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Basic Health Assessment of Orphans at Al Walidaturrahmah Orphanage to Prevent Stunting in Samarinda

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ABSTRACT

In the world, many children become orphans and have to live in orphanages for various reasons. They often face various health challenges due to limited access to balanced nutrition, healthcare services, and psychosocial support. Their health and well-being are a shared responsibility between the government and the community, including local community organizations. Aisyayah, one of Muhammadiyah's women's organizations, plays an active role in supporting this initiative by managing orphanages. The problem that arises is that the children come from orphans and the poor; they tend to have health problems before being placed in the orphanage. In addition, diverse lifestyles affect the health conditions of the orphanage children. The community services aimed to detect health problems among the orphans and provide basic care. The community service method was conducted at Al Walidaturrahmah orphanage, which involved a health checkup that included blood pressure, Body Mass Index (BMI), and hemoglobin levels to assess the health and growth of the children in the orphanage. The results showed that 45 children, consisting of 16 boys and 29 girls, were included. During the blood pressure examination, 23 children had normal blood pressure, 5 children had mild blood pressure elevation, and 17 children had stage 1 hypertension. In the BMI examination, there were 5 children in the thin category, 29 children were normal weight, 6 children were overweight, and 5 children were obese. Twenty-nine girls had menstruated, 22 had normal hemoglobin levels, 5 had mild to moderate anemia, and 17 had normal hemoglobin levels. The result shows some unhealthy conditions among the orphans that need follow-up regularly.

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INTRODUCTION

Every day, families around the world experience turmoil due to the death of a father, mother, or both, the family's inability to care for their children, abuse, and/or neglect. As a result, millions of children lose parental care. According to UNICEF (2022). There are approximately 147 million orphans—children under the age of 18 who have lost one or both parents due to any cause—and millions more worldwide are separated or at risk of separation. This condition increases the risk of children experiencing developmental delays in all areas, including physical, mental, emotional, and spiritual development. The condition needs networking to support orphans to improve their well-being (Mahanta et al., 2022).

Children living in orphanages are more likely to experience social and health problems worldwide. Research conducted in Nepal showed that 80.6% of children living in orphanages suffered from malnutrition, with a prevalence of stunting of 51.5%, wasting at 13.8% and overweight at 6.9%, with a higher number of boys experiencing stunting, wasting, and underweight, and girls experiencing obesity (Acharya et al., 2020). A similar thing happened in India, where children living in orphanages tended to suffer from diseases such as coughs and colds (93.18%), diarrhea (63.63%), itchy eyes (63.63%), dental caries (15.90%), scabies (13.63%), laziness to move (13.63%), and low concentration (43.18%) (El-Sherbeny et al., 2015; Tripathy et al., 2023). Furthermore, anemia is also a problem encountered among children living in orphanages (Singh et al., 2021). This condition aligns with conditions experienced by children worldwide (World Health Organization, 2023). They also often face health problems due to living in proximity to one another (Alhidayati et al., 2024). This is because they must live with other residents at a ratio that does not meet standards. This also contributes to the easy spread of infectious diseases, such as coughs, colds, and respiratory illnesses (Jiu et al., 2021). 2021).

Health problems among orphans and the underprivileged also occur in Indonesia. There are 4,000 recorded orphans, and it is suspected that the number of unregistered children exceeds the recorded number. Article 34, paragraph 1 of the 1945 Constitution states that the state is responsible for caring for poor and neglected children. This undoubtedly places a significant burden on the state, especially with the increasing number of poor children. In East Kalimantan, there are five orphanages, including child protection homes and social services (BPS Kota Samarinda, 2022). In addition, Samarinda has the highest number of abandoned children aged 0-21 years in East Kalimantan (BPS, 2022). However, the government is committed to assisting the needs of orphans and the underprivileged. According to the Acting Governor of East Kalimantan, there are ten orphanages in Samarinda, and the condition of several of these orphanages is concerning. and he urged the mayor and social services to pay more attention to the condition of the orphanages (Damayanti, 2024). Although the government currently advocates that orphans, half-brothers, and the underprivileged should live and be cared for by their immediate family, many children without families still have to live in orphanages or child protection homes. This situation is not only the government's responsibility but also a shared one, involving community organizations such as Muhammadiyah and Aisyiyah.

