ORIGINAL ARTICLE

Assessing Foodservice Management: A Study of Social Homes in Palangka Raya, Indonesia

Dhini Anden[1], Munifa[1], Resna Maulia[1], Abdullah Al Mamun[2]

[1] Department of Nutrition, Health Polytechnic of Palangka Raya, 73111 Palangka Raya, Indonesia
[2] Faculty of Public Health, Universitas Airlangga, 60115 Surabaya, Indonesia

ABSTRACT

Introduction: Effective foodservice management in social homes and orphanages is vital for ensuring residents' nutritional needs are met. Foodservice management in these establishments aims to provide balanced nutrition to residents. This study aimed to assesses the effectiveness of foodservice management by evaluating input, process, control, environment, and output (food intake, macro nutrition intake, and nutritional status) in social homes. **Materials and methods:** A cross-sectional study was conducted in two social homes from June to October 2023. Both social homes (A and B) are located in Palangka Raya City of Indonesia and administered by provincial government and church, respectively. **Results:** Office hours at home A and B in a week took about 30-45 hours, falling short of standard requirements. Funds in home A complied with regulations, while those in home B did not meet governmental standards. Human resources in both homes lacked hygiene and sanitation training. Ingredient supplies were insufficient due to a lack of policy governing foodservice management, particularly regarding menu cycles. Despite the absence of menu planning, employees engaged in purchasing, storage, preparation, processing, and distribution activities. Sanitation practices appeared neglected. Average adolescent energy nutrient intake in both homes fell below Indonesia's recommendations, except for protein intake in home B. Nutrition status in home A reflected a 15.4% prevalence of thinness, with the majority having a normal status (69.2%). Home B demonstrated better nutrition status, with 90.4% of residents classified as normal and 9.6% as obese. **Conclusion:** The implementation of foodservice management, encompassing input, process, control, environment, output, and outcome, was found to be inadequate in both homes, necessitating further evaluation.
Malaysian Journal of Medicine and Health Sciences (2024) 20(SUPP9): 91-98. doi:10.47836/mjmhs20.s9.15

Keywords: Foodservice, Social, Caregiving, Orphan, Nutrition

Corresponding Author:
Dhini Anden, M.Kes
Email: dhini.anden@polkesraya.ac.id
Tel: +6287846803434

INTRODUCTION

As the global population of orphaned children (OC) rises, the urgency to determine the most effective means of assisting them increases. While orphanages and similar institutions were once prevalent as a care solution for OC, this approach has been largely abandoned in developed nations due to extensive evidence indicating that institutionalized forms of care pose risks to the psychosocial well-being of children and are not cost-effective (1–3). However, in less developed countries, institutional care remains prevalent due to factors such as the rise in orphaned children resulting from HIV/AIDS (4) and the COVID-19 pandemic (5).

Living in institutional care has been linked to negative effects on cognitive development, academic performance, and physical health outcomes such as stunted growth and malnutrition. The nutritional status of children in institutions can negatively affect their health and well-being. Many of these children suffer from various forms of malnutrition, including undernutrition, overweight, and micronutrient deficiencies. Generally, children in institutional care have poorer growth, diet, and micronutrient status compared to their peers in the community. Nutritional status varied between different care centers and age groups, with younger children being at higher risk of malnutrition (6). Additionally, it increases the likelihood of behavioral issues, such as overly friendly behavior towards strangers (7). Despite these risks, over 123 million children worldwide are still raised in institutions (8). Decisions to place children in institutional care are often influenced by natural disasters, wars, and severe hardship, which may not prioritize the best interests of the children. Institutional foodservice, which includes various organizations such as university dining halls, hospitals, nursing homes, orphanages, and government agencies, faces numerous challenges, particularly regarding cost. Budget constraints have significant impacts on sustainable food service in institutional level.

Food service management (FSM) is the comprehensive

approach of organising, and controlling all aspects related to the provision of food services. FSM is a complex system comprising interrelated subsystems, including inputs, processes, control, environment, and outputs (9). Inputs involve manpower, finances, materials, equipment, methods, and market considerations. Processes encompass procurement, production, and distribution, alongside the implementation of hygiene and safety protocols. Control entails the supervision of procedures and standards, while the environmental aspect focuses on maintaining hygienic conditions in the kitchen and surroundings. Outputs are assessed through factors such as the nutritional status of consumers. Institutions are aim to provide high-quality, varied, and nutritionally adequate meals while adhering to sanitary standards (10). However, challenges such as limited funds and facilities can impact the nutritional status of adolescents, particularly those in social homes.

