

THE EFFECT OF INTEGRATED NUTRITION SERVICES ON THE BODYWEIGHT OF UNDERWEIGHT CHILDREN IN TANAH GARAM HEALTH CENTER COVERAGE AREA, SOLOK CITY, WEST SUMATERA

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ABSTRACT

Being underweight in children under five in Indonesia is still high. Integrated nutrition service is one of the innovative programs to overcome the underweight problem among under-five children. This study aims to determine the effect of integrated nutrition services on the bodyweight of underweight under-five children in Tanah Garam Health Center, Solok City. The study used a pre-experimental one-group pretest-posttest design. As the study subject, we recruited 30 healthy underweight children (WAZ $-2 < x < -3SD$). Data collection includes body weight before and after the 10-days intervention. The body weight difference was analyzed using the dependent t-test. There was a significant change in children's weight as seen from the increase in the weight for age Z score (WAZ) after the provision of integrated nutrition service ($P < 0.05$). About 76% of the subjects had bodyweight improvement. The mean body weight increase from baseline to end line was 0.25 ± 1.17 kg, while the WAZ increased from -2.32 to -2.12. The implementation of integrated nutrition service could potentially improve the bodyweight of underweight children. It is recommended that all healthy underweight children participate in implementing the program.

Keywords: underweight, integrated nutrition service, under-five children, body weight

Introduction

Nutrition is one of the determinants of the quality of human resources. Malnutrition can cause impaired physical growth and impaired intellectual development, decreased work productivity, and endurance which results in increased morbidity and mortality. Adequate nutrition is needed by every individual since the fetus is still in the womb, infants, children, adolescence, adulthood to old age ¹.

Good nutrition is the basis for every individual to reach the maximum potential he is looking for. The first 1000 days of life (HPK) is a sensitive period that determines the quality of life in the future, including stunting prevention ². Moderate and severe nutrition is a nutritional status based on the bodyweight index for age. The Basic Health Research (Riskesdas) in 2018 states that the percentage of severely underweight in children aged 0-23 months in Indonesia is 3.8%, while the percentage of underweight is 11.4%. The problem of malnutrition and under-five children in Indonesia is also indicated by the high prevalence of stunted children under five (stunting < -2 SD). The trend of the percentage of children aged 0-59 months being severely stunted and stunted in Indonesia from 2014 to 2018 tends to not experience significant changes, wherein in 2014 the percentage was 28.9%, while in 2018 the percentage was 29.6% ³.

Based on the results of the 2018 Riskesdas, the prevalence of the nutritional status of children under five in Solok City with indicators of W/A for severely underweight and

underweight is 15.8%, the indicator for W/H is severely wasted and wasted is 7.4%, the indicator for H/A is severely stunted and stunted that is equal to 39.6%. Based on 4 health centers in the city of Solok, out of 5,801 children under five who have weighed 725 children under five (12.5%) experienced problematic nutritional status, including TanjungPaku Public Health Center of 1,725 which weighed 72 children under five experiencing nutritional problems, Nan Balimo Public Health Center of 820 people under five who weighing 47 children under five experiencing nutritional problems, KTK Public Health Center from 1,399 children under five who weighed 171 people experiencing nutritional problems where the highest number of children under five with nutritional status problems was Tanah Garam Public Health Center, namely 255 children under five (35.2%) out of 1,828 children under five^{3,4}.

To implement a balanced effort, each family must be able to know nutrition, prevent, and overcome nutritional problems of each family member. This is by the Regulation of the Minister of Health Number 23 of 2014 concerning Efforts to Improve Nutrition. Efforts are being made to identify, prevent, and overcome nutritional problems, namely by weighing regularly, giving only breast milk to babies from birth to 6 months of age, varying food menus, using iodized salt supplements, and giving salt supplements as recommended. health workers. Nutritional supplements provided according to the Regulation of the Minister of Health Number 51 of 2016 concerning Nutritional Supplementation Product Standards, include vitamin A capsules, blood-added tablets (TTD), additional food for pregnant women, children under five, and school-aged children, complementary foods for breast milk, and powder multivitamins and minerals⁵. One of the efforts to improve community nutrition carried out by the Solok Health Service to deal with nutritional problems is to hold an integrated nutrition service -program. The integrated nutrition services is a gathering place for malnourished children under five and parents/caregivers to learn to practice positive unique behaviors that have been proven to maintain the nutritional status of children under five. This study aims to determine the effect of the implementation of integrated nutrition services on changes in body weight of children under five in the working area of Tanah Garam Public Health Center, Solok City⁶.

