

University of Montana

ScholarWorks at University of Montana

UM Graduate Student Research Conference (GradCon)

Feb 28th, 5:00 PM - 6:00 PM

Investigating Childhood Stunting and Malnutrition Outcomes in Sukadana and Simpang Hilir, Indonesia

Julia Goar

Follow this and additional works at: <https://scholarworks.umt.edu/gsrc>

Let us know how access to this document benefits you.

Goar, Julia, "Investigating Childhood Stunting and Malnutrition Outcomes in Sukadana and Simpang Hilir, Indonesia" (2020). *UM Graduate Student Research Conference (GradCon)*. 14.
<https://scholarworks.umt.edu/gsrc/2020/posters/14>

This Poster Presentation is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in UM Graduate Student Research Conference (GradCon) by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

Investigating Childhood Stunting and Malnutrition Outcomes in Sukadana and Simpang Hilir, Indonesia

Julia Goar¹, BS, Nur Febriani Wardi², MA, Fitriyani Simangunsong², MD, Muhammad Zulkarnaen², BA, Nicholas C. Coombs¹, MS, and Kimber Haddix McKay¹, PhD

University of Montana¹ and Yayasan Alam Sehat Lestari²



Background

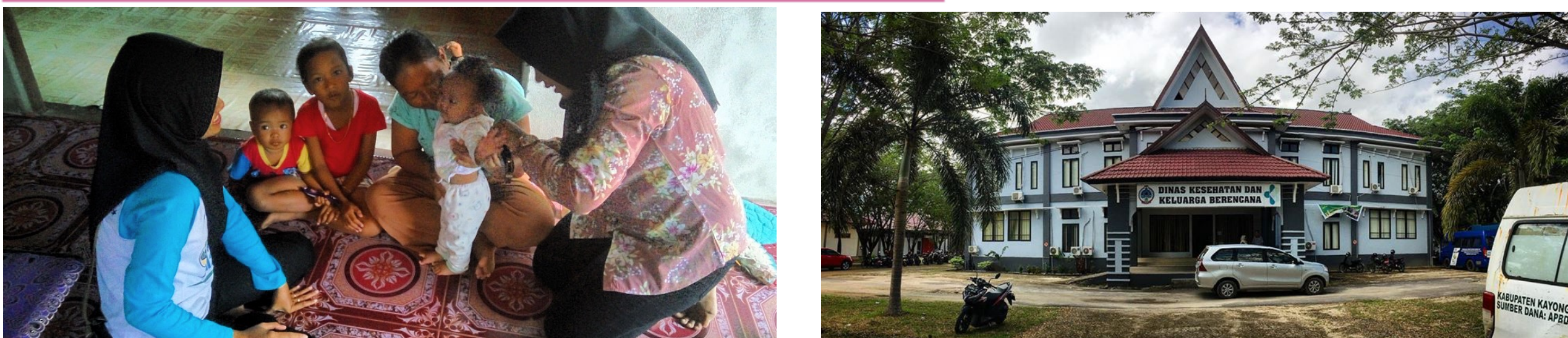
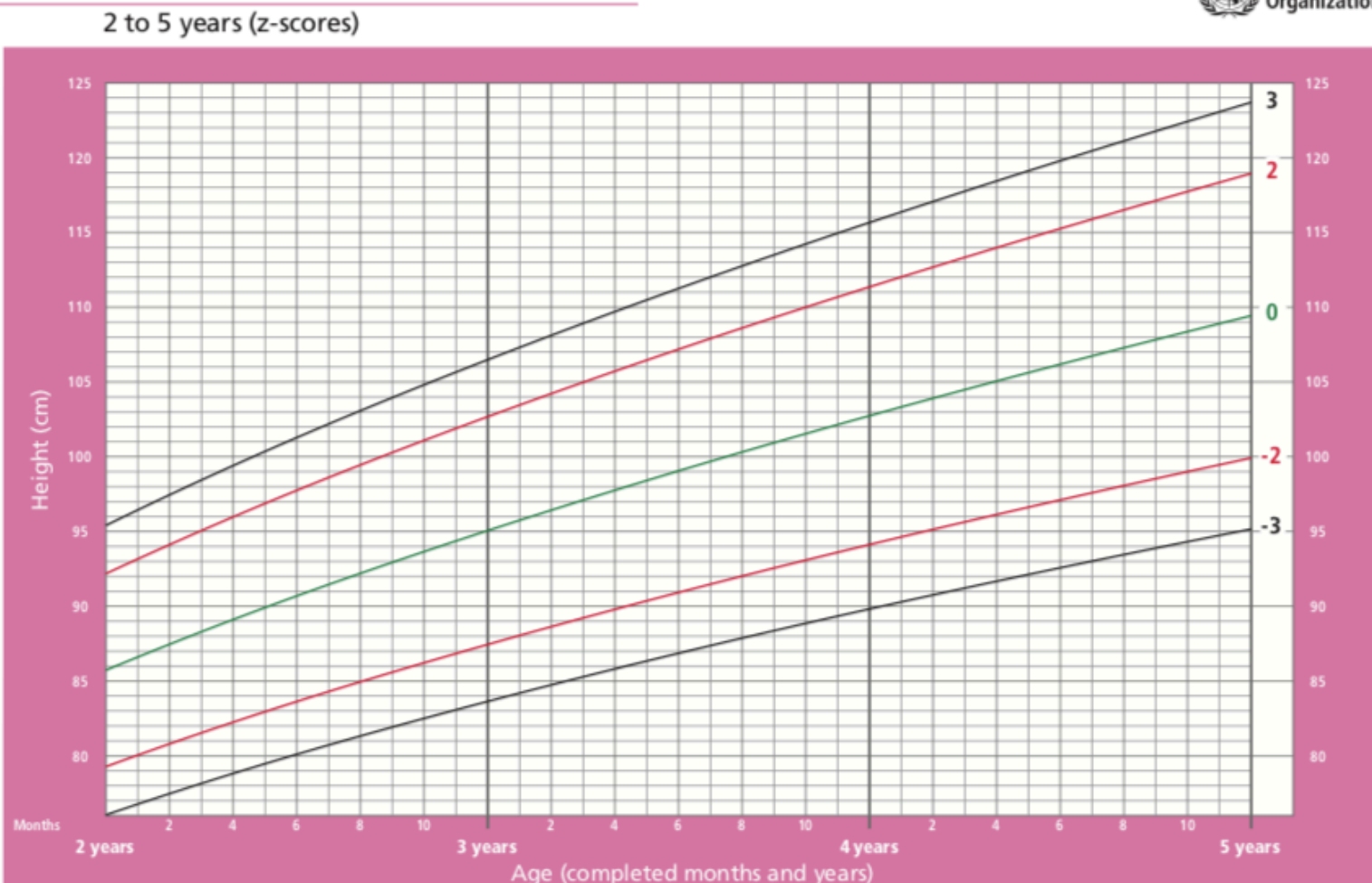
Infant and child growth is internationally recognized as an important indicator of nutritional status and health in populations. Stunting, wasting, and being underweight are the indicators used to measure child growth and reflect nutritional imbalances resulting in undernutrition. The World Health Organization has cited Indonesia as one of five countries that have child stunting rates higher than both the regional and global averages. Indonesia's national stunting rate is 36% of children under the age of five, making this a priority issue for the government as well as clinics across the country, including Alam Sehat Lestari (ASRI), a rural clinic in Sukadana, Indonesia. Stunting is defined as being two standard deviations below the WHO Child Growth Standards median for height for age. Being stunted