Malnutrition among adolescents in social homes can be attributed to inadequate funds and facilities, leading to deficiencies in essential nutrients. Adolescents, especially females, are particularly susceptible to anemia due to physiological demands for micronutrients like iron and folic acid, which are crucial for their development. In Indonesia, teenage girls aged 10-20 require 8 to 18 milligrams of iron per day, while males in the same age group need around 8 to 11 milligrams per day (11). Iron deficiency, primarily due to inadequate dietary iron intake, is considered the most common nutritional deficiency leading to anaemia. Insufficient iron intake can impair cognitive function and academic performance, leading to symptoms such as apathy, fatigue, and weakness. According to the Social Service data in Central Kalimantan for 2022, there are 74 social home institutions, housing a total of 3,238 children, with 73% residing in social homes and 27% having been adopted (12). The quality of foodservice in these social homes largely depends on management practices and funding sources. However, data on foodservice quality and the nutritional status of orphans are scarce, necessitating an evaluation of foodservice quality across different social homes.

This study aims to assess the quality of foodservice in two social homes in Palangka Raya, each operated by different entities: one funded by the Central Kalimantan province (home A) and the other coordinated by a church and relying on member donations (home B). The evaluation will cover FSM aspects including inputs, processes, control, environment, outputs (such as food acceptance and macro nutritional intake), and outcomes (such as nutritional status). This comprehensive assessment will help identify strengths and areas for improvement in FSM practices, ultimately contributing to better nutritional outcomes for adolescents in these social homes.

MATERIALS AND METHODS

Study Location

This study was conducted in two social homes in Palangka Raya, Indonesia. Social Home A is administered by the Central Kalimantan Province Government, while Social Home B is managed by a foundation under the Evangelical Church of Kalimantan (GKE). These locations were selected because they both house adolescents, allowing for a comparative analysis of foodservice management.

Study Design

This is a cross-sectional mixed methods study combining both quantitative and qualitative research methods to evaluate foodservice management in the two social homes. Quantitative data on intake and nutritional status were first collected, followed by qualitative data through interviews and observations to explore the reasons behind the previous quantitative results. The target population comprised adolescent orphans, with the study involving a total of 60 participants: 39 from Social Home A and 21 from Social Home B.

Participants

For qualitative data, the respondents included foodservice managers and cooking staff, while for quantitative data, the sample consisted of students from the orphanages. The subjects included leaders and foodservice staff from both social homes. Specifically, Social Home A had one leader and two chefs, while Social Home B had one leader and one chef. The adolescents residing in these homes also participated in the study. All participants provided informed consent before data collection began.

Data Collection

Data were collected through interviews, observations, and dietary assessments. The process included the following steps:

(a) Interviews and Observations

Conducted with leaders and foodservice staff to gather data on inputs, processes, control, and the environment. Interviews lasted approximately 30–45 minutes and were recorded with the participants' consent. Observations focused on foodservice practices and hygiene conditions within the kitchens and surrounding areas.

(b) Dietary Assessments

A 24-hour dietary recall and food weighing method were used to evaluate the food intake of the adolescents (13). Data on dietary preferences were collected using a Hedonic questionnaire, which categorized preferences

into 'strongly like,' 'like,' 'dislike,' and 'strongly dislike'.

(c) Nutritional Status Assessment
Anthropometric measurements (weight and height) were taken to assess the nutritional status of the adolescents. For participants under 18 years, Z-scores were calculated using WHO Anthro software (version 1.7). For those 18 years and older, Body Mass Index (BMI) was calculated using a BMI calculator app (version 175).

Data Analysis
The study utilized the Input-Process-Output-Outcome (IPOO) model to structure the analysis (Figure 1). This model is effective for identifying and evaluating the lifecycle stages of foodservice management systems (14). Evaluates the nutritional status of the adolescents based on anthropometric measurements. Qualitative data were processed by comparing observations and interview responses against Indonesian foodservice standards. Quantitative data, such as food intake, were analyzed by comparing the adolescents' dietary intake with Recommended Dietary Allowances (RDA). Statistical analyses included independent t-tests or Mann-Whitney tests to determine differences between the two social homes.

