

CHAPTER 1

INTRODUCTION

1.1 Research Background

Adolescence represents a transitional developmental phase from childhood to adulthood. This period is characterized by vulnerability to nutritional deficiencies due to rapid physiological changes necessitating heightened energy and nutrient consumption. Common nutritional deficits encountered during this developmental shift include anemia and malnutrition.¹

According to data from the Food and Agriculture Organization of the United Nations (FAO), the prevalence of anemia in Indonesia in 2019 ranked 5th in Southeast Asia, with a reported rate of 31.2%.² Data from the Indonesian Health Survey (SKI) in 2023 reported that the prevalence of anemia among Indonesian women aged 15-24 years was 15.5%, while among adult women, it was 18%.³ In East Java Province, the recorded anemia prevalence in 2021 was 57.1%.⁴ Data from the Ngawi Regency Government indicate that the anemia prevalence in Ngawi District was 67.54%, while in Mantingan District, it was 68.30%.⁵

The occurrence of anemia and malnutrition is attributed to deficiencies in macronutrients (protein, fat, and carbohydrates) and micronutrients (vitamins and minerals).⁶ Indonesia still faces a triple

¹ Chairunnisa O. *et al.* 2019. *Perbedaan Kadar Hemoglobin Pada Santriwati Dengan Puasa Daud, Ngrowot Dan Tidak Berpuasa Di Pondok Pesantren Temanggung Jawa Tengah*, Journal of Nutrition College, Vol. 8. No.2.: 58

² WFP FAO, IFAD, WHO, UNICEF. 2024. *The State Food Security and Nutrition in the World*.

³ Kemenkes BKPK. 2018. *Survey Kesehatan Indonesia (SKI)*, Kota Kediri Dalam Angka, 1–68.

⁴ Kemenkes RI. 2018. *Hasil Riset Kesehatan Dasar Tahun 2018*, Kementerian Kesehatan RI, 53.9 : 1689–1699

⁵ Dinkes Ngawi, 2023, *Jumlah Prevalensi Bulan April : APRIL - 2023 Prov : Jawa Timur Kab : NGAWI*.

⁶ Simatupang N.A., *et al.* 2023. *Risk Factors For The Incidence Of Anemia In Young Women*, Jurnal Berkala Epidemiologi, Vol. 11.No.3 : 305–313

burden of malnutrition, which includes undernutrition, overnutrition, and micronutrient deficiencies.⁷ According data from 2023 Indonesian Health Survey (SKI), the prevalence of nutritional status in East Java Province among individuals over 18 years old was recorded as 7.9% underweight, 14.4% overweight, and 24.4% obese.⁸ Similarly, Riskesdas data result from Ngawi Regency reported that among individuals over 18 years old, 11.2% were underweight, 11.6% were overweight, and 17.7% were obese, respectively.⁹

Nutritional status and anemia remain significant concerns in islamic boarding schools (pesantren). A study by Nugraha et al. (2024) found that 10 out of 32 female adolescent students in a pesantren exhibited hemoglobin levels below normal (anemia), representing a prevalence rate of 34%.¹⁰ Low hemoglobin levels are primarily attributed to inadequate nutrient intake. In addition to nutritional intake, iron deficiency can also result from blood loss, absorption disorders, and increased physiological demands.¹¹ The clinical manifestations of low hemoglobin levels include weakness, fatigue, exhaustion, lethargy, pallor, koilonychia, and frequent drowsiness.¹²

In addition to decreased hemoglobin levels (anemia), nutritional status can also lead to various health issues. According data from Herdiansyah et al. (2024), there is a significant difference between nutritional status of female adolescents living in pesantren compared and living at home. The factors contributing to this difference include nutrient

⁷ UNICEF. 2021. *Strategi Komunikasi Perubahan Sosial Dan Perilaku: Meningkatkan Gizi Remaja Di Indonesia*. Unicef., : 1–66.

⁸ Kemenkes BKKP. *op. cit.* p. 896

⁹ Riskesdas. 2018. *Laporan Provinsi Jawa Timur RISKESDAS 2018*, Kementerian Kesehatan RI,.

¹⁰ Nugraha et al. 2024. *Pemeriksaan Skrining Anemia Pada Remaja Putri Di Pondok Pesantren Sabilul Ulum Al-Hidayah Wonoayu Gilang*. Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM), Vol. 7. No. 8 : 3607–3614.

