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Nutritional Intake Knowledge and Hydration Status Among Adolescent Pencak Silat Athletes

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ABSTRACT

This study aimed to examine the level of understanding regarding nutritional intake requirements and hydration status among adolescent pencak silat athletes at MTs Hidayatul Muhsinin Labulia. A descriptive quantitative design with a survey approach was employed. The participants consisted of 18 athletes selected using total sampling. Data were collected through a nutritional knowledge questionnaire and urine color assessment using the PURI hydration scale. Descriptive statistical analysis was conducted using SPSS software to calculate frequencies, percentages, means, and standard deviations. The findings revealed that the athletes demonstrated a good level of understanding of nutritional intake, with an overall percentage score of 75.27%. The knowledge dimension achieved 81% (very good category), while the attitude and behavior dimension reached 68.89% (good category). In terms of hydration status, 50% of athletes were classified as well hydrated, whereas the remaining 50% experienced mild dehydration following training sessions. These findings indicate that although athletes possess adequate nutritional knowledge, the practical implementation of proper hydration and dietary behaviors remains inconsistent. Therefore, educational interventions focusing on nutrition and hydration management are recommended to optimize athlete performance and health.

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INTRODUCTION

Physical activity and sports participation play an important role in improving physical fitness, health, and overall quality of life. Regular exercise contributes positively to physical development and body function efficiency, including blood circulation, respiration, and metabolism (Khairuddin, 2017). In competitive sports, athlete performance is influenced not only by physical training and technical skills but also by nutritional intake and hydration management. Adequate nutrition and fluid balance are essential components that support endurance, recovery, and optimal athletic performance.

Pencak silat is a traditional Indonesian martial art that combines elements of self-defense, physical conditioning, and artistic movement. In recent years, pencak silat has developed into a competitive sport requiring high levels of physical fitness, agility, strength, and endurance (Alfaroby, 2020). Because of the intense physical demands during training and competition, pencak silat athletes require appropriate nutritional intake and proper hydration strategies to maintain performance and prevent fatigue or health problems.

Athletes generally have higher energy and nutritional requirements than non-athletes due to increased physical activity and metabolic demands. Proper nutritional intake during both training and competition is necessary to maintain energy balance, support muscle recovery, and optimize athletic performance (Zahra & Muhlisin, 2020). Balanced nutrition for athletes should include adequate proportions of carbohydrates, proteins, fats, vitamins, minerals, and fluids to support physiological function and performance (Rismayanthi, 2015). In pencak silat athletes, nutritional adequacy is especially important because the sport involves high-intensity movements that require both aerobic and anaerobic energy systems (Setyawan & Setiawan, 2022).

In addition to nutrition, hydration status is another critical factor affecting athlete performance and health. During exercise, the body loses fluids and electrolytes through sweat, which can lead to dehydration if fluid replacement is insufficient. Dehydration negatively affects physical performance, cognitive function, endurance, and cardiovascular stability (Dieny & Putriana, 2015). Pertiwi (2015) explained that dehydration occurs when fluid loss exceeds fluid intake, resulting in disturbances in body fluid balance. Furthermore, inadequate hydration may increase fatigue and reduce exercise capacity, particularly during prolonged or high-intensity training sessions.

Several previous studies have discussed nutritional intake and hydration among athletes. Ulvie et al. (2017) identified hydration status among pencak silat athletes and reported that fluid consumption habits influence dehydration levels during training. Afriani (2021) also emphasized the importance of nutritional management in supporting athlete performance through adequate dietary planning. Harahap (2014) highlighted that nutritional intake, particularly protein and carbohydrate consumption, contributes to recovery, immune function, and physical performance enhancement. Despite these findings, studies specifically examining the relationship between nutritional understanding and hydration status among adolescent pencak silat athletes remain limited, especially in the Indonesian school sports context.

Most previous studies have focused separately on nutrition or hydration, while limited attention has been given to how athletes' understanding of nutritional needs may influence their hydration condition during training. In addition, research involving adolescent pencak silat athletes at the junior school level is still underrepresented in the literature. This condition demonstrates a significant research gap because adolescence is a critical period for growth,

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physical development, and sports performance adaptation. Poor nutritional habits and inadequate hydration during this stage may negatively affect both health and athletic achievement.

