citius jurnal

Andini_158_167

Citius Vol 2 2025

CITIUS

Universitas Nahdlatul Ulama Sunan Giri Bojonegoro

Document Details

Submission ID
trn:oid:::1:3451638281

Submission Date
Dec 30, 2025, 8:48 PM GMT+7

Download Date
Dec 30, 2025, 8:49 PM GMT+7

File Name
Andini_158_167.pdf

File Size
500.4 KB

10 Pages

5,586 Words

33,929 Characters

13% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- Bibliography
- Quoted Text

Match Groups

38 Not Cited or Quoted 11%
Matches with neither in-text citation nor quotation marks

3 Missing Quotations 1%
Matches that are still very similar to source material

0 Missing Citation 0%
Matches that have quotation marks, but no in-text citation

0 Cited and Quoted 0%
Matches with in-text citation present, but no quotation marks

Top Sources

11% Internet sources
11% Publications
0% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Match Groups

- **38** Not Cited or Quoted 11%
  Matches with neither in-text citation nor quotation marks
- **3** Missing Quotations 1%
  Matches that are still very similar to source material
- **0** Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- **0** Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

11% Internet sources
11% Publications
0% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	Internet	journal.unugiri.ac.id 3%
2	Internet	cahaya-ic.com 3%
3	Publication	Rahmi Amtha, Ferry Sandra, Rosalina Tjandrawinata, Indrayadi Gunardi, Anggrae... 1%
4	Internet	www.coursehero.com <1%
5	Internet	sainsglobal.com <1%
6	Internet	repository.upi.edu <1%
7	Internet	www.mdpi.com <1%
8	Publication	Erni Rukmana, Muhammad Edwin Fransiari, Kanaya Yori Damanik, Latifah Rahma... <1%
9	Publication	Olga Podrigalo, Olga Borisova, Leonid Podrigalo, Sergii Iermakov, Vyacheslav Ro... <1%
10	Internet	garuda.kemdikbud.go.id <1%

11 Publication

David Colozza, Astrid Citra Padmita, Mamadou Ndiaye, Siti Nadia Tarmizi et al. "B... <1%

12 Internet

oss.signavitae.com <1%

13 Publication

Lilik Hidayanti, Mohammad Zen Rahfiludin, Sri Achadi Nugraheni, Retno Murwani... <1%

CITIUS: Jurnal Pendidikan Jasmani Olahraga, dan Kesehatan
Indonesian Journal of Physical Education, Sports and Health
e-ISSN 2797-9962
Journal Homepage: http://journal.unugiri.ac.id/index.php/citius

The relationship between maternal education level and occupation and the nutritional status of junior high school students

Andini Zhafira Shabrina[1abcde])*, Faridha Nurhayati[2bcde])

[12] Study Program in Physical Education, Health and Recreation, Faculty of Sports and Health Sciences, University Negeri Surabaya, Indonesia

ABSTRACT

Nutritional status among adolescents is shaped by a complex interplay of biological, social, and environmental factors, making it a crucial public health issue. This study aims to examine the relationship between maternal education and maternal occupation with the nutritional status of students at SMP Negeri 35 Surabaya. Using a quantitative ex post facto correlational design, the research involved 257 eighth-grade students selected through Cluster Random Sampling. Data on maternal education and occupation were collected using categorical questionnaires, while students' nutritional status was measured through anthropometric assessments and classified using BMI-for-age indicators. The Gamma correlation test was employed to analyze the relationship between variables. The results show considerable variation in students' nutritional status, with categories ranging from undernutrition to obesity; however, the statistical analysis indicates no significant correlation between maternal education ($p = 0.181$) or maternal occupation ($p = 0.806$) and students' nutritional outcomes. These findings differ from several earlier studies suggesting that maternal characteristics influence children's dietary habits, nutrient intake, and overall health behaviors. The absence of significant relationships in this study suggests that adolescents' nutritional status may be influenced more strongly by broader lifestyle, environmental, or school-related factors rather than maternal background alone. Overall, the results highlight the need for more comprehensive, multi-sectoral nutrition interventions that involve families, schools, and communities to better support adolescents' growth and development.

