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Relationship between physical activity and nutritional status among prospective brides

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Abstract:
Reproductive age is a crucial period in determining the health of future mothers and children. Prospective brides constitute one of the priority groups requiring attention regarding preconception nutritional status. One of the factors influencing nutritional status is physical activity. Excessive physical activity without adequate nutritional intake may lead to chronic energy deficiency (CED). This study aimed to determine the relationship between physical activity and nutritional status among prospective brides. This study employed an analytical observational design with a cross-sectional approach. The research was conducted at Kedungkandang Public Health Center, Malang City, involving 32 respondents selected through total sampling from a population of 32 eligible prospective brides. Data collection instruments included the Physical Activity Level (PAL) questionnaire to assess physical activity and Body Mass Index (BMI) measurements to determine nutritional status. The results showed that more than half of the respondents (53%) engaged in heavy physical activity, and nearly half (46.87%) had underweight nutritional status. Statistical analysis revealed a significant relationship between physical activity and nutritional status ($p < 0.001$; $r = -0.785$), indicating a strong negative correlation. In conclusion, there is a significant relationship between physical activity and the nutritional status of prospective brides. It is recommended that prospective brides with high physical activity receive education regarding balanced nutrition and appropriate energy intake, as well as routine preconception health examinations to prevent pregnancy-related complications.

Keywords:
nutritional status; physical activity; preconception health; prospective brides

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INTRODUCTION

Marriage represents the initial phase in establishing family life, during which prospective couples prepare themselves physically and psychologically to build a healthy household (Ministry of Religious Affairs of Indonesia [Kemenag], 2009). The premarital period is closely associated with the preconception phase, which plays an essential role in determining the quality of future generations. One of the primary factors to consider before conception is nutritional status, as it significantly

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influences fertility, pregnancy outcomes, and fetal development (Ministry of Health of Indonesia [Kemenkes RI], 2020).

Optimal nutritional status among women prior to pregnancy can help prevent various complications, including anemia, chronic energy deficiency (CED), infections, and other pregnancy-related disorders (Oktaria & Juli, 2016). Conversely, poor nutritional status among prospective brides may contribute to stunting, wasting, and an increased risk of low birth weight infants (Putri et al., 2020). According to the World Health Organization, the prevalence of anemia among pregnant women in developing countries ranges from 35% to 75% (WHO, 2008). Furthermore, the 2018 Indonesian Basic Health Research (Riskesdas) reported that the prevalence of chronic energy deficiency among women aged 19 years and older reached 36.3%, with East Java Province recording the second-highest prevalence on Java Island at 18.2% (Kemenkes RI, 2018).

Chronic energy deficiency is characterized by prolonged inadequate energy intake and can be identified through a mid-upper arm circumference (MUAC) of less than 23.5 cm (Supariasa et al., 2012). This condition is generally caused by an imbalance between energy intake and expenditure, unhealthy dietary patterns, excessive physical activity, early-age pregnancy, and short birth intervals (Mahmudah et al., 2022). Physical activity is one of the major determinants of nutritional status. Excessive physical activity without adequate nutrition may lead to energy deficiency, whereas insufficient physical activity may increase the risk of overweight and obesity (Fariski et al., 2020).

Physical activity plays an important role in maintaining body metabolism, regulating energy balance, and preventing both undernutrition and overnutrition (Roring et al., 2020). Therefore, examining the relationship between physical activity and nutritional status among women of reproductive age, particularly prospective brides, is essential to improving maternal and child health outcomes. A preliminary study conducted at Kedungkandang Public Health Center, Malang City, on May 30, 2024, revealed that among 40 prospective brides who underwent health examinations, 53% were underweight, 30% had normal nutritional status, 10% were overweight, and 7% were obese. These findings indicate that nutritional problems remain prevalent in the area.

Based on these conditions, this study aimed to determine the relationship between physical activity and nutritional status among prospective brides at Kedungkandang Public Health Center, Malang City. The findings are expected to provide scientific evidence for the development of premarital education and preconception health intervention programs to improve nutritional status and maternal readiness for a healthy pregnancy.

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METHODS

This study employed an analytical, observational, cross-sectional design to determine the relationship between physical activity and nutritional status among prospective brides. This approach enabled the researchers to assess the independent and dependent variables simultaneously at a single point in time. The study was conducted at Kedungkandang Public Health Center, Malang City, from June to August 2024, as this area recorded the highest number of premarital health examination registrations in Malang City.

The study population comprised all prospective brides undergoing health examinations at the Kedungkandang Public Health Center. A total sampling technique was used; therefore, all eligible prospective brides who met the inclusion criteria during the study period were recruited as respondents, resulting in a total sample of 32 participants.

The independent variable in this study was physical activity, while the dependent variable was nutritional status among prospective brides. Physical activity data were collected using the Physical Activity Level (PAL) questionnaire. Nutritional status data included measurements of body weight, height, and Body Mass Index (BMI), obtained through direct examination of respondents.

