



# Breakfast Habits, Protein and Iron Consumption Levels as Related Factors with Nutritional Status of 8th and 9th Grade Students of Maarif SMP Jakarta in 2023

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## Abstract

Nutritional status is a condition influenced by the balance between nutrient intake and the body's nutritional needs for metabolism. The dependent variable in this study is the students' nutritional status and the independent variables are nutritional knowledge, breakfast habits, protein and iron consumption levels, family income and parental education. The methodology used is quantitative analytic with a cross-sectional approach. The population in this study were 8th and 9th grade students at SMP Ma'arif Jakarta with a total of 273 students. The sample used in this study was a saturated sample with a total of 273 students. Data analysis used univariate and bivariate analysis using the Chi Square test. The results of the univariate analysis showed that 53.8% of students had poor nutritional status, 91.6% had poor knowledge of balanced nutrition, 68.1% had breakfast habits, 57.9% had sufficient protein levels, 58.2% had iron consumption levels, 71.1% had low family income and 55.7% had low parental education. Bivariate analysis results showed a significant relationship between breakfast habits, protein consumption, and iron consumption, and nutritional status. However, knowledge of balanced nutrition, family income, and parental education were not associated with nutritional status. Based on the research findings, it is recommended that schools provide information or education about balanced nutrition to help students maintain good nutritional status.

**Keywords:** Nutritional status, Breakfast habits, Nutritional knowledge, Students

## Abstract

Nutritional status is a condition that is influenced by the balance between nutritional intake and the nutritional needs of the body for metabolism. The dependent variable in this study is students' nutritional status and the independent variables are nutritional knowledge, breakfast habits, protein and iron consumption levels, family income and parental education. The methodology used is quantitative analysis with a cross-sectional approach. The population in this study were students in grades 8 and 9 at SMP Ma'arif Jakarta with a total of 273 students. The sample used in this research was a saturated sample with a total of 273 students. Data analysis used univariate and bivariate analysis using the Chi Square test. The results of univariate analysis showed that 53.8% of students had poor nutritional status, 91.6% had poor knowledge of balanced nutrition, 68.1% had breakfast habits, 57.9% had sufficient protein levels, 58.2% had adequate levels of iron consumption, 71.1% had low family income and 55.7% had low parental education. The results of bivariate analysis showed that there was a significant relationship between breakfast habits, level of protein consumption, level of iron consumption and nutritional status. Meanwhile, the variables of knowledge of balanced nutrition, family income, and parental education are not related to nutritional status. Based on the research results, it is recommended that schools provide information or education regarding balanced nutrition so that students can maintain good nutritional status.



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## INTRODUCTION

Nutritional status is a condition resulting from an imbalance between nutrient reserves and the nutrients required for metabolism. If a person's diet meets their physical needs, their digestive system will be healthy. Inadequate nutrition will result in malnutrition, while excessive nutrition will lead to obesity (Harjatmo et al., 2017).

Adolescence is the term for the generation that begins in childhood, aged 10-19. Numerous transformations occur during adolescence. In addition to the physical transformation caused by the onset of hormonal changes, this also impacts physical structure. Both height and weight undergo rapid changes. This is sometimes referred to as puberty, as puberty itself significantly disrupts nutritional needs (Lestari et al., 2022).

Nutritional status issues among adolescents in Indonesia are numerous, both mild and severe. According to the 2018 Basic Health Research (Riskesdas), 25.7% of adults aged 13-15 and 26.9% of adults aged 16-18 suffered from mild or severe nutritional deficiencies. Furthermore, 8.7% of mature individuals aged 13-15 years and 8.1% of mature individuals aged 16-18 years experienced mild to fatal conditions. On the other hand, the percentage of overweight and overnutrition was 16.0% in mature individuals aged 13-15 years and 13.5% in mature individuals aged 16-18 years.

Nutritional quality is influenced by many factors that can lead to various outcomes, both slow and rapid. One of the main causes of delays is a lack of understanding (Anggraini and Dewi, 2022). Poor nutritional understanding impairs a person's ability to eat and drink, which ultimately impacts their ability to maintain their own nutrition. Increasing adolescent nutritional knowledge is expected to improve their nutritional status (Giriwijoyo et al., 2017).