Keywords: maternal; education; occupation; nutritional status; junior high school

OPEN ACCESS

Received: 12 October 2025; Accepted 23 December 2025; Published 30 December 2025

Corresponding Author: Andini Zhafira Shabrina, Study Program in Physical Education, Health and Recreation, Faculty of Sports and Health Sciences, University Negeri Surabaya, Indonesia

email: andini.23268@mhs.unesa.ac.id

How to Cite: Shabrina A.Z., Nurhayati F. (2025). The relationship between maternal education level and occupation and the nutritional status of junior high school students . *Citius : Jurnal Pendidikan Jasmani, Olahraga, Dan Kesehatan, 5*(2), 158-167. https://doi.org/10.32665/citius.v5i2.5934

Authors' Contribution : a – Study Design; b – Data Collection; c – Statistical Analysis; d – Manuscript Preparation; e – Funds Collection

INTRODUCTION

Nutritional status reflects the balance between the nutritional intake received by the body and the physiological needs that must be fulfilled. This balance determines whether an individual falls into the category of normal nutrition, undernutrition, overnutrition, or obesity (Warsyena & Wibisono, 2021). During adolescence, nutritional status plays a critical role, as this period is

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, Vol. 5 No. 2 2025, 158-167

characterized by accelerated physical growth, hormonal changes, and increased requirements for energy and micronutrients (Abubakari et al., 2023; Ajayi et al., 2024). Optimal nutritional status is essential to support overall health and enhance students' learning processes, whereas imbalanced nutrient intake may hinder both physical development and cognitive functioning (Asiri et al., 2024; Azak & Gözen, 2024). Data from the Ministry of Health of the Republic of Indonesia indicate that undernutrition and malnutrition remain prevalent among school-aged children, particularly in major urban areas such as Surabaya (Diana et al., 2025)

Adolescents in Indonesia are currently facing a double burden of malnutrition, characterized by the coexistence of undernutrition and overnutrition within the same population. This imbalance is strongly influenced by low nutrition literacy, increased consumption of low-nutrient fast food, and declining physical activity among adolescents (Oktavianty et al., 2024). Beyond individual behaviors, adolescents' eating patterns are also shaped by peer influence, which can lead to daily nutrient intake that does not meet recommended dietary requirements (Aichele et al., 2024). Family related factors including household income, parental nutrition knowledge, and the broader home environment play a significant role in determining adolescents' access to and quality of food (Hakim et al., 2024; Maehara et al., 2019). Evidence further indicates that targeted, evidence-based nutrition interventions can improve adolescents' nutritional knowledge and eating behaviors, making such approaches essential for addressing nutrition-related challenges in this age group (Oddo et al., 2022)

Several family-related factors play an important role in determining a child's nutritional status, with the mother's role being one of the most significant determinants (Babu & Gajanan, 2022; Bras & Mandemakers, 2022. Maternal education is closely linked to the ability to understand health information and to practice appropriate caregiving, while maternal employment can influence the amount of time available to prepare nutritious meals at home (Yuliastuti et al., 2024). Studies indicate that mothers with higher levels of education tend to have children with better nutritional status because they are more capable of accessing and interpreting nutrition-related information (Pratiwi, 2025). Conversely, maternal occupations that require long working hours are often associated with an increased risk of poor nutritional outcomes in children, particularly when adequate family support is lacking (Waghode et al., 2025). Other research also notes that low maternal education combined with time-consuming employment can raise the risk of child malnutrition by 20–40% in urban areas (Kusuma et al., 2025). UNICEF further emphasizes that the quality of family interactions including feeding practices and communication patterns is a crucial factor shaping children's eating behaviors (Norton et al., 2023).

This condition is also evident among adolescents, including students at SMP Negeri 35 Surabaya, which is located in a suburban area. The imbalance in nutritional status is closely linked to the socioeconomic circumstances of the students' families as well as the surrounding school environment. Most of the students' mothers are housewives with an educational background up to senior high school, which contributes to limited understanding of balanced nutrition and healthy eating patterns. In addition, the habit of consuming readily available snacks of low nutritional value around the school area remains a major factor contributing to adolescent nutritional problems. This pattern indicates that nutritional imbalance continues to persist within the school environment. Research conducted in urban schools similarly shows that adolescent nutrition problems are largely influenced by unhealthy snacking habits and the low consumption of home-prepared foods (Lisetyaningrum et al., 2021).