Methods

This study uses a pre-experimental design with a one-group pretest-posttest design. This research was conducted by giving a pretest (initial observation) before being given an intervention, after that, an intervention was given, then a posttest (final observation) was carried out. The population in this study were all children under five aged 12 months to 59 months who experienced nutritional problems based on the results of mass weighing with weight indicators according to age W/A in February 2021 as many as 113 people in the working area of Tanah Garam Public Health Center, Solok City. The sample is all children under five aged 12 months to 59 months who experience nutritional problems based on the results of mass weighing with weight indicators according to age W/A as many as 30 people consisting of 10 children under five per village in the working area of Tanah Garam Public Health Center, Solok City. The sampling technique used in this study is non-probability sampling, namely accidental sampling.

The research activity was carried out for 10 days where the children under five who were the sample were measured their weight and recorded at the beginning of the activity and the end of the activity by the same cadre. Mothers/caregivers of toddlers take turns cooking meals for toddlers at the integrated nutrition services so they can learn to practice new habits and be able to do them at home. During the preparation of menus for children, health workers provide health education to mothers/caregivers and invite children to play by providing educational game tools and practicing personal hygiene behavior.

After the food menu is ready, the cadres and mothers/caregivers practice eating together and monitoring the toddler's diet with the aim of active feeding (feeding patiently and painstakingly, looking into the child's eyes, telling stories, and persuading children) toddlers can finish their food at the integrated nutrition services. Data were collected through observation, interviews, and documentation. Primary data was taken using observation sheets to respondents which were carried out by researchers directly assisted by integrated nutrition services supervisors. Secondary data is data on the number of children under five who experience nutritional problems in the working area of Tanah Garam Public Health Center, Solok City. Univariate analysis was used to see the characteristics or description of the variables of weight change before and after integrated nutrition services and the analysis was presented in the form of mean, median, and standard deviation. Bivariate analysis was performed using a dependent t-test with a 95% confidence level ($\alpha = 0.05$).

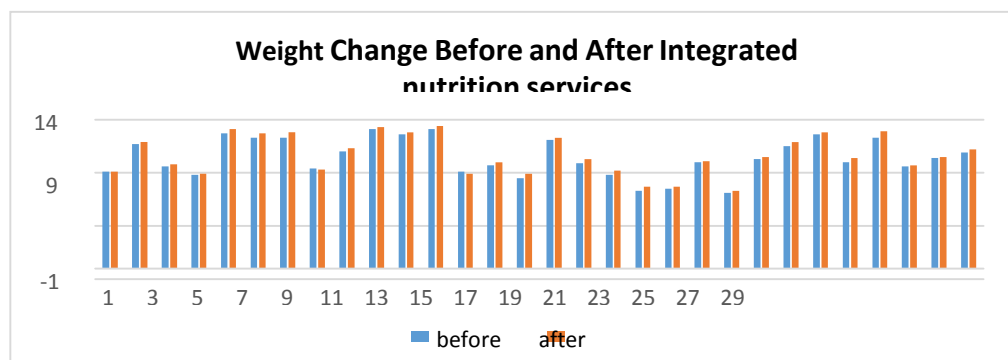
Result and Discussion

a sample of 30 children under five consisting of 10 people per class per village (3 classes), weighing children under five at the integrated nutrition services s carried out on day 1 and day 10. The research sample consists of 9 people boys and 21 people girls. Changes in the weight of toddlers before and after the integrated nutrition services can be seen in table 1

Table 1. Changes in the Weight of Toddlers After The Integrated nutrition services

Weight	f	Percentage %
not gaining weight	7	23,3
weight gain	23	76,7
	30	100.0

Based on table 1, it can be seen that after the integrated nutrition service re carried out, 23 children under five (76.7%) experienced weight gain, after being given integrated nutrition services s for 10 days to the respondents. The lowest body weight before integrated nutrition services 7,1 was nd the highest body weight was 13,1 with the average weight before integrated nutrition services as $10.69 \pm 1,77$ while the lowest body weight after integrated nutrition services was 7,3 and the highest body weight was 13, 4 with the average body weight after integrated nutrition services were $10,44 \pm 1,82$. The results showed an increase in growth status after integrated nutrition services, the mean body weight increase from baseline to end line was $0,25 \pm 1,17$ kg. After the integrated nutrition services were carried out on the respondents for 10 days with different menus, it can be seen the graph of changes in the weight of 30 children under five in graph 1



Graph 1. Weight Change Before and After Integrated nutrition services

More than half of the children under five who were sampled were female (70%), with an age distribution of 14 months - 58 months and the order in the family as the second/third child was 21 people (70%). Weight before the implementation of integrated nutrition services by the standards of the Ministry of Health shows that all respondents have a weight that is not by age. Gender and order in the family affect the nutritional status of a child under five. According to the model developed by Johnson in the "Conceptual framework of causes of malnutrition and death" based on an ecological approach that many things affect the emergence of nutritional problems in children under five, one of which is rooted in culture. According to certain cultures, boys should get more food than girls, and boys have priority to get food⁹.

