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OVERVIEW OF MORINGA LEAF PUDDING ADMINISTRATION ON HEIGHT AND WEIGHT IN STUNTED CHILD An. M IN JETIS VILLAGE, KEMANGKON DISTRICT, PURBALINGGA REGENCY VILLAGE

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Abstract

Stunting is a condition of failure to thrive in children under 5 years of age due to chronic malnutrition, especially in the first 1.000 days of life (HPK), which is apparent after the child is years old, resulting in the child being shorter than thein peers In Purbalingga Regency, the prevalence of stunting in toddlers is 26,8 %, wasting in toddlers is 6,5 %, and underweight in toddlers 16,1%. The prevalence of stunting in Purbalingga Regency remains relatively high, thus requiring affordable and safe local nutritional interventions to support the growth and development of children under five. One of the alternative approaches to address stunting is through the provision of moringa leaf pudding. This study aimed to determine the changes in body weight and height after the administration of moringa leaf pudding in a stunted toddler over a 14-day intervention. This qualitative case study was conducted on a two-year-old stunted toddler (An. M). The intervention consisted of providing 100 grams of moringa leaf pudding every two days (a total of seven servings) over 14 days. Anthropometric measurements were taken at baseline (before intervention), at the seventh meeting, and at the end of the intervention (fourteenth meeting). In addition, observation of pudding acceptance and a brief interview with the family regarding dietary habits were conducted. After receiving moringa leaf pudding every two days for 14 days, the toddler experienced a weight gain of 0.4 kg and an increase in height of 0.9 cm. Observations indicated that the child accepted the moringa leaf pudding well, although mild boredom occurred midway through the intervention. Interviews with the family revealed that the provision of moringa leaf pudding improved the toddler's appetite, leading to measurable weight and height gains. The provision of moringa leaf pudding every two days for 14 days had a positive effect on increasing body weight and height in this case of a stunted toddler. Therefore, moringa leaf pudding may serve as an alternative nutritional support to improve the growth of stunted children, particularly in regions with a high prevalence of stunting.

Keywords: Moringa Leaf Pudding, Stunting, Toddlers

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1. INTRODUCTION

Growth and development of children are most significant from the beginning of pregnancy to 24 months old, as this period sees rapid growth and development. The quality of life of children is influenced by nutrient intake during this period. To address stunting, especially in developing countries in Southeast Asia, nutrition fulfillment and control of poor nutritional status are necessary (Qodrina & Sinuraya, 2021). Adequate nutrition can affect growth and development, while inadequate nutrition puts children at risk of nutritional problems like stunting. Stunting in Indonesia is a major nutritional problem, with short-term and long-term effects (Purnama & Hikmah, 2024).

Stunting is a condition of growth failure in children under 5 years due to chronic malnutrition, especially in the first 1000 days of life. A child is considered stunted if their z-score is less than -2 SD (stunted) or less than -3 SD (severely stunted). Anthropometric measurements are adjusted according to World Health Organization (WHO) standards (Astuti et al., 2020).

Indonesia has four main nutritional problems, with stunting being the most prevalent, according to the Indonesian Nutrition Status Survey (2022). In Southeast Asia, Indonesia has a high prevalence of stunting, with 31.8% in 2020 and 21.6% in 2022, still below WHO

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standards. According to WHO, a region with a stunting prevalence above 20% or wasting above 5% is considered a nutritional problem (Marini & Suryati, 2023).

In Central Java Province, the prevalence of stunted children is 20.8%, while in Purbalingga Regency, it is 26.8%. The main cause of stunted growth is nutritional problems, which can be addressed through optimal nutrition intake. Factors contributing to stunting include lack of parental knowledge, socioeconomic status, and environmental sanitation (Qodrina & Sinuraya, 2021).

One way to prevent stunting is by consuming moringa leaf pudding. Moringa oleifera is a tropical plant that grows easily in Indonesia. It is a shrub that can grow up to 7-11 meters tall and can thrive in various soil types and climates (Aulia & Kurnia, 2021).

The most prominent content of moringa leaves is high antioxidants, especially in the leaves. Based on phytochemical tests, moringa leaves (Moringa oleifera) contain tannins, steroids, triterpenoids, flavonoids, saponins, anthraquinones, and alkaloids, all of which are antioxidants (Sinuraya, 2021). Additionally, (Hidayati & Restanty, 2024) state that children with protein deficiency can be helped with moringa leaves due to their arginine and histidine content, which aids in protein binding for growth. Consuming moringa leaves is an alternative to addressing nutritional deficiencies in Indonesia.

Moringa leaf powder contains 10 times more vitamin A than carrots, 17 times more calcium than milk, 15 times more potassium than bananas, 9 times more protein than yogurt, and 25 times more iron than spinach. According to Fathnur's research (2018), giving 100g of moringa leaf pudding every 2 days for 14 days showed an increase in nutritional status in children, particularly in weight gain. The pudding contains 0.67g of protein, 17.645g of carbohydrates, 3.58g of fat, and 140.69 calories, which can meet the nutritional needs of children.

Moringa leaves also contain vitamins A, B, C, zinc, and calcium. The calcium content in moringa leaves is 1,600-2,200 mg, which can increase height in children during growth. Other essential amino acids in moringa leaves are necessary for muscle growth and development in children. According to Fathnur's journal (2018), a study on the effectiveness of moringa leaf pudding on weight change in malnourished children showed that out of 17 children, 4 had stable weight, 5 had decreased weight, and 8 had increased weight.

Based on the above description, there is a change in weight in children with malnutrition after being given moringa leaf pudding. Therefore, the author is interested in writing a scientific paper titled "Overview of Moringa Leaf Pudding Administration on Height and Weight in Stunted Children in Jetis Village, Kemangkon District, Purbalingga Regency".