From a conceptual perspective, maternal education and occupation are considered upstream socioeconomic factors that may indirectly influence adolescents' nutritional status. Higher maternal education may enhance nutritional knowledge, health literacy, and food-related decision-making,

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, , Vol. 5 No. 2 2025, 158-167

while maternal occupation may affect household resources and time availability for food preparation. However, these influences are often mediated by other factors such as household income, food security, dietary intake patterns, physical activity levels, and the school food environment. During adolescence, increasing autonomy and peer influence may further weaken the direct effect of parental characteristics on nutritional outcomes. Therefore, this study focuses on examining the direct association between maternal education and occupation and adolescent nutritional status, while acknowledging the potential role of intervening variables not directly measured in this research.

Therefore, this study aims to analyze the relationship between maternal education and maternal employment with the nutritional status of junior high school students. Research with this specific focus remains limited, particularly in the Surabaya area. The findings of this study are expected to serve as a foundation for formulating more targeted policy recommendations to improve nutritional quality within both home environments and educational institutions. A comprehensive understanding of these factors is essential for implementing effective nutrition intervention programs. Through the application of holistic and evidence-based approaches, improvements in students' nutritional status can be achieved, thereby supporting their physical development, optimal growth, and overall quality of life for future generations.

METHODS

This study employed a quantitative approach using a correlational ex post facto design with a cross-sectional framework to examine the relationship between maternal education, maternal occupation, and students' nutritional status. This design was selected because the independent variables had already occurred and could not be manipulated experimentally, allowing observation of relationships based on existing conditions at a single point in time. Consequently, the findings are limited to associative interpretations and do not permit causal inference or assessment of long-term nutritional trajectories.

The study was conducted at SMP Negeri 35 Surabaya in November 2025. The participants included all eighth-grade students, with a total sample of 257 students selected using the Cluster Random Sampling technique to increase efficiency and facilitate the data collection process (Pratama et al., 2025).

Data on maternal education and maternal occupation were collected using a structured questionnaire with categorical response scales. Students' nutritional status was assessed through anthropometric measurements, including body weight and height. Measurements were conducted using standardized digital scales and stadiometers in accordance with the Regulation of the Ministry of Health of the Republic of Indonesia No. 2 of 2020 on anthropometric standards. Prior to data collection, all measuring instruments were calibrated to ensure measurement accuracy. Anthropometric assessments were carried out by the researcher with assistance from trained school staff, and measurement procedures were standardized to minimize inter-observer variability.

Body Mass Index-for-age (BMI-for-age) was calculated based on the recorded height and weight data and subsequently classified into nutritional status categories according to national reference standards. The use of anthropometric indicators following national guidelines represents a methodological strength of this study, as it ensures comparability and validity of nutritional status assessment.

Because the data for maternal education, maternal occupation, and nutritional status were ordinal in nature, non-parametric statistical analysis was applied. Gamma correlation analysis was used to examine the direction and strength of the association between maternal characteristics and students' nutritional status. Multivariate analytical techniques, such as ordinal regression, were not

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, Vol. 5 No. 2 2025, 158-167

employed due to the limited number of explanatory variables included in the study and the research focus on exploring direct bivariate associations rather than predictive modeling. In addition to statistical significance (p-values), the magnitude of association was interpreted using Gamma coefficient values to provide an indication of effect size and practical relevance.

The research procedures consisted of several stages: (1) obtaining research authorization from the school; (2) providing an explanation of the study's purpose and procedures to students and homeroom teachers; (3) administering the structured questionnaire; (4) conducting anthropometric measurements by the researcher and trained school staff; and (5) verifying and processing the data prior to statistical analysis. All stages were carried out systematically to ensure the quality and reliability of the collected data.

FINDINGS AND DISCUSSION

Findings

The following statistical description presents an overview of the characteristics of the survey respondents consisting of 257 students. The variables analyzed included gender (male and female), age, height, weight, and Body Mass Index (BMI). The data included minimum, maximum, mean, and standard deviation values to provide a more comprehensive understanding of the distribution of respondent characteristic.