One type of behavioral transformation during adolescence is eating behavior, which can range from choosing healthy foods to choosing unhealthy ones (Pantaleon, 2019). Repetitive consumption of food fulfills physiological, social, and sentimental needs to meet the body's nutritional needs. Eating routines are habits or activities that are sometimes carried out by an individual assimilate (Maslakhah and Prameswari, 2022).

Breakfast is a routine of eating and drinking that is carried out throughout the day, starting at 6:00 AM and ending at 8:00 PM. Humans need breakfast which is believed to help the body replenish the energy needed in the first hour of activity (Hardinsyah & Aries, 2016). Breakfast will have a significant impact on some of the important nutritional components needed by the body, such as protein, lipids, supplements, and elements that will support the body's physiological reactions (Munawaroh et al, 2020).

These types of foods can leave individuals feeling satisfied until lunchtime. Therefore, parents need to be careful not to make poor food choices (Pantaleon, 2019). Therefore, food purchasing power can be understood as an individual's ability, from an economic perspective, to consume the necessary food (Efendi et al., 2014).

A family's ability to meet their child's nutritional needs, both in terms of quantity and gender, significantly impacts their nutritional health (Wardarita et al., 2021). Therefore, if properly managed, this situation can impact nutritional improvement, thus impacting the child's growth and development, and ultimately their health (Wicaksana and Nurriszka, 2018).

Based on preliminary study data conducted on 20 students at Ma'arif Junior High School in Jakarta, this study involved measuring body weight and length, along with students completing a questionnaire. Based on the BMI/U results, 15 respondents had abnormal nutritional status, including very slim, slim, and plump. Ten students had low nutritional knowledge. Regarding knowledge of balanced nutrition, eight of the students with low nutritional knowledge experienced nutritional problems in the very slim, slim, and plump categories.



## RESEARCH METHODS

This research is an analytical study and uses a cross-sectional research design. This research was conducted at Ma'arif Junior High School Jakarta. This location is located on Jalan Dr. Muwardi Raya No. 19, Grogol Subdistrict, Grogol Petamburan District, West Jakarta. The population and sample in this study were all 8th and 9th grade students at Ma'arif Junior High School Jakarta, totaling 273 people. Data collection was carried out using primary and secondary methods, by distributing questionnaires. Anthropometric assessments used a Body Weight (BB) measuring tool using a foot scale and Height (TB) data were obtained by recording height measurements using a microtoise.

## RESULTSL AND DISCUSSION

The subjects in this study numbered 273 students, consisting of 140 males (51.3%) and 133 females (48.7%). Most of the subjects were in 8th grade (50.5%), and most of the subjects were 14 years old (54.9%). Based on the results of nutritional status measurements, most subjects experienced poor nutritional status, while 46.2% of subjects experienced good nutritional status (Table 1).

**Table 1. Description of subject characteristics**

|                           | n   | %    |
|---------------------------|-----|------|
| <b>Class</b>              |     |      |
| 8                         | 138 | 50.5 |
| 9                         | 135 | 49.5 |
| <b>Age</b>                |     |      |
| 12 years old              | 1   | 4    |
| 13 years old              | 62  | 22.7 |
| 14 years                  | 150 | 54.9 |
| 15 years                  | 53  | 19.4 |
| 16 years                  | 6   | 2.2  |
| 17 years                  | 1   | 4    |
| <b>Gender</b>             |     |      |
| Man                       | 140 | 51.3 |
| Woman                     | 133 | 48.7 |
| <b>Nutritional status</b> |     |      |
| Good                      | 126 | 46.2 |
| Not good                  | 147 | 53.8 |

**Table 2. Overview of breakfast habits, protein and iron consumption levels,**

|                                     | n   | %    |
|-------------------------------------|-----|------|
| <b>Breakfast habits</b>             |     |      |
| Good                                | 186 | 68.1 |
| Not good                            | 87  | 31.9 |
| <b>Protein consumption levels</b>   |     |      |
| Enough                              | 158 | 57.9 |
| Not enough                          | 115 | 42.1 |
| <b>Iron (Fe) consumption levels</b> |     |      |



|            |     |      |
|------------|-----|------|
| Enough     | 159 | 58.2 |
| Not enough | 114 | 41.8 |

### Breakfast habits

In this study, subjects were considered to have good breakfast habits if they answered "yes, I often eat breakfast." Therefore, based on Table 2, it is known that the majority of subjects had good breakfast habits (68.1%).