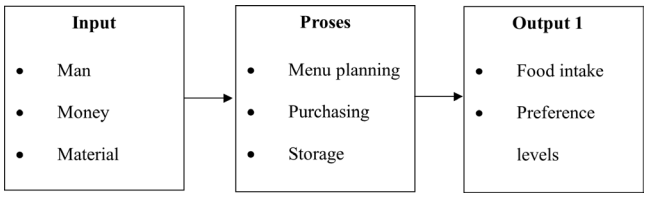

Figure 1: The illustration of the input-process-output model (IPO model).

Ethical Clearance
The study received ethical approval from the Palangka Raya Health Polytechnic Ethics Committee (Approval No. 500/XII/KE.PE/2022). Additionally, research permits were obtained from relevant local authorities, including Bappeda Province (Permit No. 072/0382/I/Bapplitbang) and the One-Stop Integrated Service Agency (PTSP) of Palangka Raya (Permit No. 503.2/0026/DPMPTSP/IPU/VIII/2023).

RESULTS

The study was conducted in two social homes in Palangka Raya, accommodating adolescents aged 10-29 years. Home A had 39 residents and no on-site managers, while Home B had 28 residents and six managers, including an advisor, supervisor, secretary, finance officer, and dormitory supervisor. Neither home employed a nutritionist. The general information about the study locations is represented in Table I.

Table I: General information on study locations

	Social home A	Social home B
Run by	Social Department of Central Kalimantan Province	Kalimantan Evangelis Church (GKE)
Number of inhabitants	39 adolescents	28 adolescents
Number of managers	15 people	6 people
Manager members	Chief Executive Officer of Rehabilitation Unit, Provincial Social Department	Advisor, Supervisor, Chief, Secretary, Finance, and dormitory supervisor.
Nutritionist	Not available	Not available

Social Demographic Characteristics
The data on age, mean, and standard deviation (SD) of the adolescents in social homes A and B are presented in Table II. Most residents were male in both homes: 74.4% in Home A and 66.7% in Home B. The age distribution varied, with Home B having a higher proportion of younger residents (13-15 years: 57.1%) compared to Home A (5.12%). The average age of adolescents residing in social home A is 17.8 ± 1.24 years, while the average age of those in social home B is 13.9 ± 2.1 years. As shown in Table II, the average age of adolescents in social home A is significantly higher than that of those in social home B.

Table II: Inhabitant characteristics in the social home A (n=39) and B (n=21)

Variable	Home A n (%)	Home B n (%)
Age (years)		
10 - 12	0 (0)	5 (23,8)
13 - 15	2 (5.12)	12 (57.1)
16 - 18	25 (64.1)	4 (19)
19 – 29	12 (30.7)	0 (0)
Mean (SD)	17.8 (1.24)	13.9 (2.1)
Min-max	15-20	11-18
Gender		
Female	10 (25.6)	7 (33.3)
Male	29 (74.4)	14 (66.7)

Inputs in the social homes
Man: Home A had two foodservice employees (Table III) with secondary and higher education backgrounds, respectively, working approximately 30-49 hours per week, which exceeded government regulations. Home B had one employee with a secondary education background working 49 hours per week. Neither home provided hygiene or sanitation training to their employees, contrary to government regulations.

Table III: Input in the A and B homes.

Input	Classifications	Home A	Home B
Man	Resources	2 individuals aged 49 and 60 years, educational background: senior high schools and higher education.	1 individual aged 41 years, educational background: senior high schools.
Money	Funds	1.93 USD/day/person	0.65 USD/day/person
Material	Infrastructures	A room of 2x3 meters with an L-shaped table layout.	A room of 3x8 meters with an L-shaped table layout.
Method	Policies	Proper catering budget	Inadequate catering budget

Home A allocated 1.93 USD/day/resident for food, meeting government standards, while Home B allocated only 0.64 USD/day/resident, falling short of the standard. The limited funds in both homes affected the quality and nutritional value of the food provided. Both homes had basic kitchen facilities and food storage areas. Home A's kitchen was smaller (2x3 m) compared to Home B (3x8 m). Both homes lacked proper hygiene facilities, and food storage did not follow the first-in, first-out (FIFO) system. Both homes provided three meals daily but did not use a menu cycle. Home B occasionally received food donations, affecting menu consistency. Food preparation involved basic cooking techniques without proper hygiene practices, increasing the risk of food contamination.