The implementation of integrated nutrition services is very appropriate to do to increase the weight of toddlers because it maximizes the resources, skills, and strategies available to the community through broad participation and learning, and working together. Some of the behaviors of families with toddlers that can be improved through the implementation of integrated nutrition services are: Feeding habits include breastfeeding, active feeding, feeding during illness and healing as well as dealing with children who have a low appetite.

Salam et al.'s 2015 study entitled the effect of positive deviance-based nutrition classes on increasing knowledge, attitudes and behavior of mothers under the red line (BGM) in Mantang Village, Batukliang District, Central Lombok Regency, NTB Province stated that positive deviance-based nutrition classes could increase knowledge, attitudes, and behavior and the behavior of mothers under five with malnutrition. After participating in nutrition class activities, mothers of toddlers can provide nutritious food using affordable local food ingredients. The activities of the toddler nutrition class included discussions, health counseling, and cooking demonstrations together which aim to increase knowledge and train mothers in feeding toddlers⁷.

After the integrated nutrition services were carried out on the respondents for 10 days there was a change in the Z-Score value of the respondent's weight, before the integrated nutrition services the weight Z-Score value was - 2.3167, and after the integrated nutrition services there was an increase in the Z-Score value, the weight of children under five was - 2.1237, this is due to the respondent's mother providing food according to the advice of the nutritionist so that the child's weight increases within 10 days while there is no change in the Z-Score value of weight in children under five this is because the mother or caregiver does not practice feeding and hygiene of children what is good and right at home. From the dependent t-test, it is known that the effect of implementing integrated nutrition services on changes in the Z-Score of body weight of children under five in the working area of Tanah Garam Public Health Center Solok City on respondents can be seen in table 2.

Table 2. The Effect of Integrated nutrition services Implementation on Changes in the Z-Score of Toddler Body Weight

Weight	Mean	SD	SE	p-value	n
Before integrated nutrition services	- 2.3167	0.3662	0.0668	0,000	30
After integrated nutrition services	- 2.1237	0.3888	0.0710		

Based on table 2, it can be seen that the average Z-Score of body weight of children under five

before the integrated nutrition services was - 2.3167, and after the integrated nutrition services there was an increase in the average Z-Score of the weight of children under five was - 2.1237. The statistical test found that there was a significant difference between growth status before and after integrated nutrition services ($p = 0.000$). It can be concluded that the implementation of the integrated nutrition services affects increasing the weight of children under five accompanied by an increase in the z score.

The results of the study are in line with the research of Salam et al, 2015. Another research conducted by Taufiqqurahman & Masthalina, 2012 regarding the influence of nutrition classes on knowledge, attitudes, actions, parenting patterns, and bodyweight of children under five in handling malnutrition problems shows that nutrition class programs influence increasing knowledge, parenting patterns, attitudes, and toddler weight. The success of the nutrition class program can be seen from the purpose of holding nutrition classes, namely to increase awareness, knowledge, and skills of mothers/families^{7,8}.

The purpose of the integrated nutrition services is the recovery of malnourished toddlers (increase the child's weight at least 200-400 grams or follow the normal growth line in KMS in 1-3 rounds of integrated nutrition services. implementation of integrated nutrition services is effective in improving the growth status of children under five. with the implementation of integrated nutrition services s for children under five and supervised in its implementation, it can improve the nutritional status of children under five who previously had less chance towards better nutritional status. After participating in integrated nutrition services activities, mothers of toddlers can provide nutritious food using affordable local food ingredients.

Conclusion and Recommendation

From this research, it can be concluded that integrated nutrition services affect the weight of children under five. The mean body weight increase from baseline to end line was $0,25 \pm 1,17$ kg, while the WAZ increased from -2.32 to -2.12. The implementation of integrated nutrition services could potentially improve the body weight of underweight children. It is recommended that all healthy underweight children participate in implementing the program.

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