¹¹ Moscheo C. et al. 2016. *New Insights into Iron Deficiency Anemia in Children: A Practical Review*. Metaboliste, 12, 289 : 1-13

¹² Herwinda K. et al. 2023. *Gizi Dan Kesehatan Remaja*. Penerbit “Zahira Media Publisher”. CV. ZT CORPORA

intake and dietary patterns.¹³ Adolescents living in pesantren have limited food choices, as they can only consume meals provided by the pesantren's food service and those available within the pesantren environment.¹⁴ If the types of food and the amount of nutrients needed by the body are properly managed, it will result in better nutritional status.¹⁵

The types and quantities of food consumed during fasting must be carefully regulated to prevent adverse health effects. The practice of observing the monday-thursday sunnah fast is common in boarding-based islamic pesantren.¹⁶¹⁷¹⁸ Hemoglobin test is frequently conducted among female student in islamic boarding schools (pesantren) due to their elevated risk of anemia.¹⁹ This heightened risk is attributed to their regular fasting practices, coupled with potential inadequacies in nutritional intake during ifthar.²⁰

The study by Chairunnisa et al. (2019) showed a difference hemoglobin levels between individuals practicing sunnah fasting and those not practicing it, with an average difference of -0.335 g/dL. This difference was influenced by the duration of fasting and the nutrient intake consumed.²¹ Inadequate nutrient intake affected nutritional balance and

¹³ Herdiansyah D. et al. 2024. *Perbedaan Status Gizi Dan Kadar Hemoglobin Remaja Putri Pesantren Al-Barokah Malangbong Garut Berdasarkan Tempat Tinggal*. Jurnal Kedokteran dan Kesehatan, Vol. 20. No. 2 : 150.

¹⁴ Neda Z. A., et al. 2023. *Perbedaan Pola Konsumsi Asupan Zat Gizi Dan Status Gizi Siswa SMAIT Al Uswah Surabaya Yang Tinggal Di Asrama Dan Non Asrama*. SEHATRAKYAT (Jurnal Kesehatan Masyarakat), Vol. 2. No. 3 : 369–379.

¹⁵ Yurisqa Y., et al. 2024. *Hubungan Antara Konsumsi Makanan Dan Status Gizi Mahasiswa Program Studi Pendidikan Biologi Universitas Syiah Kuala*. Jurnal Ilmiah Mahasiswa Pendidikan Biologi FKIP USK, Vol. 9. No.1 : 105–115.

¹⁶ Fahreza R. and Sa'dullah. 2024. *Implementasi Program Puasa Senin Kamis Dalam Meningkatkan Religiusitas Santri Pondok Modern Asy-Syifa Balikpapan*. Journal of Educational Research and Practice, Vol. 2. No. 1 : 98–104

¹⁷ Riska F. and S. Ondeng. 2022. *Pesantren Di Indonesia: Lembaga Pembentukan Karakter*. Al Urwatul Wutsqa: Kajian Pendidikan Islam, Vol.2. No.1 : 42–54

¹⁸ Lu'lu ul Khoiriyatun Agnesti. 2022. *Implementasi Pembiasaan Puasa Sunnah Dalam Mengembangkan Kecerdasan Spiritual Santri Di Pondok Pesantren Anwarush Sholihin Purwokerto*. Skripsi diterbitkan, Universitas Islam Negeri Prof. K. H. Saifuddin Zuhri Purwokerto, 10

¹⁹ Ani Triana. 2022. *Faktor Resiko Kejadian Anemia Pada Remaja Putri Di Mas Pp Nuruddin*. Termometer: Jurnal Ilmiah Ilmu Kesehatan Dan Kedokteran, Vol.1 No.1 : 01–10.

²⁰ Nugraha, et al. 2024. *op.cit.* p. 3612

²¹ Chairunnisa, et al. 2024. *Ibid.* p. 60

lead to a decrease in hemoglobin levels.²² A decline in hemoglobin levels in red blood cells impairs their ability to transport oxygen and nutrients to the brain and body tissues, thereby disrupting physiological and biochemical processes in body tissues.²³

Individuals not fasting were able to consume food and beverages at their discretion.²⁴ Their hemoglobin levels tended to be more stable due to regulated food and fluid intake, ensuring adequate nutrient provision. A three-meal-per-day routine facilitated the fulfillment of nutritional requirements, with the digestive system remaining continuously active to process incoming food.²⁵ Protein is one of the essential nutrients required by the body, playing a role in the formation of hemoglobin a compound found in red blood cells that helps prevent damage and a decrease in hemoglobin levels (anemia).²⁶