'Aisyiyah is a community organization founded on 27 Rajab 1335 H / 19 May 1917 in a grand event coinciding with the moment of Isra Mi'raj of the Prophet Muhammad. The embryo of the founding of 'Aisyiyah began with the holding of the Sapa Tresna association in 1914, namely an association of educated girls around Kauman. As a Muhammadiyah women's organization, Aisyiyah is involved in various activities carried out by the Muhammadiyah organization. One of the assemblies in Aisyiyah is the Majelis Kesejahteraan Sosial (MKS) (Ro'fah, 2016). The Social Welfare Council addresses social welfare issues, including those affecting the elderly and children in orphanages, by collaborating with the Health Council, the Primary and Secondary Education Council, the Economic Council, the Tabliq

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Council, and other relevant councils and institutions. They strive to ensure the basic needs of the children in orphanages, such as good nutrition, religious and general education, and welfare. Limited funding at orphanages has hampered operational management. Therefore, community involvement is crucial to achieving a good quality of life. This is why community service is conducted at orphanages through health checks for children.

This community service effort was undertaken to support the orphanage in maintaining the health of its residents. Basic health checks were conducted by the academic community of the Muhammadiyah University of East Kalimantan to detect health problems in the orphanage children and also to support the government's program to break the chain of stunting in Samarinda. Activities included blood pressure checks, height and weight checks to determine body mass index, and hemoglobin tests for girls who had started menstruating.

The health of children in orphanages is a shared responsibility between the orphanage management, the community, and the government. However, in practice, not all children receive adequate healthcare. This is due to various factors, including a lack of access to healthcare facilities, limited time for managers to provide care, and residents feeling healthy and not needing healthcare. Common health problems include nutritional deficiencies, anemia, skin diseases, and impaired social relationships (Farid et al., 2024).

Regular physical assessments conducted in orphanages can help prevent and detect health problems among them. Involving the health school’s members in a physical assessment would help orphanage administrators prevent disease, treat identified health problems, and make informed decisions about appropriate actions. The academic community can play a crucial role in supporting this initiative, enabling orphanage children to enjoy their right to good healthcare and well-being.

METHOD

The method used in implementing this community service is a health check on the children at the orphanage. The examination area is in the orphanage hall, which is divided into 6 areas. Before conducting the examination, due to the invasive nature of the procedure and the participants' age being under 19, we sought the consent of the head of the orphanage and their guardian to determine whether they would give their consent. Once the guardian gave consent, they would sign the consent form we had prepared. The first area is for checking the children's height and weight, area two is used for blood pressure checks, the third area is used for girls who have menstruated - to check their hemoglobin levels, the fourth area is for consultations with health workers, the fifth area is where medicines and vitamins are collected, and the sixth area is the waiting area for their turn to be examined, as well as for collecting souvenirs and food. Before the checkup, the orphanage administrator explained to the children why they were gathered in the hall: it was for a health checkup, so they would understand their health status and the preventive and treatment measures they should take if any health problems were identified.

The head of the community service program then explained the health checkup process, which began with weight and height measurements, followed by blood pressure checks. For girls who had started menstruating, hemoglobin levels were also checked. The results were then reviewed with a healthcare provider to obtain prescriptions for standard medications and vitamins, based on their complaints, anamnesis, and other examination findings. The orphans who had completed the checkup proceeded to the dining room to receive souvenirs and food.

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For blood pressure checks, we use a digital sphygmomanometer, with a cuff size adjusted to the child's age to ensure accurate results. Furthermore, the sphygmomanometer has been calibrated. Blood pressure readings are calculated using a digital calculator based on the American Academy of Pediatrics guidelines for children aged 7-17 (Rosner & Flynn, 2017). For children aged 18 and over, the AHA adult guidelines are used (Whelton et al., 2018). For weight measurements, a calibrated scale is used, while for height measurements, a micrometer is used. For determining body mass index (BMI) for children and adolescents, BMI is interpreted using sex-specific BMI-for-age percentiles. This calculator reports BMI, BMI percentile, and BMI category for children and teens aged 2 through 19, ensuring accurate results (CDC, 2024). Hemoglobin measurements use a calibrated hemoglobinometer and new batteries to ensure accurate results. The classification of results is based on WHO standards. For adolescents, a hemoglobin level of less than 11.0 g/dL is considered anemic. The severity is further categorized as: mild anemia for 11.0–11.9 g/dL, moderate anemia for 8.0–10.9 g/dL, and severe anemia for below 8.0 g/dL.