Table 1. Distribution of Respondent Data

Variable	N	Minimum	Maksimum	Mean	Std.Deviasi
Man	132	-	-	-	-
Woman	125	-	-	-	-
Age (Years)	257	12	16	13.67	.548
Height (cm)	257	101.5	176.5	159.076	8.2184
Weight (kg)	257	25.0	114.0	51.672	14.1506
IMT	257	11.3	39.4	20.307	4.8908

Based on the descriptive statistical table, the number of respondents consisted of 132 male students and 125 female students. The average age of participants was 13.67 years with an age range of 12 to 16 years. The height of the students is in the range of 101.5-176.5 cm with an average of 159.08 cm, while the weight ranges from 25.0-114.0 kg with an average of 51.67 kg. BMI values showed considerable variation, with a minimum value of 11.3 and a maximum of 39.4, as well as an average of 20.31. The relatively large standard deviations for weight and BMI indicate substantial heterogeneity in students' physical and nutritional conditions, suggesting the coexistence of undernutrition and overnutrition within the study population.

The following descriptive statistics present the distribution of respondents based on gender, nutritional status, mothers' educational attainment, and mothers' occupation. The data are displayed in frequencies and percentages to provide a foundational understanding of respondent characteristics prior to conducting further analytical procedures.

The descriptive results indicate that the sample consists of 132 male students (51.36%) and 125 female students (48.64%), demonstrating a relatively balanced gender distribution. The nutritional status data reveal that 44.75% of students are classified as undernourished, 41.24% are within the normal range, and 9.73% and 4.28% fall into the overweight and obese categories,

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, , Vol. 5 No. 2 2025, 158-167

respectively, highlighting the coexistence of undernutrition and overnutrition within the population. In terms of maternal education, the majority of mothers have completed senior high school (42.80%), followed by those with college education (35.80%) and junior high school (17.51%), with only small proportions reporting no formal education (0.39%) or elementary-level education (3.50%), indicating generally moderate to high educational attainment. Regarding maternal occupation, most mothers reported not working (45.14%) or working in the private sector (44.36%), while a smaller proportion (10.51%) were employed as government workers, suggesting that many mothers are either homemakers or engaged in informal or private-sector employment. Overall, these findings illustrate considerable variability in both nutritional status and family background, offering essential contextual insight for analyzing the relationship between maternal education, maternal occupation, and students' nutritional outcomes.

Table 2. Respondent Characteristics

Variable	Category	N	Percentage (%)
Gender	Male	132	51.36
	Female	125	48.64
Nutritional Status	Underweight	115	44.75
	Normal	106	41.24
	Overweight	25	9.73
	Obesity	11	4.28
Education Level	Not in school	1	0.39
	Primary school	9	3.50
	Junior high school	45	17.51
	Senior high school	110	42.80
	College/University	92	35.80
Occupation	Unemployed	116	45.14
	Government employee	27	10.51
	Private sector worker	114	44.36

This section presents the results of statistical analysis using the Gamma Correlation test to test the relationship between maternal education and maternal employment and student nutritional status. The analysis was carried out to determine the direction and strength of the relationship between the two independent variables on nutritional status, as well as to determine the statistical significance of the relationship found. Gamma coefficient, standard error, approximate T, and p-value are displayed to provide a comprehensive picture of the test results.

Table 3. Correlation Test of Gamma Education, Maternal Employment with Nutritional Status

Variable	Score	Standard Eror	Approx.T	p-value	Category
Mother's Education	-.114	.085	-1.338	.181	Significant
Mother's Work	.023	.095	.246	.806	Significant
Sample Count (N)	257				

The Gamma correlation analysis indicates that the relationship between maternal education and students' nutritional status yielded a weak negative association ($\gamma = -0.114$), with a p-value of 0.181, indicating no statistically significant relationship. Similarly, maternal occupation showed a very weak positive association with nutritional status ($\gamma = 0.023$) and was also not statistically significant ($p = 0.806$). The small magnitude of the Gamma coefficients suggests minimal practical

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, Vol. 5 No. 2 2025, 158-167

effect sizes, indicating that variations in maternal education and occupation explain only a negligible proportion of differences in adolescent nutritional status within this sample.

The following table presents the distribution of students' nutritional status based on the mother's education level. This data illustrates how variations in maternal education levels (ranging from out of school to college) relate to categories of child nutritional status, including malnutrition, normal nutrition, overnutrition, and obesity. This presentation aims to provide an initial overview of the distribution pattern of the two variables before further statistical analysis is carried out.