2. RESEARCH METHOD

The type of research used is qualitative research with a case study method. Qualitative research is a research method that produces detailed human experiences regarding social, cultural, and historical aspects. This research method focuses more on description than measurement. Qualitative research involves several systematic stages, such as research topics, data collection, data analysis, interpretation, and data verification (Darmawan et al., 2023). Meanwhile, the case study method is a series of scientific activities carried out intensively to gain insight and detailed information about an event. This event is usually something that is currently happening, not something that has happened in the past (Ridlo, 2023).

3. RESULTS AND DISCUSSION

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A. RESULTS

In this case study, the researcher used one child with stunting in Jetis Village, Kemangkon District, Purbalingga Regency. The patient, An. M, is a 2-year-old toddler with malnutrition status, characterized by low height and weight for their age according to the nutritional standards set by the Ministry of Health. This study focused on administering moringa leaf pudding to stunted toddlers every 2 days for 14 days. Measurements of height and weight were taken at the following intervals: meeting 1 (before administering the pudding), meeting 7, and meeting 14.

Before conducting the research, an assessment was carried out through interview techniques with the patient's family and measurements of weight and height. The patient's family reported that An. M's appetite was not good, as they often ate snacks outside. Here are the results of the height and weight measurements of An. M during the study.

Results of Weight and Height Measurements

Observasi	Pertemuan ke 1	Pertemuan ke 7	Pertemuan ke 14	Hasil Rata rata
Berat Badan	9,8 kg	10,0 kg	10,2 kg	0,4 kg
Tinggi Badan	78,3 cm	78,5 cm	79,2 cm	0,9 cm

A. Discussion

The researcher obtained several data during observation, including that the patient is a stunted toddler who often receives supplementary food from the posyandu (integrated health post) and puskesmas (community health center). However, the patient has a low interest in eating a balanced diet for daily nutrition. The patient prefers buying snacks and eating chiki, which contributes to their poor nutritional status. According to Faridi et al. (2023), one of the causes of stunting in toddlers is inadequate energy intake. The study found that most toddlers have low intake compared to their needs due to consuming food in insufficient quantities and frequencies.

The World Health Organization (WHO) states that inadequate energy intake cannot maintain body weight and increases the risk of nutritional problems. Inadequate energy intake can trigger the body to use stored energy from muscles and fat. According to the Indonesian Ministry of Health (2020), the median weight and height for a 2-year-old girl are 11.5 kg and 85.7 cm, respectively. However, the observation results for An. M showed a weight of 9.8 kg and height of 78.3 cm, which is below the standard and indicates stunting.

Additionally, An. M's birth length was 48 cm, which is below the median standard of 49.1 cm according to the Indonesian Ministry of Health (2020). This indicates that An. M has been below the growth standard since birth. Therefore, An. M meets the inclusion criteria for this case study on the administration of moringa leaf pudding for stunted toddlers.

The administration of moringa leaf pudding to An. M is one way to change their nutritional status. The parents and family have agreed to the intervention, which involves giving 100g of moringa leaf pudding every 2 days for 14 days. This is documented in the informed consent form.

On the first day of administration, An. M was very enthusiastic about the moringa leaf pudding and finished it all. The same enthusiasm was observed on the third, fifth, and seventh

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meetings. On the seventh meeting, before administering the pudding, measurements of weight and height were taken again, and the results showed a height of 78.5 cm and a weight of 10.0 kg. This indicates an increase of 0.2 cm in height and 0.2 kg in weight. In conclusion, there was an improvement in nutritional status due to the administration of moringa leaf pudding, but An. M's nutritional status was still below standard and categorized as stunting.

The moringa leaf pudding was able to improve An. M's nutritional status on the seventh meeting due to its high antioxidant content, particularly in the leaves (Hidayati et al., 2024). Additionally, moringa leaves contain arginine and histidine, which can bind protein for growth. Toddlers with poor nutritional status can be helped with adequate protein intake (Hidayati et al., 2024).

After the seventh meeting, An. M continued to consume the moringa leaf pudding until the 14th meeting, with a total of 7 administrations in 14 days. The researcher observed An. M's consumption of the pudding and found that An. M liked it and finished it all. However, in the middle of the study, An. M became slightly bored with the pudding in cups, so the researcher changed the packaging to plastic containers, which An. M still enjoyed.

The study found that one of the causes of stunting in An. M was improper parenting, as An. M's mother worked outside the home and An. M was cared for by their grandmother. The grandmother reported that An. M was a picky eater and often bought snacks. Proper parenting, especially in providing nutrition, can determine a child's nutritional status in the future (Noorhasanah & Tauhidah, 2021).

On the 14th meeting, the results showed a height of 79.2 cm and a weight of 10.2 kg. After 14 days of consuming moringa leaf pudding, An. M experienced an increase of 0.9 cm in height and 0.4 kg in weight. This is consistent with a study by Fathnur (2018) that found that moringa leaf pudding can improve weight in stunted toddlers.

The moringa leaf pudding contains 0.67g of protein, 17.645g of carbohydrates, 3.58g of fat, and 140.69 calories per 100g serving, which can meet the nutritional needs of toddlers. Additionally, moringa leaves contain vitamins A, B, C, zinc, and calcium, which can support growth and development in toddlers.

4. CONCLUSION

Based on the research results and objectives, after administering 100g of moringa leaf pudding every 2 days for 14 days, there was a change in An. M's nutrition, particularly in weight and height. An. M's weight increased from 9.8 kg to 10.2 kg, resulting in a weight gain of 0.4 kg over 14 days. An. M's height increased from 78.3 cm to 79.2 cm, resulting in a height gain of 0.9 cm over 14 days.

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