results in both immediate and long-term consequences including an increased risk of childhood morbidity and mortality, infectious and non-communicable diseases, poor cognitive development, and reduced physical productivity and economic capability. Such growth faltering often begins between 4 and 7 months of age and is accompanied by a high prevalence of anemia and co-existing micronutrient deficiencies. Furthermore, research demonstrates that after 2 years of age, it is difficult to reverse the effects of childhood stunting. The aim of this study is to gain information on the causes of malnutrition outcomes in the target population to inform a tailored intervention within the capacity and existing programming of the clinic.



Methods

A health assessment survey was implemented in 15 villages within 3 public health centers or *Puskesmas* in the Sukadana and Simpang Hilir subdistricts, as well as one day of sampling visitors in the clinic. 6 surveys were collected at the clinic and 7 surveys were implemented by a single ASRI staff member in each village, totaling 115 children from 110 mothers (n=115). Mothers were surveyed to measure differences in malnutrition outcomes based on household factors, access to quality health care, issues during pregnancy, maternal and child health, breastfeeding and complementary feeding practices, and quality of child diet. To measure malnutrition outcomes, a nurse recorded each child's age, height (cm) by using a supine measuring mat and weight (kg) by using a hanging scale and a sling.

Height-for-age GIRLS



Acknowledgments

This study was collaboratively designed through a partnership between the University of Montana School of Public and Community Health Sciences and Alam Sehat Lestari (ASRI) Clinic. We would like to express our gratitude to the staff of ASRI Clinic for their hospitality and professional partnership. In addition we would like to thank the Kayong Utara Health Office, Puskesmas Sukadana and Puskesmas Simpang Hilir for their assistance.