Table 4. Distribution of Maternal Education Variable Questionnaire Results

Nutritional Status	No School	Primary School	Junior High School	Senior High School	College	Total
Malnutrition	0	4	15	53	43	115
Normal	1	3	23	41	38	106
More Nutrition	0	1	3	11	10	25
Obesity	0	1	4	5	1	11
Total	1	9	45	110	92	257

The cross-tabulation shows that a total of 115 students fall into the malnutrition category, with the largest proportions coming from mothers with senior high school education (53 students) and college education (43 students). For the normal nutritional category, 106 students are recorded, predominantly from mothers with senior high school (41 students) and college education (38 students). In the overnutrition category (25 students), the highest counts are found among students whose mothers completed senior high school (11 students) and college (10 students). Meanwhile, the obesity category includes 11 students, with the highest distribution among mothers with junior high school (4 students) and senior high school education (5 students). Overall, from a total of 257 students, the distribution of nutritional status appears across all educational levels, with the largest frequencies naturally occurring in groups whose mothers have senior high school or college education, given their higher representation in the sample. These descriptive patterns suggest that nutritional imbalances occur at all levels of maternal education, underscoring the need for further statistical testing to determine whether a significant relationship exists between maternal education and students' nutritional status.

The following table presents the distribution of students' nutritional status based on their mothers' occupational categories, which include not working, government employment, and private sector employment. This cross-tabulation aims to provide an initial overview of how maternal occupation may relate to variations in students' nutritional categories, namely malnutrition, normal nutrition, overnutrition, and obesity, before conducting further statistical analysis.

Table 5. Distribution of Questionnaire Results for Mother's Work Variables

Nutritional Status	Not Working	Government Employees	Private sector worker	Total
Malnutrition	55	9	51	115
Normal	44	13	49	106
More Nutrition	14	5	6	25
Obesity	3	0	8	11
Total	116	27	114	257

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, , Vol. 5 No. 2 2025, 158-167

The cross-tabulation shows that among the 115 students identified as malnourished, most have mothers who are not working (55 students), followed by those whose mothers work in the private sector (51 students), and a smaller number whose mothers are government employees (9 students). A similar pattern appears in the normal nutrition group, totaling 106 students, with 44 from non-working mothers, 49 from private sector workers, and 13 from government employees. In the overnutrition category (25 students), 14 students have non-working mothers, 6 have mothers in the private sector, and 5 have mothers employed in government positions. For obesity (11 students), 3 are from non-working mothers, none from government-employed mothers, and 8 from private sector workers. Overall, these results indicate variation in nutritional status across maternal occupational groups, with the highest frequencies generally found among children of non-working mothers and private sector workers, reflecting the dominant composition of the sample and providing a basis for further analysis of the relationship between maternal occupation and students' nutritional status.

Discussion

The results of this study indicate that the nutritional status of students varies across categories from undernutrition to obesity, showing that both undernutrition and overnutrition represent ongoing nutritional issues within the school population. Descriptive analyses demonstrate that variations in maternal education and maternal occupation exist among respondents, with different levels of education and employment status reflected across groups (Zou, 2023; Sari et al., 2021; Muhasriady & Tiwari, 2024). Despite observable variability in nutrition outcomes among students, the inferential statistical analysis using Gamma correlation did not find a statistically significant association between maternal education or maternal occupation and students' nutritional status. These findings suggest that, within this sample, maternal educational attainment and employment status alone do not have a direct measurable influence on nutritional outcomes among adolescents in the school environment.

Although the present study did not find significant correlations between maternal education or occupation and students' nutritional status, previous studies have documented links between maternal characteristics and child nutrition outcomes (Li, 2024; Jones et al., 2025). For example, research in Indonesia has shown that maternal educational level influences children's dietary habits and nutritional behaviors, including breakfast habits among junior high school students, suggesting that higher maternal education may be associated with better nutritional practices among children (Febrianti et al., 2025). Broader literature supports the idea that maternal education can shape food consumption and quality; individuals with higher education levels tend to prefer healthier food choices, which may contribute to better nutritional outcomes in their children (H.J. et al., 2011). In addition, studies examining determinants of childhood obesity emphasize that a multidimensional approach including family and environmental factors is essential for understanding and preventing nutritional issues in adolescents, reinforcing the complex role that maternal influences can play (Haeril, 2025). These findings indicate that maternal education and related household influences can play a positive role in shaping children's health behaviors and nutritional outcomes, even if such effects were not statistically captured in the current study.