Operational processes in social homes

The processes in social home A and B, including menu planning, purchasing, storage, preparation, cooking, and distribution, are detailed in Table IV. Home A adjusted menus based on budget and ingredient availability without a set cycle. Home B previously used a menu cycle but discontinued it due to resident preferences. Meals typically included rice, eggs, vegetables, and occasionally meat or chicken. Home A purchased fresh ingredients every 1-2 days and dried ingredients every 3-4 days. Home B bought fresh ingredients daily. Both homes faced challenges with rising food costs and limited budgets. Both homes stored wet ingredients in refrigerators and dry ingredients in cabinets, often with inadequate hygiene practices. Food preparation involved basic washing and cutting, with employees working without gloves or hairnets. Meals were prepared three times a day with assistance from residents. This practice increased the risk of food contamination due to poor hygiene. Home A used a self-service system with sealed boxes, while Home B served food buffet-style. Both methods allowed residents to serve themselves in communal dining areas.

Table IV: Food handling process in the two homes.

Process	Home A	Home B
Menu planning	No menu cycle	No menu cycle
Ingredients' purchases	Fresh ingredients were bought every 1-2 days while dried ingredients were bought 1-2 months.	Fresh ingredients were bought every day while dried ingredients were given by donators.
Storage	Fresh ingredients were straightly used whereas leftovers were stored in a refrigerator.	Fresh ingredients were straightly used whereas leftovers were stored in a refrigerator. Dried ingredients were stored on stacked shelves.
Preparation	Chefs were not equipped with personal protective aids, for example, gloves and hairnets. However, they washed their hands before cooking.	Chefs were not equipped with personal protective aids, for example, gloves and hairnets. However, they washed their hands before cooking.
Food processing	Two female workers managed food processing daily by turn. Food was prepared 3 times a day: breakfast, lunch, and dinner.	Food processing was managed by a superintendent with the help of female social home inhabitants and a few male inhabitants. A daily cooking schedule was planned in which four people cooked for the whole day starting from morning to evening.
Food distribution	Food was served in containers and prepared for each person.	Food was served in a buffet style which refers to a buffet features long tables topped with a wide variety of food options.

Nutritional management in social homes

Table V reveals that the average nutrient intake of adolescents in social home A falls short of the recommended dietary allowance (RDA) for fat, while in social home B, the nutrient intake that does not meet the RDA is carbohydrates. The average daily nutrient intake in both homes did not meet Indonesian nutritional recommendations, except for protein intake in Home B. This finding aligns with other studies indicating low nutrient intake in similar settings. Residents generally disliked vegetables and certain meats due to texture, taste, and aroma. This preference aligns with broader trends in Indonesia, where vegetable consumption is often below recommended levels.

Table V: Average (± standard deviation) energy and nutrient intakes of residents in homes A and B.

Nutrients	Home A Mean (SD)	Home B Mean (SD)	Sig. (2-tailed)	Nutrient Intake Recommendation
Energy (kcal)	1527.2 (132.1)	1423.1 (145.3)	0.015	1900 – 2650
Protein (g)	43.5 (3.9)	56.5 (7.6)	0.000	50 – 75
Fat (g)	46.2 (18.7)	51.5 (8.2)	0.000	60 – 85
Carbohydrate (g)	275.8 (29.5)	186.5 (23.6)	0.000	280 – 430

Significant at 0.05 using independent t-test.

The outcomes for the nutritional status in social home A and B are presented in Table 6. The nutritional status based on BMI-for-age (Z Score) for adolescents aged ≤ 18 years in social home A shows 3 individuals (11.1%) with undernutrition, 19 individuals (70.4%) with normal nutrition, and 5 individuals (18.5%) with overnutrition. In social home B, there are no cases of undernutrition, 20 individuals (95.2%) with normal nutrition, and 1 individual (4.8%) with overnutrition. For adolescents aged >18 years in social home A, Table VI indicates that 3 individuals (25%) are underweight, 8 individuals (66.7%) are of normal weight, and 1 individual (8.3%) is overweight. There are no adolescents aged >18 years in social home B. However, Home A had higher rates of thinness and obesity, indicating more significant nutritional issues. Both homes subscribed to the local water supply but had inadequate waste management systems, poor kitchen ventilation, and insufficient lighting. These conditions contributed to hygiene and health risks for residents.

Table VI: Comparison of nutritional status in residents of home A and B

Category	≤18 years		>18 years	
	Home A n (%)	Home B n (%)	Home A n (%)	Home B n (%)
Normal	19 (70.4 %)	20 (95.2 %)	8 (66.7%)	0
Thinnes	3 (11.1 %)	0	3 (25%)	0
Obesity	5 (18.5 %)	1 (4.8 %)	1 (8.3%)	0
Total	27 (100%)	21 (100%)	12 (100%)	0

DISCUSSION

Based on the review of the input aspects, it was found that the food handlers in social home A and B do not meet the working hours criteria according to Government Regulation No. 35 of 2021 on Specific Work Agreements, Outsourcing, Working Hours, Rest Time, and Termination of Employment. The regulation stipulates an 8-hour workday and a 40-hour workweek for five working days. However, food handlers in social home A and B work ≥ 40 hours per week. Excessive time spent on cleaning can pose a threat to the mental health of workers, whereas more time allocated to enjoyable activities, such as informal education, benefits the mental health of social home workers (15).