Subjects with good nutritional status (Table 3) had good breakfast habits (85.8%). Statistical analysis using Chi-square showed a relationship between breakfast habits and nutritional status ( $p < 0.05$ ). The results also obtained a PR value indicating that those with good breakfast habits tended to have good nutritional status by 0.7 times compared to respondents with poor breakfast habits.

The results of this study align with research conducted by Lusiana (2020), which found a relationship between breakfast habits and nutritional status. This is because breakfast habits can contribute to a person's nutritional status.

### Protein consumption levels

In this study, subjects were considered to have adequate protein consumption if their score was  $\geq 80$ . Therefore, based on Table 2, it is known that the majority of subjects had adequate protein consumption (57.9%).

Subjects with good nutritional status (Table 3) had adequate protein consumption (72.9%). Statistical analysis using Chi-square showed a relationship between protein consumption and nutritional status ( $p < 0.05$ ). The results also showed a PR value indicating that respondents with adequate protein consumption were 1.4 times more likely to have good nutritional status than those with insufficient protein consumption.

This research aligns with research conducted by Efendi et al. (2014) which showed a significant relationship between protein consumption levels and nutritional status in adolescents at SMP Negeri 2 Banjarbaru. Adequate protein intake can be met if energy needs are met; consuming more protein is far more than the recommended Nutritional Adequacy Intake (RDA).

### Iron (Fe) consumption levels

In this study, subjects were considered to have adequate iron intake if their iron intake was  $\geq 80$ . Therefore, Table 2 shows that most subjects had adequate protein intake (58.2%).

Subjects with good nutritional status (Table 3) had adequate iron consumption (73.4%). Statistical analysis using Chi-square showed a relationship between iron consumption and nutritional status ( $p < 0.05$ ). The results also showed a PR value indicating that respondents with adequate iron consumption were 1.4 times more likely to have good nutritional status than those with insufficient iron consumption.

The results of this study are in line with research conducted by Muchlisa et al (2013) which stated that there was a significant relationship between iron intake and nutritional status at the Faculty of Public Health, Hasanuddin University, Makassar.

Students with adequate iron intake tend to have good nutritional status. Meanwhile, students with insufficient iron intake due to rarely consuming sufficient iron tend to have poor nutritional status.

**Table 3. Relationship between breakfast habits, protein and iron consumption levels with nutritional status**

|                         | Nutritional status |      |          |       | <i>p-value</i> | PR (95% CI)         |
|-------------------------|--------------------|------|----------|-------|----------------|---------------------|
|                         | Good               |      | Not good |       |                |                     |
|                         | N                  | %    | n        | %     |                |                     |
| <b>Breakfast habits</b> |                    |      |          |       |                |                     |
| Good                    | 76                 | 85.8 | 110      | 100.2 | 0.015          | 0.711 (0.554-0.913) |
| Not good                | 50                 | 40.2 | 37       | 46.8  |                |                     |



|                                   |    |      |    |      |       |                     |
|-----------------------------------|----|------|----|------|-------|---------------------|
| <b>Protein consumption levels</b> |    |      |    |      |       |                     |
| Enough                            | 83 | 72.9 | 75 | 85.1 | 0.019 | 1,405 (1,063-1,857) |
| Not enough                        | 43 | 53.1 | 72 | 61.9 |       |                     |
| <b>Iron consumption levels</b>    |    |      |    |      |       |                     |
| Enough                            | 84 | 73.4 | 75 | 85.6 | 0.013 | 1,434 (1,082-1,900) |
| Not enough                        | 42 | 52.6 | 72 | 61.4 |       |                     |

## CONCLUSION

Based on the results of research conducted on students of Ma'arif Junior High School Jakarta regarding nutritional status in 2023, the following results were obtained: the majority of 8th and 9th grade students had poor nutritional status (53.8%), findings on factors significantly related to nutritional status were breakfast habits, protein consumption levels and iron consumption levels. Meanwhile, factors that were not significantly related were knowledge of balanced nutrition, family income, and parental education.

Based on the overall research results, researchers recommend that schools and parents provide information and education about balanced nutrition and nutritious foods prepared for breakfast or school lunches. All students are advised to maintain good nutritional status and remind each other to maintain nutritional intake and make breakfast a habit.

## THANK-YOU NOTE

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