This study has several limitations that may affect the interpretation of the results. First, the cross-sectional design precludes the ability to draw causal inferences regarding relationships between maternal education, occupation, and nutritional status, as temporal changes and long term effects cannot be observed. Second, the reliance on self reported questionnaire data for maternal characteristics may introduce reporting bias or inaccuracies. Third, other unmeasured confounding factors such as household income, food security, parenting practices, or access to nutrition-related information were not controlled for and may have influenced student nutritional outcomes. Future

http://journal.unugiri.ac.id/index.php/citius
CITIUS: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan, Vol. 5 No. 2 2025, 158-167

studies should consider incorporating broader socioeconomic measures and longitudinal data collection to address these limitations and provide a more comprehensive analysis.

Future research should explore more nuanced pathways through which maternal education and employment may influence adolescent nutrition, including examining mediating variables such as household income, nutritional knowledge, feeding practices, and food access. Longitudinal studies that track changes in nutritional status over time could better capture causal relationships and developmental trends. Additionally, expanding the sample to include diverse geographic and socioeconomic contexts beyond a single school setting would enhance generalizability. Integrating qualitative approaches to understand family decision-making, cultural norms, and environmental influences on adolescent eating behaviors would also enrich the understanding of nutritional determinants and inform more targeted intervention strategies.

CONCLUSION

This study highlights that adolescent nutritional status is influenced by a complex interplay of factors, and maternal education or employment alone is not sufficient to predict nutrition outcomes among students. The absence of significant statistical relationships suggests that adolescent nutrition is shaped by broader dynamics such as environmental conditions, individual habits, peer influences, and family food environments. These findings indicate that addressing nutritional problems both undernutrition and overnutrition requires approaches that extend beyond parental characteristics. Enhancing nutrition literacy, creating supportive school environments, improving access to healthy foods, and encouraging healthy lifestyle practices may offer more direct and effective pathways for intervention. By emphasizing the need to move past traditional assumptions about maternal factors, this study contributes to the broader literature and calls for a more holistic and integrated approach to improving adolescent nutrition. Overall, the results underscore the importance of coordinated family, school, and community-based strategies to support healthy growth and development among adolescents.

ACKNOWLEDGEMENTS

Thanks are also extended to the coaches, families, educational institutions, and sports institutions who have provided support during the research process. The author appreciates the contribution of all parties who directly or indirectly supported the implementation of this study, including colleagues and academic supervisors who have provided constructive input. Without such support, this research would not have been possible.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest that could influence the implementation and results of this research.

REFERENCES

Asiri, S. Y., Albariqi, M. A., & M, M. S. (2024). Impact of Early Nutrition on Cognitive Development in Children ; A systematic review. *7*, 3477–3486.

Abubakari, A., Inusah, A-K., Latifa, A. A., Hakeem, R., Wumbei, A., Yahaya, I. A., & Yahaya, I. A. (2023). Maternal Occupation And The Nutritional Status Of Children Aged 6-24 Months In The Tamale Metropolis. *UDS International Journal of Development*, *10*(1), 70-79, ISSN 2026-5336, University for Development Studies Library, https://doi.org/10.47740/776.udsijd6i

Ajayi, O.M., Oyewole, O.E,, Agada, P.A., & Asuzu, M.C. (2024). Maternal occupation and child nutritional care among working-class mothers of children aged 6-24 months in Ibadan

Metropolis. *Journal of Community Medicine and Primary Health Care*, *36*(3), ISSN 1115-4608, African Journals Online (AJOL), https://doi.org/10.4314/jcmphc.v36i3.10

Aichele, Stephen, Payton, Antony, Robinson, Andrew C., & Rabbitt, Patrick (2024). Occupation-related differences in cognitive aging: Comparative effects of job type, skill level, and education. *Intelligence*, *107*, 101877, ISSN 0160-2896, Elsevier BV, https://doi.org/10.1016/j.intell.2024.101877

Azak, Merve, & Gözen, Duygu (2024). The impact of web-based education provided to parents on the nutritional risk of preschoolers: A quasi-experimental study. *Maternal & Child Nutrition*, *21*(1), ISSN 1740-8695, Wiley, https://doi.org/10.1111/mcn.13735

Babu, Suresh C., & Gajanan, Shailendra N. (2022). Maternal education and community characteristics as indicators of nutritional status of children—application of multivariate regression. *Food Security, Poverty and Nutrition Policy Analysis*, 335-378, Elsevier, https://doi.org/10.1016/b978-0-12-820477-1.00014-0