Additionally, the food handlers in both social homes are inadequate and have never received training on hygiene and sanitation. Food handlers are required to have a hygiene and sanitation certificate organized by the Ministry of Health, Provincial Health Offices, District/ City Health Offices, or other institutions according to statutory regulations (16). However, obtaining trained food handlers is difficult due to the specialized nature and cost of training. This finding aligns with the research by Ridzwan et al. in Pahang, which identified financial and management challenges faced by social home operators in Malaysia, including asset ownership and financial control, as well as documentation control and staff competency. Research by Pistoane and Makahane (2023) further supports that training has a positive impact on social home staff, providing motivation and improving morale, with some staff recommending management teams conduct skill audits and implement personal development plans (17).

Funding for food provision at social home A meets the standards set by the Indonesian Minister of Finance Regulation No. 83/PMK.02/2022 on Input Cost Standards for the 2023 Fiscal Year, specifically food procurement for Social Welfare Problems (PMKS) amounting to Rp. 30,000/day/person (18). In contrast, the food procurement cost at social home B, Rp. 10,000/ day/person, does not meet the standard. Limited funds result in unbalanced food quality and nutritional value, failing to meet the nutritional needs of adolescents. According to Aziz et al. (2023), inadequate financial support can hinder improvements in infrastructure, healthcare services, educational resources, and recreational activities (19). Nevertheless, donations of food and logistics support the food needs at social home B. Observations of material aspects, including facilities and infrastructure, indicate that both social homes A and B do not meet food service flow requirements and need additional equipment to fulfill needs in areas such as food reception, dry and fresh food storage, food preparation, cooking, washing, and storage. Limited food service space is linked to the theory that orphanages often rely on donations and limited resources, restricting their ability to provide high-quality facilities (20). However, the undernutrition status among both social homes is different even the monthly expenditure per person is different. It could be because of difference in food consumption with food items. I addition, the personal practice of unhealthy foods or proper utilization of the money to maximize the nutrients content may affect the nutrition status among children.

Policies related to food service in social homes A and B

do not meet the standards set by the Indonesian Ministry of Social Affairs Regulation No.30/HUK/2011, which governs the National Child Care Standards for Child Welfare Institutions. The regulation stipulates that food should be provided three times a day with two snacks (21). While both social homes provide three meals daily, only one snack is offered. This finding is consistent with research conducted at Aisyiyah Kudus Orphanage (2021), which highlighted the lack of professionalism, facilities, and training policies affecting food handlers' ability to prepare standard and budget-compliant menus (22).

The food service process at social homes A and B includes menu planning, purchasing, storage, preparation, cooking, and distribution. However, social home A does not have a menu cycle due to funding and food availability constraints, and social home B no longer uses a menu cycle as it does not match adolescents' preferences. This aligns with findings at LKSA Widhya Asih Orphanage, where menus are based on available food items. Food procurement at both social home is done by direct purchase at markets due to limited storage space. Fresh food items are used immediately or stored in refrigerators if left over. Similar practices were observed at Aisyiyah Muhammadiyah Kupang Orphanage, where fresh food is purchased daily, meat and fish every three days, and dry food donations are received monthly (23).

Both social homes do not implement the First in First Out (FIFO) or First Expired First Out (FEFO) systems, and food handlers do not check food items before storing and using them. This practice was also noted at Aisyiyah Muhammadiyah Kupang Orphanage (24). In terms of preparation, neither orphanage meets hygiene and sanitation principles as food handlers do not use gloves, aprons, or head covers, though they wash their hands before preparation. Lack of proper PPE can lead to food contamination, and poor hygiene practices can contribute to food poisoning.

