., vol. 24, no. 9, pp. 2629–2639, Jun. 2021.

[29] I. S. Elverud, K. Størdal, M. Chiduo, and C. Klingenberg, "Factors Influencing Growth of Children Aged 12–24 Months in the Tanga Region, Tanzania," J. Trop. Pediatr., vol. 66, no. 2, pp. 210–217, Apr. 2020.

[30] O. Ouédraogo et al., "Prévalence et facteurs associés au retard de croissance chez des écoliers à Dori, Burkina Faso," Sante Publique (Paris)., vol. Vol. 31, no. 1, pp. 153–163, May 2019.

[31] A. Jewehan, N. Salem, Z. Tóth, P. Salamon, and Z. Szabó, "Screening of Solanum (sections Lycopersicon and Juglandifolia) germplasm for reactions to the tomato brown rugose fruit virus (ToBRFV)," J. Plant Dis. Prot., vol. 129, no. 1, pp. 117–123, Feb. 2022.

[32] G. A. Tesema, Y. Yeshaw, M. G. Worku, Z. T. Tessema, and A. B. Teshale, "Pooled prevalence and associated factors of chronic undernutrition among under-five children in East Africa: A multilevel analysis," PLoS One, vol. 16, no. 3, p. e0248637, Mar. 2021.

[33] M. Chakraborty and S. Ghosh, "Factors Influencing the Nutritional Status Among Children of 6–11 Years of Age: A Case Study from an Indian Megacity," J. Health Manag., vol. 22, no. 1, pp. 78–95, Mar. 2020.

[34] A. Mitema, S. Okoth, and S. Rafudeen, "The Development of a qPCR Assay to Measure Aspergillus flavus Biomass in Maize and the Use of a Biocontrol Strategy to Limit Aflatoxin Production," Toxins (Basel)., vol. 11, no. 3, p. 179, Mar. 2019.

[35] M. Sassi and H. Thakare, "Conflict and Child Malnutrition: a Systematic Review of the Emerging Quantitative Literature," Curr. Nutr. Rep., vol. 11, no. 1, pp. 1–8, Mar. 2022.

[36] G. A. Tesema et al., "Prevalence and determinants of severity levels of anemia among children aged 6–59 months in sub-Saharan Africa: A multilevel ordinal logistic regression analysis," PLoS One, vol. 16, no. 4, p. e0249978, Apr. 2021.

[37] F. Gizard, A. Fernandez, and F. De Vadder, "Interactions between gut microbiota and skeletal muscle," Nutr. Metab. Insights, vol. 13, p. 117863882098049, Jan. 2020.

[38] S. Doocy, J. Emerson, E. Colantouni, J. Strong, K. Amundson-Mansen, and J. Menakuntuala, "Evaluating interventions to improve child nutrition in Eastern Democratic Republic of Congo," Public Health Nutr., vol. 22, no. 1, pp. 3–14, Jan. 2019.

[39] J. Gausman et al., "Comparison of Child Undernutrition Anthropometric Indicators Across 56 Low- and Middle-Income Countries," JAMA Netw. Open, vol. 5, no. 3, p. e221223, Mar. 2022.

[40] P. Paul, B. Arra, M. Hakobyan, M. G. Hovhannisyan, and J. Kauhanen, "The determinants of under-5 age children malnutrition and the differences in the distribution of stunting–A study from Armenia," PLoS One, vol. 16, no. 5, p. e0249776, May 2021.

[41] R. Rukuni et al., "The IMpact of Vertical HIV infection on child and Adolescent SKeletal development in Harare, Zimbabwe (IMVASK Study): a protocol for a prospective cohort study," BMJ Open, vol. 10, no. 2, p. e031792, Feb. 2020.

[42] L. Dapi Nzefa, F. Monebenimp, and C. Äng, "Undernutrition among children under five in the Bandja village of Cameroon, Africa," South African J. Clin. Nutr., vol. 32, no. 2, pp. 46–50, Apr. 2019.

[43] I. P. Rikhotso, M. Faber, M. Rothman, T. M. Matsungo, C. Lombard, and C. M. Smuts, "Nutritional status and psychomotor development in 12–18-month-old children in a post-intervention study," South African J. Clin. Nutr., vol. 35, no. 2, pp. 69–77, Jun. 2022.

[44] T. Yamaguchi, S. Oura, and S. Makimoto, "Successful Enucleation of a Large Pancreatic Head Schwannoma," Case Rep. Gastroenterol., vol. 15, no. 1, pp. 225–231, Feb. 2021.

[45] P. Ssentongo et al., "Association of vitamin A deficiency with early childhood stunting in Uganda: A population-based cross-sectional study," PLoS One, vol. 15, no. 5, p. e0233615, May 2020.

[46] Y.-C. Chuang et al., "Contextual Factors and Spatial Patterns of Childhood Malnutrition in Provinces of Burkina Faso," J. Trop. Pediatr., no. May 2019, pp. 66–74, May 2019.

[47] S. M. bin Ismail and W. A. A. W. Haniff, "Education 4.0: The Effectiveness of VARK Learning Style towards Actualising Industrial Revolution 4.0," J. Educ. Soc. Res., vol. 10, no. 3, p. 52, May 2020.