RESULT AND DISCUSSION

Result

This community service was implemented on Sunday, August 10th, 2025. The health checkup was held at the Al Walidaturrahmah Orphanage from 8:00 a.m. to 2:00 p.m., with 45 children in attendance. The following is a description of the results of the health check on children in orphanages (see Table 1)

TABLE 1. Result of Physical Assessment Among Orphans in Walidaturrahmah Orphanages Samarinda, Based on Sex, 2025

Characteristic	SEX				Number	%
	Girls	%	Boys	%		
Age: (min=7; max=18, mean=13.9) (n=45)						
7 – 10	6	21%	3	19%	9	20%
11 – 14	10	34%	7	44%	17	38%
15 – 17	13	45%	5	31%	18	40%
18 – 21	0	0%	1	6%	1	2%
Total	29	100%	16	100%	45	100%
Blood Pressure (n=45)						
Normal blood pressure	18	62%	5	31%	23	51%
Pre-Hypertension	2	7%	3	19%	5	11%
Mild Hypertension (Stage 1)	9	31%	8	50%	17	38%
Total	29	100%	16	100%	45	100%
Body Mass Index (n=45)						
Underweight	3	10%	2	13%	5	11%
Normal Body Weight	22	76%	6	44%	29	64%
Over Weight	2	7%	4	25%	6	13%
Obesity	2	7%	3	19%	5	11%
Total	29	100%	16	100%	45	100%

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Characteristic	SEX				Number	%
	Girls	%	Boys	%		
Anemia (min=9.1; max=13; mean=11; n=24)						
Normal Hemoglobin	4	17%			4	17%
Mild Anemia	12	50%			12	50%
Moderate Anemia	6	33%			8	33%
Total	**24**	**100%**			**24**	**100%**

The study's results showed that the largest group of children, aged 15-17 years, comprised 18 (40%), followed by the group aged 11-14 years, which accounted for 17 (38%). The youngest child in the orphanage was 7 years old, and the oldest was 18, with an average age of 13.9. The ages of the girls living in the orphanage range from 15 to 17 years, with 13 (45%) children, while the ages of the boys range from 11 to 14 years, with 7 (55%) children.

Of the total number of orphans, 29 (64%) had a normal body mass index (BMI). Girls with a normal BMI were more prevalent than boys, specifically 22 (76%) in girls and 6 (44%) in boys. Children in orphanages who were overweight and obese were greater in boys than in girls, namely 7 (44%) boys than 4 (14%) girls. Meanwhile, the number of underweight boys and girls is balanced, with 3 girls (10%) and 2 boys (13%).

During blood pressure checks, of the 45 orphanage children, 23 (51%) had normal blood pressure, 5 (11%) had pre-hypertension, and 17 (38%) had hypertension. Blood pressure measurements based on gender revealed that 18 (62%) girls had normal blood pressure, while 5 (31%) boys had normal blood pressure. Meanwhile, 2 (7%) and 9 (31%) girls had pre-hypertension and mild hypertension (stage 1 hypertension). Among boys, 3 (3%) had pre-hypertension and 8 (50%) had mild hypertension (stage 1 hypertension).

In this community service, hemoglobin levels were only tested on girls who had already started menstruating. Of the 29 girls at the orphanage, 24 had already started menstruating. The hemoglobin test results were less than encouraging, with only 5 girls having normal hemoglobin levels, namely 12 grams/dl or above. Twelve (50%) of the girls had mild anemia, and 6 (33%) had moderate anemia.

Discussion

Life in an orphanage isn't every child's choice, but it's still considered the best option. Meeting new people, making new friends, and facing new rules can sometimes feel restrictive and limiting. However, life in an orphanage also provides a guarantee of shelter and necessities, such as food and clothing, and education (Acharya et al., 2020). This condition is the same as in the Walidaturrahmah orphanage, where not all the residents are orphans, but also come from poor families or whose parents are divorced, so they are neglected. There are no toddlers at the Alwalidaturrahmah orphanage. The youngest is 7 years old, which falls into the school-age category (6-12 years old), and the other children are considered adolescents (10-19 years old) (WHO, 2020).

In carrying out community service, the first action is to measure the height and weight of the orphanage children to determine their Body Mass Index (BMI). During the community service program, the first step was to measure the height and weight of the children at the orphanage to determine their