Interviews and observations regarding food processing at both social homes indicate that the meals do not meet balanced nutrition principles. The balanced nutritious menu should include staple foods, animal protein, vegetable protein, vegetables, and fruits, but social homes A and B only provide staple foods, animal protein, and vegetables. This finding is consistent with research at Aisyiyah Kudus Orphanage, where food processing relies on the experience of kitchen staff. social home A uses a centralized distribution system with pre-portioned meals in food boxes, while social home B uses a decentralized buffet system. This finding aligns with research on food distribution systems at Aisyiyah Muhammadiyah Kupang Orphanage (24). According to the Indonesian Ministry of Social Affairs Regulation No.30/HUK/2011, children should have the right to serve themselves without portions being predetermined (21), so social home B meets this standard, whereas social home A does not.

Research at Sonaf Maneka Orphanage in Kupang indicates that fat consumption among children is very low, similar to the dietary intake analysis at social home A. Although social home A meets the standard budget for food provision, adolescents' food intake remains low due to pre-established eating habits and preferences. Conversely, social home B, despite not meeting the standard budget, achieves adequate intake except for carbohydrates, supported by donations from the Provincial Social Service and donors. Protein intake at both social homes meets the required levels, consistent with research by Mo Izuka et al. (2021) in Lagos State, where children's protein consumption is within normal limits (25).

Adolescents at both social homes generally dislike cooked vegetables, impacting carbohydrate intake. This finding aligns with the theory that vegetable consumption in Indonesia is low, with only 63.3% of the population consuming the recommended amount (26). Supervision of food service includes monitoring taste and production factors, which is the responsibility of management and external inspectors. However, procedural supervision, including goals, regulations, policies, work procedures, standards, and evaluation programs, is not implemented in social homes A and B. Direct intervention and training are needed to improve food handling practices among food handlers, designed to enhance knowledge of safe food handling, personal hygiene, and food safety behaviors to reduce the risk of cross-contamination (13,27). Proper kitchen facilities should include clean water supply, waste disposal, proper drainage, rodent-proof doors, screened windows for ventilation, and protection from insects. Both social homes source clean water from the local water company, but wastewater disposal is inadequate, with no proper drainage, leading to seepage, lack of exhaust systems, poor lighting, and unprotected ventilation, allowing insects and rodents to enter. Hasibuan (2016) states that poor waste management can impact environmental quality and health (28).

The research data show that adolescents with good nutritional status are more prevalent in social home B, with no cases of malnutrition, unlike social home A. This difference is due to factors such as caregiving patterns, involvement in menu planning, and donor support at social home B. Adolescents in social home B have formed close bonds with caregivers, who also eat with them, fostering an environment where the provided food is more readily accepted. This finding aligns with research by Okagbare and Naidoo (2020), which emphasizes the influence of parental behavior on children's vegetable consumption (29). In contrast, social home A accommodates adolescents for only six months, during which they have pre-established eating habits

and no emotional connection with caregivers, affecting their food intake. In-depth interviews at social home B reveal that adolescents are involved in menu planning and preparation, supported by observed schedules. This involvement positively influences nutritional status, as adolescents are more likely to accept and consume meals tailored to their preferences (30). This practice is consistent with the Indonesian Ministry of Social Affairs Regulation No.30/HUK/2011, which advocates for flexible meal times and adolescent involvement in menu planning (21).

Donor support at social home B also contributes to the higher percentage of adolescents with good nutritional status compared to social home A. social home B frequently receives donations of cooked meals, unlike social home A, which rarely receives such donations, impacting adolescents' overall food intake. Nutritional status depends on food intake, which affects the body's nutrient acquisition and utilization. Normal nutritional status indicates that food quality and quantity meet the body's needs, according to balanced nutrition guidelines.

CONCLUSION

The evaluation of food management in social home A and B using the IPOO model reveals that input and process factors significantly influence the nutritional status of the adolescents. Social home B, despite not meeting the standard budget for food provision, has a higher prevalence of adolescents with good nutritional status. This is attributed to factors such as the formation of healthy eating habits from a young age, the nurturing role of the house mother who also handles food, adolescent involvement in menu planning, a buffet-style food distribution system, and regular donations of cooked meals. Conversely, social home A, although meeting the standard budget, faces challenges due to the brief six-month stay of adolescents, lack of emotional connection with the house mother, absence of adolescent involvement in menu planning, pre-portioned food distribution, and infrequent donations of cooked meals. These differences highlight the importance of comprehensive and participatory approaches in food management to improve the nutritional status of adolescents in social homes. It is recommended that social homes adopt participatory food management, involve adolescents in menu planning, foster healthy eating habits, enhance caregiver relationships, implement buffet-style distribution, secure regular meal donations, extend stay durations, and train staff in nutrition.