Data analysis was conducted using univariate and bivariate analyses. Univariate analysis was used to describe the frequency distribution of each variable. Bivariate analysis was performed using the Pearson product-moment correlation test to determine the relationship between physical activity and nutritional status among prospective brides. This study received ethical approval from the Ethics Committee of Poltekkes Kemenkes Malang.

RESULTS

This study involved 32 prospective brides who underwent health examinations at Kedungkandang Public Health Center, Malang City, in June 2024. All participants (100%) were aged 20-35 years, representing the active reproductive age group. Table 1 showed that most participants had completed senior high school education (38%), followed by higher education (34%) and junior high school education (28%). Regarding occupation, nearly half of the respondents worked as private employees (44%), followed by civil servants (28%), self-employed workers (19%), unemployed respondents (6%), and others (3%). Most participants had a height of 155–160 cm (84%), while 53% had a body weight of 40–60 kg. Additionally, 28% weighed less than 40 kg, and 19% weighed more than 60 kg.

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Table 1. General Characteristics of Prospective Brides at Kedungkandang Public Health Center, Malang City (n = 32)

Characteristics	Category	Frequency	Percentage
Age (years)	20–35	32	100
Education Level	Junior High School	9	28
	Senior High School	12	38
	Higher Education	11	34
Occupation	Unemployed	2	6
	Self-employed	6	19
	Private Employee	14	44
	Civil Servant	9	28
	Others	1	3
Height	<155 cm	3	9
	155–160 cm	27	84
	>160 cm	2	6
Body Weight	<40 kg	9	28
	40–60 kg	17	53
	>60 kg	6	19

Table 2 revealed that more than half of the participants (53%) engaged in heavy physical activity, followed by light activity (31%) and moderate activity (16%). These findings indicate that most prospective brides were physically active. Regarding nutritional status, nearly half of the respondents (46.87%) were categorized as underweight, followed by normal nutritional status (34.37%), overweight (15.62%), and obesity (3.12%). These results indicate the presence of undernutrition problems among prospective brides, which may affect reproductive readiness and future pregnancy outcomes.

Table 2. Distribution of Physical Activity and Nutritional Status Among Prospective Brides (n = 32)

Variables	Category	Frequency	Percentage
Physical Activity	Light	10	31
	Moderate	5	16
	Heavy	17	53
Nutritional Status	Underweight	15	46.87
	Normal	11	34.37
	Overweight	5	15.62
	Obese	1	3.12

The cross-tabulation results showed that respondents with heavy physical activity were more likely to be underweight (40.6%), whereas those with light physical activity were more likely to be overweight (15.6%). Statistical analysis showed a significant relationship between physical activity and nutritional status among prospective brides at Kedungkandang Public Health Center (p = 0.000

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< 0.05). The correlation coefficient value (r = -0.785) indicated a strong negative correlation, meaning that higher levels of physical activity were associated with lower nutritional status, whereas lower levels of physical activity were associated with increased body weight. These findings suggest an inverse relationship between physical activity and nutritional status. Respondents engaging in heavy physical activity were more likely to experience energy deficits, leading to undernutrition, whereas light physical activity without balanced nutritional intake increased the risk of overweight. This study emphasizes the importance of maintaining a balance between physical activity and adequate nutritional intake to achieve optimal nutritional status, particularly among prospective brides entering the preconception period.

Table 3. Relationship Between Physical Activity and Nutritional Status Among Prospective Brides

Nutritional Status	Physical Activity				p-value	Correlation Coefficient (r)
	Light n (%)	Moderate n (%)	Heavy n (%)	Total n (%)		
Underweight	0 (0.0)	2 (6.3)	13 (40.6)	15 (46.9)	<0.001	-0.785
Normal	4 (12.5)	3 (9.4)	4 (12.5)	11 (34.4)		
Overweight	5 (15.6)	0 (0.0)	0 (0.0)	5 (15.6)		
Obese	1 (3.1)	0 (0.0)	0 (0.0)	1 (3.1)		

DISCUSSION

The findings of this study demonstrated that most prospective brides at Kedungkandang Public Health Center engaged in heavy physical activity and had an underweight nutritional status. This condition indicates an imbalance between energy expenditure and energy intake, in which excessive physical activity was not accompanied by adequate nutritional consumption. According to the World Health Organization and the Food and Agriculture Organization, prolonged energy imbalance may lead to chronic energy deficiency and adverse reproductive health outcomes (WHO, 2008). Similar findings were reported by Mahmudah et al. (2022), who found that excessive physical activity among women of reproductive age was associated with an increased risk of chronic energy deficiency.