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Body Mass Index (BMI). Body Mass Index (BMI) is a standard for determining the nutritional status of children and adolescents. Unlike BMI in adults, BMI in children and adolescents uses percentile ranges to ensure calculation accuracy (CDC, 2024). Establish a calculator to generate BMI, BMI Percentile, and BMI category for children and teenagers between 2 and 19. BMI is a potential health indicator and should be considered alongside other factors when assessing a person's health. These factors can include the patient's medical history, health behaviors, physical examination findings, and laboratory results. A person's BMI status is also influenced by their food selection and acceptance, as well as their financial capability (Agiratama et al., 2024). Orphanage residents often have no choice in the food they consume. Low physical activity in children, consuming junk food, and playing online games contribute to their weight gain exceeding the healthy weight limit. Other factors related to obesity among adolescents are genetic and heritable traits, metabolic, endocrine, environmental, cultural, and social factors (D. Davies et al., 2019). A study on orphanage children in Nepal found that being underweight was associated with age, ethnicity, and length of stay at home (Acharya et al., 2020). During this community service, the caregiver said that some of the orphanage children were underweight. When they arrived at the orphanage, they were already underweight, because they had to eat whatever they could before, and had to share food with other siblings, also because of the low economic conditions of their families and the uncertain income of their parents. Malnutrition in children, especially girls, resulting in an upper arm circumference of less than 23.5 cm, indicates that the adolescent is experiencing chronic energy deficiency. Chronic energy deficiency during pregnancy can potentially lead to impaired fetal growth and development, which can lead to birth defects.

During blood pressure checks, of the 45 orphanage children, 23 (51%) had normal blood pressure, 5 (11%) had prehypertension, and 17 (38%) had hypertension. This condition can be quite concerning if left unaddressed. Hypertension is typically found in older adults, but is now also commonly found in adolescents (Annisya et al., 2024). The factors causing hypertension in adolescents vary widely. Metabolic syndrome disease, CVD, overweight, and obesity (Ewald & Haldeman, 2016). In their study, Yuningsih et al. (2025) found that hypertension among adolescents is related to late-night eating, processed food consumption (such as instant noodles, chips, and high-sodium snacks), inadequate water intake, and increased intake of sweet and carbonated drinks. This research is in line with research in Malaysia, where hypertension in adolescents was associated with a history of hypertension in the father, high sodium intake, and sleep duration of less than 8 hours (Liew et al., 2019). This condition aligns with research results, which indicate that children in orphanages tend to prefer instant foods, such as nuggets, sausages, instant noodles, and fried chicken, over fresh foods like vegetables, fish, and fruit. High blood pressure screening is recommended to begin early, ideally when children reach the age of 3. There are many etiologies for falsely elevated BP, such as anxiety or caffeine intake, and therefore, the diagnosis of hypertension is made by checking multiple measurements over time. Hypertension is diagnosed if a child has auscultatory-confirmed BP readings ≥95th percentile on three different visits (Rosner & Flynn, 2017). Blood pressure checks are a vital step in maintaining children's health, preventing chronic diseases later in life, which could potentially cause stunting in their future offspring.

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FIGURE 1. Activity in health assessment

FIGURE 2. Healthcare provider, guardian, and orphans

Anemia among adolescent girls remains a problem in Indonesia. In this community service, we only examine hemoglobin for girls who have menstruated. Of the 29 girls, 24 (83%) have menstruation. The examination results showed that only 4 (17%) of the girls had normal hemoglobin levels, while the remaining 12 (50%) had mild anemia, and 8 (33%) had moderate anemia. Several factors contribute to anemia among adolescent girls, such as mid-upper arm circumference (MUAC) less than 23.5 cm, duration of menstruation, iron consumption, weight, and height (Sari et al., 2022; Vaira et al., 2022). A study in Tanzania showed that girls with stunting had a higher prevalence of anemia compared with non-stunting adolescent girls (Yusufu et al., 2023). This condition is also found in children in an orphanage who tend to experience anemia, even though they have been given good nutrition (Farid et al., 2024). The occurrence of anemia during this community service is likely because most of the children in the orphanage are not compliant with taking iron tablets, tend to stay up late at night, and prefer junk food over the fresh food provided by the orphanage. Untreated anemia can lead to problems later in life, such as increased risk of early pregnancy bleeding, bleeding during delivery, and postpartum hemorrhage. In the fetus, anemia can lead to growth retardation, premature delivery, and low birth weight. This can disrupt to the child's 1,000 days of development, leading to stunted growth.

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CONCLUSION

Community service activities through physical assessment are a real effort to maintain the health of children in orphanages, and also a form of concern from the academic community in supporting the achievement of health and well-being. The results of this examination provide information to orphanage managers, enabling them to report the children's condition to the local community health center. Furthermore, these findings will be a determining factor for future community service. These findings are a shared responsibility between orphanage managers, the government, and the surrounding community. Regular health checks on children in orphanages will prevent the emergence of health problems, address existing issues, and evaluate the results of implemented interventions, as an effort to prevent new stunting and reduce existing stunting.

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