Results

One hundred ten mothers were surveyed on information from their collective 115 children: 53 female, 62 male and 5 twins. Four mothers had more than one child sampled. Fifty six percent (n=64) of the 115 children had a malnutrition outcome. Twenty-three percent (n=27) were stunted, 37% (n=43) were wasted, and 37% (n=43) were underweight. Having more than one malnutrition outcome was common as shown in Table 1.

Table 1. Descriptive statistics for stunted, wasted, underweight and combined

Exposure	Frequency, n (%)
Stunted	27 (23)
Wasted	43 (37)
Underweight	43 (37)
Stunted and Wasted	12 (10)
Wasted and Underweight	29 (25)
Stunted and Underweight	20 (17)
Stunted, Wasted and Underweight	12 (10)

Note: Several children had more than one malnutrition outcome.

Out of a rich variety of results, some factors were associated with higher rates of malnutrition outcomes or were otherwise noteworthy. Table 2 shows that rates of stunting and underweight were 32% and 48% respectively in households with smoking exposure in the home every day or some days compared to 14% and 27% respectively in households with no smoking. There was a difference in rates of stunting and underweight children from mothers who reported having a cough during their pregnancies (31% and 44% respectively) compared to mothers who reported not having a cough (20% and 34% respectively). Additionally, there was a 13% difference in stunting and an 6% difference in underweight in children who had a cough in the last month.

Table 2. Malnutrition outcomes stratified by

Factor, n (%)	Stunted	Wasted	Underweight
Smoking exposure in home			
Every day (n=69)	20 (29)	27 (39)	32 (46)
Some Days (n=9)	2 (22)	2 (22)	1 (11)
None (n=37)	5 (14)	14 (38)	10 (27)
Mothers with cough during pregnancy			
Yes (n=36)	11 (31)	13 (36)	16 (44)
No (n=79)	16 (20)	30 (38)	27 (34)
Children with cough in the last month			
Yes (n=76)	21 (28)	28 (37)	30 (39)
No (n=39)	6 (15)	15 (38)	13 (33)

were 23% and 15% higher, respectively, in children that received liquids or food other than breastmilk under 6 months compared to those 6 months or older. Additionally, stunting and underweight were 50% and 31% higher, respectively, in children who first received solid foods under 6 months.

Table 3. Malnutrition outcomes by age of supplemental liquid diet

n (%)	Stunted	Wasted	Underweight
Received liquids or food other than breastmilk at:			
<6 months (n=35)	14 (40)	12 (34)	18 (51)
≥6 months (n=70)	12 (17)	29 (41)	25 (36)
Not yet started (n=10)	2 (20)	3 (30)	1 (10)
First received solid foods at:			
<6 months (n=15)	10 (67)	6 (40)	10 (67)
≥6 months (n=84)	14 (17)	34 (40)	30 (36)
Not yet started (n=16)	3 (19)	3 (19)	3 (19)

The majority of mothers did not believe that stunting was an issue in the community or identified specific causes. Mothers also held the belief that a multitude of foods should be avoided during and after pregnancy to prevent convulsions and *luge* (weak disease), as shown in table 4.

Table 4. Foods to avoid during pregnancy and ailments

Food, n (%)	Convulsions	Luge/ Weak Disease	General/ Not Specified
Sting Rays/ Pari Fish (n=34)	27	4	3
Various Fish* (n=30)	24	2	4
Barbed, Spiny, Thorny or Prickly Fish (n=19)	17	2	-
Corn (n=14)	13	1	-
Bread Fruit (n=15)	13	2	-
Sweet Graft Vegetable (n=13)	11	2	-
Mustard Greens (n=9)	9	-	-

*malong, red snapper, swai, cross-eyed, tuna, puput, umbut, simbilang, kitang, catfish, kepuyu, tapa, tamban, runjing, mayong fish, anchovies, tudak, tapah, river fish and all fish.

Conclusion

The results of this study show that stunting is not a concern for most mothers and that there are a wide array of theories as to the cause. Additionally, smoking and respiratory infection, breastfeeding practices, and nutrition practices including maternal nutrition during pregnancy and breastfeeding as well as complementary feeding of children, were the greatest contributors to malnutrition outcomes and inconsistent with best practices. ASRI Clinic can address childhood stunting and malnutrition outcomes in Sukadana and Simpang Hilir by investing in community education focusing on tobacco cessation, breastfeeding and nutrition. Within the clinic, ASRI can implement policies and procedures to support patients in smoking cessation and best breastfeeding practices. In addition, the clinic can partner with *Puskesmas* (community health centers) to continue education and monitoring outside of the clinic.