Bras, Hilde, & Mandemakers, Jornt (2022). Maternal education and sibling inequalities in child nutritional status in Ethiopia. *SSM - Population Health*, *17*, 101041, ISSN 2352-8273, Elsevier BV, https://doi.org/10.1016/j.ssmph.2022.101041

Choi, H.-J., Lee, H.-J., Jang, H. B., Park, J. Y., Kang, J.-H., Park, K.-H., & Song, J. (2011). Effects of maternal education on diet, anemia, and iron deficiency in Korean school-aged children. *BMC Public Health*, *11*, 870.

Diana, R., Setyaningtyas, S. W., & Arimbi, A. N. (2025). Food Preferences, Eating Habits, and Nutritional Status of Full-Day School Students in Urban Areas. *Amerta Nutrition*, *9*(1), 169–175. https://doi.org/10.20473/amnt.v9i1.2025.169-175

Ehsan, S. (2024). The Impact Of Maternal Employment On Child Nutritional Diversity In Bangladesh : A Causal Forest. *58*(2), 317–333.

Febrianti, R., Mahfida, S. L., & Nugroho, A. (2025). Hubungan Tingkat Pendidikan Ibu dengan Kebiasaan Sarapan Siswa SMP Muhammadiyah 2 Minggir The Relationship Between Mother ' s Education Level and Breakfast Habits. *Ghidza : Jurnal Gizi dan Kesehatan*. *9*(1), 86–91.

Haeril. (2025). The impact of physical activity on obesity prevention in children aged 13-15 years based on narrative literature review. *Citius : Jurnal Pendidikan Jasmani, Olahraga, Dan Kesehatan*, *5*(1), 01–10. https://doi.org/10.32665/citius.v5i1.4423

Hakim, F. A., Sharannie, & Heryatno, Y. (2024). Pengaruh Pengeluaran Pangan Keluarga dan Pengetahuan Gizi Ibu terhadap Status Gizi Usia Remaja di Desa Babakan. *Jurnal Ilmu Gizi Dan Dietetik*, *3*(2), 134–139. https://doi.org/10.25182/jigd.2024.3.2.134-139

Jones, Sadie, Simmons, Abby, & Troillett, Amanda (2025). Enhancing Maternal Confidence in the Neonatal Intensive Care Unit: A Pilot Study on Multimodal, Occupation-Based Education for First-Time Mothers. *The American Journal of Occupational Therapy*, *79*, 2147483647, ISSN 0272-9490, AOTA Press, https://doi.org/10.5014/ajot.2025.79s2-po429

Kusuma, E., Widianto, E. P., & Astuti, Anggia Pratiwi, Atik Tri Fitriyah, A. (2025). Faktor Sosial dan Perilaku sebagai Prediktor Stunting pada Balita di Wilayah Pesisir. *The Indonesian Journal of Health Science*, *17*(1), 21–30. https://doi.org/10.32528/tijhs.v17i1.3284

Lisetyaningrum, I., Pujasari, H., & Kuntarti. (2021). A cross-sectional analysis of snacking habits, eating habits, physical activity, and indicators of obesity among high school students in Jakarta, Indonesia. *Journal of Public Health Research*, *10*(s1). https://doi.org/10.4081/jphr.2021.2402

Li, Xiaona (2024). Research on the Development Level of Modernization of Higher Vocational Education: Evidence from China. *Occupation and Professional Education*, *1*(7), 37-46, ISSN 3005-8376, Academic Education Publishing House, https://doi.org/10.62381/o242706

Maehara, M., Rah, J. H., Roshita, A., Suryantan, J., Rachmadewi, A., & Izwardy, D. (2019). Patterns and risk factors of double burden of malnutrition among adolescent girls and boys in Indonesia. *PLoS ONE*, *14*(8), 15–18. https://doi.org/10.1371/journal.pone.0221273

Muharram, F. R., Tjandra, S., Madani, N. J., & Rokx, C. (2025). Trends in the double burden of malnutrition among Indonesian adults *, 2007 to 2023*. *29*, 1–11.