Nutritional status issues remain prevalent during fasting. The nutritional status of individuals who fast and those who do not fast differs in terms of food intake quantity. Female students (santriwati) not fasting consume larger amounts of food compared to those in the fasting group. Meanwhile, fasting santriwati experience a reduction in meal frequency, from three meals a day to only two, with almost no snacks consumed during fasting.²⁷ If nutritional intake is insufficient, such as consuming

²² Prevent Treat Control. 2011. *Your Guide To Anemia : Anemia Healthy Lifestyle Changes*. U.S. Department of Health and Human Services National Institutes of Health

²³ Dieniyah, P. 2019. *Hubungan Tingkat Pengetahuan Tentang Anemia Dengan Kejadian Anemia Pada Remaja Putri Di Smk Analisis Kimia Nusa Bangsa Kota Bogor Tahun 2018*. Jurnal Mahasiswa Kesehatan Masyarakat. Vol. 2. No. 2 : 12594

²⁴ Ningrum R. W. S., et al. 2024. *Tinjauan Puasa Dalam Perspektif Kesehatan Menurut Ibnu Sina*. Jurnal Penelitian Dan Pemikiran Keislaman, Vol. 11 No.4 : 378–388.

²⁵ Dino Al Hafiz. 2023. *Dampak Puasa Untuk Kesehatan Mental Dan Fisik*. Journal Islamic Education, Vol. 1 No.3 : 811–818.

²⁶ Mardalena I. 2021. *Dasar-dasar Ilmu Gizi Dalam Keperawatan*. Pustaka Baru Press. Konsep dan Penerapan pada Asuhan Keperawatan

²⁷ Kustiyanti D., et al. 2017. *Adakah Perbedaan Status Gizi Antara Remaja Santriwati Yang Berpuasa Dan Tidak Berpuasa Senin Kamis ? (Studi Di Pondok Pesantren Al Itqon Semarang)*. Jurnal Kesehatan Masyarakat (e-Journal). Vol. 5.No.3 : 129–130.

inadequate amounts of macronutrients (protein, fat, and carbohydrates), a person can experience malnutrition.²⁸

The Prophet Muhammad (SAW) and his companions regularly observed fast and maintained healthy eaten habits. One hadith mentions the recommendation for fasting, on monday and thursday as narrated *Abu Hafs 'Amr Ibn 'Ali narrated to us; 'Abdullah Ibn Dawud narrated to us; from Thawr Ibn Yazld; from Khalid Ibn Ma'dan; from Rabfah al-Jurashl that 'A'ishah (radiyAllahu 'anha) said : 'The Prophet S.A.W. was eagerly committed to fasting every Monday and Thursday.*²⁹

Based on the explanation above, the researcher aimed to further investigate the differences in hemoglobin levels and nutritional status between mahasantri who observed mondays-thursday fast and who do not fast.

1.2 Research Problem

There a difference in hemoglobin levels and nutritional status among mahasantri in the group observing monday-thursday fasting and those in the group not fasting?

1.3 Research Objectives

1. To identify the characteristics of mahasantri in the group observing monday -thursday fasting and those in the group not fasting.
2. To analyze the differences in hemoglobin levels between mahasantri in the grup fasting on mondays-thursdays and those who do not.
3. To analyze the differences in nutritional status between mahasantri in the grup fasting on mondays-thursdays and those in the group not fasting.

1.4 Research Benefits

1. Theoretical Benefits

The theoretical benefits include understanding, analyzing, and expanding scientific references related to the differences in hemoglobin

²⁸ Rahmawati, Tuti. 2017. *Hubungan Asupan Zat Gizi Dengan Status Gizi Mahasiswa Gizi Semester 3 Stikes Pku Muhammadiyah Surakarta*. Jurnal Profesi, Vol. 14 No.2 : 49

²⁹ Imam Muammad Ibn'Isa Al-Tirmidhi. 2015. *The Sublime Beauty Of The Prophet ﷺ* دار السنة : 239

levels and nutritional status of mahasantri in the group observing monday-thursday fasting and those in the group not observing it.

2. Practical Benefits

The practical benefits serve as a guideline and source of information in exploring the differences in hemoglobin levels and nutritional status among mahasantri in the group that has observed monday-thursday fasted for the past two months (6 times) and those who have not fasted.