Several factors may have contributed to these findings, including participants' productive age range, educational background, and occupational demands. Most respondents worked as employees or civil servants, occupations that often require moderate to heavy physical activity. High physical workloads increase energy requirements, and inadequate nutrition may subsequently lead to weight loss and poor nutritional status (Roring et al., 2020). Although most respondents had completed secondary or higher education, nutritional knowledge may not necessarily translate into

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healthy dietary behavior, particularly among working women with irregular meal patterns and limited time for proper nutrition management.

The statistical analysis revealed a strong negative correlation between physical activity and nutritional status, indicating that greater physical activity was associated with lower BMI. These findings are consistent with previous studies by Fariski et al. (2020) and Roring et al. (2020), which reported that excessive physical activity without balanced nutrition significantly increases the risk of undernutrition and chronic energy deficiency among women of reproductive age. Conversely, low physical activity combined with excessive caloric intake may increase the likelihood of overweight and obesity.

Nutritional status prior to pregnancy is a crucial determinant of maternal and fetal health outcomes. Women with poor nutritional status before conception are at greater risk of anemia, low birth weight infants, preterm birth, and stunting among children (Putri et al., 2020). Therefore, preconception nutritional assessment is essential for identifying women at risk and implementing preventive interventions before pregnancy occurs. Preconception care programs should incorporate nutritional counseling, physical activity management, and reproductive health education to improve maternal readiness for pregnancy.

The findings of this study highlight the importance of integrating nutritional education into premarital health services at primary healthcare facilities. Health workers should provide education on balanced nutrition, energy requirements, and healthy lifestyle practices, tailored to the level of physical activity prospective brides engage in. Routine nutritional screening, BMI assessment, and counseling should also be strengthened as part of comprehensive preconception care services. Such interventions are expected to improve maternal nutritional status and reduce the risk of pregnancy-related complications in the future.

CONCLUSION

The results of this study indicate that most prospective brides at the Kedungkandang Public Health Center in Malang City engaged in heavy physical activity and had an underweight nutritional status. These findings suggest an imbalance between energy expenditure and energy intake. Statistical analysis demonstrated a strong, significant negative relationship between physical activity and nutritional status. This means that the higher the level of physical activity performed, the lower the nutritional status of the prospective brides, and vice versa. These findings emphasize the importance of maintaining a balance between physical activity and adequate nutritional intake to support optimal preconception health. Therefore, healthcare professionals should promote and

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prevent efforts to increase awareness among prospective brides about the importance of physical activity and balanced nutrition in preparation for a healthy pregnancy.

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CONFLICT OF INTEREST

This study has several limitations. Physical activity data were collected using a self-reported Physical Activity Level (PAL) questionnaire, which may have introduced subjectivity and recall bias regarding respondents' daily activities. Additionally, this study did not assess other factors influencing nutritional status, such as daily dietary intake and micronutrient consumption. Nutritional status assessment was limited to Body Mass Index (BMI), which does not specifically evaluate body composition, including muscle mass, body fat percentage, or micronutrient status, all of which are important indicators of preconception health.

REFERENCES

Fariski, C., Dieny, F. F., & Wijayanti, H. S. (2020). Diet quality, nutritional status, and anemia status among preconception women in rural and urban areas. *Gizi Indonesia, 43*(1), 11–24.

Kementerian Kesehatan Republik Indonesia. (2018). *Laporan Riskesdas Tahun 2018*. Kementerian Kesehatan RI.

Kementerian Kesehatan Republik Indonesia. (2020). *Pedoman pelayanan kesehatan prakonsepsi*. Kementerian Kesehatan RI.

Kementerian Agama Republik Indonesia. (2009). *Pedoman pembinaan keluarga sakinah*. Kementerian Agama RI.

Mahmudah, A., Masrikhiyah, R., & Rahmawati, Y. D. (2022). The relationship between nutritional knowledge, physical activity, and dietary intake with chronic energy deficiency among prospective brides. *Jurnal Ilmiah Gizi Kesehatan, 4*(1), 27–35.

Volume 02, Number 01 (May 2026)
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e-ISSN: 000000000

Oktaria, Y., & Juli, R. (2016). Nutritional status and reproductive health among women of childbearing age. *Jurnal Kesehatan Reproduksi, 7*(2), 85–92.

Putri, N. P., Selliyati, D., Samkakai, A., Sari, A., Hermino, A., & Friscila, I. (2020). Maternal nutritional status and pregnancy outcomes: A narrative review. *Jurnal Dinamika Kebidanan dan Keperawatan, 11*(2), 1–10.

Roring, N. M., Posangi, J., & Manampiring, A. E. (2020). The relationship between nutritional knowledge, physical activity, exercise intensity, and nutritional status. *Jurnal Biomedik, 12*(2), 110–116.

Supariasa, I. D. N., Bakri, B., & Fajar, I. (2012). *Penilaian status gizi*. EGC.

World Health Organization. (2008). *Worldwide prevalence of anemia 1993–2005: WHO global database on anemia*. WHO Press.