Muhasriady, Muhasriady, & Tiwari, Shyam Sundar (2024). Examining the Influence of Maternal

Education, Nutritional Knowledge, and Toddler Food Intake on Nutritional Status. *Journal of Health Innovation and Environmental Education*, *1*(2), 38-46, ISSN 3062-9632, Cahaya Ilmu Cendekia, https://doi.org/10.37251/jhiee.v1i2.1211

Musfira, M., & Hadju, V. (2024). Nutrition and Dietary Intake of Adolescent Girls in Indonesia : A Systematic Review. *55*(4), 473–487. https://doi.org/10.5937/scriptamed55-49461

Norton, L., Parkinson, J., Harris, N., Darcy, M., & Hart, L. (2023). Parental food communication and child eating behaviours: A systematic literature review. *Health Promotion Journal of Australia*, *34*(2), 366–378. https://doi.org/10.1002/hpja.604

Oddo, V. M., Roshita, A., Khan, M. T., Ariawan, I., Wiradnyani, L. A. A., Chakrabarti, S., Izwardy, D., & Rah, J. H. (2022). Evidence-Based Nutrition Interventions Improved Adolescents' Knowledge and Behaviors in Indonesia. *Nutrients*, *14*(9), 1–11. https://doi.org/10.3390/nu14091717

Oktavianty, C. B., Pengge, N. M., Hatijah, N., & Intiyati, A. (2024). Fast Food Consumption Patterns Relationship and Physical Activity with Nutritional status in Adolescents at SMA Dr. Soetomo Surabaya City. *Journal of Nutrition Explorations*, *2*(2), 323–333. https://doi.org/10.36568/jone.v2i2.327

Pratama, A. O. S., Handoko, A., Kuswanto, E., & Asnawi, D. R. (2025). A sustainable approach to learning: enhancing creative thinking skills through creative problem solving in green schools. *Assimilation Indonesian Journal of Biology Educational*, *8*(1), 65–74.

Pratiwi, W. D. (2025). Hubungan Pendidikan, Pekerjaan, dan Pola Asuh Ibu Dengan Status Gizi Pada Balita: Literature Review. *Jurnal Ners*, *9*(2), 2607–2611. https://doi.org/10.31004/jn.v9i2.43563

Regency, D. S. (2023). Penilaian Pengetahuan , Sikap dan Perilaku Gizi Seimbang serta Status Gizi pada Remaja di Sekolah Menengah Atas (SMA) Yayasan Bandung , Kabupaten Deli Serdang Assessment of Knowledge , Attitudes and Behaviors Regarding Balanced Nutrition and Nutritional Status Among Adolescents at the Yayasan Bandung. *7*(2), 178–183. https://doi.org/10.20473/amnt.v7i2SP.2023.17

Rouf, A., Sadaf, T., Iqbal, M. A., Rauf, Z., & Tabasam, N. (2023). Effect Of Maternal Employment On Nutritional Status Of Children In Faisalabad City. *4*(2), 271–282.

Sari, Ria Setia, Ratnasari, Febi, & Susilowati, Yuni (2021). Are Maternal Education, Maternal Occupation, and Breastfeeding Escalate Nutrition Status in Stunted Children?. *Journal of Maternal and Child Health*, *6*(6), 671-677, ISSN 2549-0257, Masters Program in Public Health, Sebelas Maret University, https://doi.org/10.26911/thejmch.2021.06.06.05

Waghode, R. T., Yadav, S. S., Ghooi, R., Razak, S. A., & Menon, K. C. (2025). Work, Motherhood, and Nutrition: Investigating the Association of Maternal Employment on Child Nutritional Status in South Asia A Systematic Review. *Nutrients* , *17*(6), 1–19. https://doi.org/10.3390/nu17061059

Warsyena, R., & Wibisono. (2021). Nusantara Hasana Journal. *Nusantara Hasana Journal*, *1*(7), 132–137.

Yuliastuti LPS, Lestari A, & Kusuma EG. (2024). Hubungan Pendidikan dan Pekerjaan Ibu dengan Status Gizi Anak Prasekolah di TK Sari Asih Sumbawa Besar. *Journal of Innovation Research and Knowledge*, *4*(2), 999–1006.

Zou, Xiaoman (2023). The Impact of Parents' Education Level and Occupation on Their Children's Educational Planning, Educational Resource Provision, and Family Education Practices. *Lecture Notes in Education Psychology and Public Media*, *2*(1), 368-372, ISSN 2753-7048, EWA Publishing, https://doi.org/10.54254/2753-7048/2/2022286