1.5 Authenticity Research

Table 1. Authenticity Research

This Research	Type of Research	Variables	Result	Research Differences
Differences in Energy Sufficiency Levels, Physical Activity, and Nutritional Status Among Female Santri Who Fast and Do Not Fast: A Case Study at Askhabul Kahfi Islamic Boarding School, Semarang City) ³⁰	Research design: case control	Dependent : Mondays-thursday fasting Independent : Differences in Energy sufficiency levels, physical activity, and nutritional status	- There was a significant difference in energy sufficiency levels between the group observing fasting on mondays and thursdays and the group not observing it, with a result of $p < 0.001$. - However, no significant difference in physical activity levels was found between female students fasting and those not fasting, based on the Chi-Square test result of $p = 0.771$. - Additionally, no significant difference in nutritional status was found	Independent : Hemoglobin levels. Research design : cross sectional

³⁰ Hidayah K. A., et al. 2024. *Perbedaan Tingkat Kecukupan Energi , Aktivitas Fisik , Dan Status Gizi Pada Kelompok Santri Putri Yang Berpuasa Dan Tidak Berpuasa Senin Kamis (Studi Kasus Di Pondok Pesantren Askhabul Kahfi Kota Semarang)*. Jurnal Kesehatan Masyarakat Mulawarman, Vol. 6. No. 2 : 59–65.

Effect of Fasting Twice A Week On Body Weight And Fat Mass Monitored Using WhatsApp in Yogyakarta ³¹	Research Method: quasi experimental non-randomized pre-post control trial	Dependent : Body weight and fat percentage Independent : Fasting Twice A Week	between the two groups, as indicated by the mann-whitney test result of $p=0.428$. Independent: Hemoglobin levels. 1. There was a difference in the average body weight in the control group of 0.07 ± 1.3 and in the intervention group -1.74 ± 1.5 2. There was a difference in the average percentage of body fat mass in the control group of 0.02 ± 1.03 and in the intervention group of 0.05 ± 1.42	Dependent : Hemoglobin levels and nutritional status Research Method: Purposive sample
The Relationship between Food Availability and Nutrient Intake with Hemoglobin Levels of Female Students During the Fasting Month of Ramadan (Study at the Al Isti'annah Islamic Boarding School, Plangitan Village, Pati Regency, 2017) ³²	Research design: Cross Sectional	Dependent : Hemoglobin levels Independent : Nutritional intake	The results of the study showed that there was a relationship between the level of energy, protein, iron and vitamin C adequacy with a p value <0.05 , with hemoglobin levels during the fasting month of Ramadan in female students at the Al Isti'annah Islamic boarding school, Plangitan Village, Pati Regency in 2017.	Dependent : Nutritional Status Independent : Mahasantri mondays-thursday and not fasting
Is There a Difference in Nutritional Status	Research Design : Cross Sectional	Dependent : Nutritional Status	There is a difference in energy, protein	Dependent : Hemoglobin levels

³¹ Nabawiyah H.. et al. 2019. *Pengaruh Puasa Dua Kali Seminggu Terhadap Berat Tubuh Dan Persen Massa Lemak Dengan Pemantauan Melalui Whatsapp Di Yogyakarta*. Gizi Indonesia, Vol. 42. No.1 : 23

³² Anisa, et al. 2017. *Ibid*. p. 744

Between Female Adolescent Students Who Fast and Do Not Fast on Mondays and Thursdays? (Study at Al Itqon Islamic Boarding School in Semarang)³³

Independent : and fat intake between female students in the group fasting on Mondays-Thursdays and those in the group not fasting with a p value of 0.000 ($p < 0.05$).

Differences in Dietary Patterns During Sunnah Fasting and Nutritional Status in Islamic Boarding Schools³⁴

Research Design : *Cross Sectional*

Dependent : Statistically, there is no significant difference in David's fasting eating pattern on Monday - Thursday, not fasting with nutritional status at the Islamic boarding school with a p-value of 0.280 ($p > 0.05$)

Dependent : Hemoglobin levels

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³³ Kustiyanti D., et al. 2017. *Ibid.* p.129

³⁴ Damayanti A. Y., et al. 2021. *Perbedaan Pola Makan Saat Puasa Sunnah Dengan Status Gizi Di Pondok Pesantren*. Jurnal Kesehatan Tambusai, Vol. 2, No.1 : 30–39.