ACKNOWLEDGEMENT

We thank you to the research committee of Health Polytechnic of Palangka Raya, Provincial Social Department, key informants in both homes, the Health Polytechnic of Palangka Raya that funded this research.

REFERENCES

1. Bettmann JE, Mortensen JM, Akuoko KO. Orphanage caregivers' perceptions of children's emotional needs. Child Youth Serv Rev. 2015 Feb;49:71–9. https://doi.org/10.1016/j.childyouth.2015.01.003
2. Nujum ZT, S S, Rakesh PS, G R, U A. Prevalence of tuberculosis in homes for the aged and orphanages of a district in Kerala, India. Indian Journal of Tuberculosis. 2024 Apr;71(2):130–6. https://doi.org/10.1016/j.ijtb.2023.04.013
3. Shawar YR, Shiffman J. Global priority for the care of orphans and other vulnerable children: transcending problem definition challenges. Global Health. 2023 Oct 10;19(1):75. https://doi.org/10.1186/s12992-023-00975-0
4. Lee N, Self-Brown SR, Bachman G, Howard AL, Gilbert LK, Hegle J, et al. Orphanhood vulnerabilities for violence and HIV by education, sex, and orphan type among 18-24-year-old youth: findings from the 2018 Lesotho violence against children and youth survey. Psychol Health Med. 2024 Mar 15;29(3):655–69. https://doi.org/10.1080/13548506.2023.2235280
5. Goldman PS, van Ijzendoorn MH, Sonuga-Barke EJS, Goldman PS, van Ijzendoorn MH, Bakermans-Kranenburg MJ, et al. The implications of COVID-19 for the care of children living in residential institutions. Lancet Child Adolesc Health. 2020 Jun;4(6):e12. https://doi.org/10.1016/S2352-4642(20)30130-9
6. van IJzendoorn MH, Juffer F, Poelhuis CWK. Adoption and Cognitive Development: A Meta-Analytic Comparison of Adopted and Nonadopted Children's IQ and School Performance. Psychol Bull. 2005;131(2):301–16. https://doi.org/10.1037/0033-2909.131.2.301
7. UNICEF. The State of The World's Children 2023: For Every Child, Vaccination [Internet]. Florence; 2023 [cited 2024 Mar 11]. Available from: https://www.unicef.org/media/108161/file/SOWC-2023-full-report-English.pdf
8. Goonan S, Mirosa M, Spence H. Systems-practice framework: An integrated approach for foodservice management. Nutrition & Dietetics. 2015 Mar 24;72(1):81–90. https://doi.org/10.1111/1747-0080.12114
9. Martins Rodrigues C, Giordani Bastos L, Stangherlin Cantarelli G, Stedefeldt E, Thimoteo da Cunha D, Lьcia de Freitas Saccol A. Sanitary, nutritional, and sustainable quality in food services of Brazilian early childhood education schools. Child Youth Serv Rev. 2020 Jun;113:104920. https://doi.org/10.1016/j.childyouth.2020.104920
10. Agustin S. Internet. 2023 [cited 2024 May 20]. 8 Makanan Mengandung Zat Besi yang Mudah Didapatkan. Available from: https://www.

alodokter.com/pentingnya-zat-besi-untuk-tubuh
11. Liu X, Whetten K, Prose NS, Eagle D, Parnell HE, Amanya C, et al. Enjoyment and meaning in daily activities among caregivers of orphaned and separated children in four countries. Child Youth Serv Rev. 2020 Sep;116:105103. https://doi.org/10.1016/j.childyouth.2020.105103
12. Health Ministry of Indonesia. PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR 1096/MENKES/PER/VI/2011: HIGIENE SANITASI JASABOGA [Internet]. 2011 [cited 2024 May 15]. Available from: https://pelayanan.jakarta.go.id/download/regulasi/permen-kesehatan-nomor-1096-menkes-per-vi-2011-tentang-higiene-sanitasi-jasaboga.pdf
13. Pitsoane E, Makahane F. Childcare workers: Challenges faced during Covid-19. Cogent Soc Sci. 2023 Dec 31;9(1). https://doi.org/10.1080/23311886.2023.2225826
14. Finance Ministry of Indonesia. PERATURAN MENTER! KEUANGAN REPUBLIK INDONESIA NO MOR 83/PMK. 02/2022: STANDAR BIAYA MASUKAN TAHUN ANGGARAN 2023 [Internet]. 2022 [cited 2024 May 13]. Available from: https://anggaran.kemenkeu.go.id/api/Medias/702f44d4-758d-4f79-8efd-4b044f33a1f7
15. Aziz F, Nasrullah H, Tayyab R, Mustehsan ZH, Noreen I, Hannan H, et al. Assessment of Physical and Mental Health of Children Living in Orphanages in Islamabad- A Cross-Sectional Survey. Pakistan Journal of Public Health. 2023 Jun 30;13(2):88–93. https://doi.org/10.32413/pjph.v13i2.1219
16. Frimpong-Manso K. Funding orphanages on donations and gifts: Implications for orphans in Ghana. New Ideas Psychol. 2021 Jan;60:100835. https://doi.org/10.1016/j.newideapsych.2020.100835
17. Social Affairs Ministry of Indonesia. Peraturan Menteri Sosial No. 30/HUK/2011: Standar Nasional Pengasuhan Anak untuk Lembaga Kesejahteraan Sosial Anak [Internet]. 2011 [cited 2024 Feb 21]. Available from: https://peraturan.bpk.go.id/Details/130531/permensos-no-30-tahun-2011
18. Kusumawati D, Septiani S, Purbowati P. SISTEM PENYELENGGARAAN MAKANAN DI PANTI ASUHAN AISYIYAH KUDUS. Jurnal Medika Indonesia [Internet]. 2021 [cited 2024 Mar 25];2(2):29–36. Available from: https://ejr.umku.ac.id/index.php/JMI/article/view/1954
19. Kayika IGKDD, Soetjiningsih S, Windiani IGAT, Adnyana IGANS, Pratiwi NLS. Prevalensi Masalah Perilaku Remaja di Panti Asuhan Sekar Pengharapan dan Lembaga Kesejahteraan Sosial Anak (LKSA) Widhya Asih Cica Badung, Bali. Medicina (B Aires). 2023;54(3):148–52. https://doi.org/10.15562/medicina.v54i3.1262 (Indonesian)
20. Sembiring AC, Nita MHD, Nur A, Loaloka MS. Analisis Sistem Penyelenggaraan Makanan, Pola Makan, Tingkat Konsumsi Zat Gizi Dan Status Gizi Anak Di Panti Asuhan Sonaf Maneka Kota Kupang. Kupang Journal of Food and Nutrition Research. 2022;3(1):1–7. Available at: https://jurnal.poltekeskupang.ac.id/index.php/KJFNR/article/view/687 (Indonesian)
21. Izuka MO, Olatona FA, Adeniyi OF, Onajole AT. Nutritional Status of Under-five Children living in Orphanages compared with their Counterparts living with their Families in Host Communities in Lagos State. Journal of Community Medicine and Primary Health Care. 2021 Mar 22;33(1):76–88. https://doi.org/10.4314/jcmphc.v33i1.7
22. Widyastuti N, Nissa C, Panunggal B. Manajemen pelayanan makana. Yogyakarta: K-Media; 2018.
23. Bulto TW, Juta GY, Demissie BB, Woldemichael SJ, Werku BC, Berkessa YW. Knowledge of Food Safety and Handling Practices Among Food Handlers of Student Cafeteria at Kotebe Metropolitan University, Addis Ababa, Ethiopia. Environ Health Insights. 2022 Jan 4;16:117863022211339. https://doi.org/10.1177/11786302221133951
24. Zulkipli Z, Nurwijayanti N, Suhita BM. Physical Activity and Knowledge about Nutrition Among Adolescents at Madrasah Aliyah Negeri (MAN) Surabaya City. Health Dynamics. 2024 Mar 31;1(3):65–72. DOI: https://doi.org/10.33846/hd10302
25. Hasibuan R. Analisis Dampak Limbah/sampah Rumah Tangga terhadap Pencemaran Lingkungan Hidup. Jurnal Ilmiah Advokasi. 2016;4(1):42–52. Available from: https://jurnal.ulb.ac.id/index.php/advokasi/article/view/354
26. Okagbare TE, Naidoo S. Parents' perception of their role in the prevention of inadequate consumption of fruit and vegetables among adolescents in South Africa. South African Dental Journal. 2020 Jun 30;75(5):235–40. https://doi.org/10.17159/2519-0105/2020/v75no5a1
27. Berge JM, MacLehose RF, Larson N, Laska M, Neumark-Sztainer D. Family Food Preparation and Its Effects on Adolescent Dietary Quality and Eating Patterns. Journal of Adolescent Health. 2016 Nov;59(5):530–6. https://doi.org/10.1016/j.jadohealth.2016.06.007