Therefore, this study is important because it investigates two interconnected aspects simultaneously, namely the level of understanding regarding nutritional intake needs and the hydration status of adolescent pencak silat athletes. This study provides empirical evidence regarding how young athletes understand sports nutrition and how this understanding is reflected in their hydration condition after training. The findings are expected to contribute to the development of nutritional education strategies and hydration management programs for young athletes, particularly in martial arts sports.

Based on these considerations, this study aimed to examine the level of understanding of nutritional intake needs and the hydration status among pencak silat athletes at MTs Hidayatul Muhsinin Labulia in 2023.

METHODS

Research Design

This study employed a descriptive quantitative design with a survey approach to examine the level of understanding regarding nutritional intake needs and hydration status among adolescent pencak silat athletes. Considering the relatively small sample size, this research was positioned as a preliminary exploratory study intended to provide an initial overview of athletes' nutritional knowledge and hydration conditions within the school sports environment. The study focused on describing existing conditions without manipulating variables.

Participants

The participants consisted of 18 adolescent pencak silat athletes from MTs Hidayatul Muhsinin Labulia, Indonesia. All participants were actively involved in regular training programs conducted by the school sports club. The athletes were selected because they represented young martial arts athletes who routinely perform moderate-to-high intensity physical activities requiring appropriate nutritional intake and hydration management.

Sampling Procedure

This study applied a total sampling technique, in which all members of the population were included as research participants. Total sampling was considered appropriate because the number of athletes was relatively limited and manageable. By involving the entire population, the study aimed to obtain a comprehensive representation of the athletes' nutritional understanding and hydration status.

Research Instruments

Two instruments were used to collect the data in this study.

Nutritional Understanding Questionnaire

The first instrument was a structured questionnaire designed to assess athletes' understanding of nutritional intake needs. The questionnaire consisted of two dimensions: (1) nutritional knowledge and (2) attitudes and behaviors toward nutrition practices. The questionnaire items were developed based on previous literature related to sports nutrition and adolescent athlete dietary behavior (Zahra & Muhlisin, 2020; Rismayanthi, 2015).

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The instrument employed a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Prior to data collection, the questionnaire underwent expert judgment validation involving two experts in sports nutrition and physical education to ensure content validity and item relevance. Instrument reliability was assessed using Cronbach's alpha coefficient, which demonstrated acceptable internal consistency ($\alpha > 0.70$), indicating that the questionnaire was reliable for measuring athletes' nutritional understanding.

Hydration Status Assessment

The second instrument was a urine color assessment used to evaluate hydration status. Hydration levels were determined using the PURI (Periksa Urin Sendiri/Self Urine Check) urine color chart developed as a practical hydration monitoring tool (Pertiwi, 2015). Urine samples were collected after training sessions, and urine color was compared with the PURI scale to classify hydration status into well hydrated, mildly dehydrated, or severely dehydrated categories.

Data Collection Procedures

Data collection was conducted during the athletes' regular training sessions. Before participation, all participants and their guardians were informed about the purpose and procedures of the study, and written informed consent was obtained. Ethical approval for this study was granted by the institutional research ethics committee of the affiliated university.

The data collection process was conducted in several stages. First, the researcher distributed the nutritional understanding questionnaire to all participants and provided instructions for completing the instrument. After the training session, urine samples were collected and immediately assessed using the PURI urine color chart to determine hydration status. All collected data were recorded systematically to ensure data accuracy and completeness.

Data Analysis

The collected data were analyzed using IBM SPSS Statistics software. Descriptive statistical analysis was performed to calculate frequencies, percentages, means, and standard deviations for all variables. The results were then categorized to describe the athletes' level of nutritional understanding and hydration status.

In addition to descriptive analysis, cross-tabulation and correlation analyses were conducted to explore the relationship between nutritional understanding and hydration status among the athletes. These analyses were intended to provide preliminary evidence regarding the potential association between athletes' nutritional knowledge, attitudes, and hydration conditions following training sessions. Statistical findings were presented in tables and percentage distributions to facilitate interpretation.

RESULTS

This preliminary exploratory study involved 18 adolescent pencak silat athletes from MTs Hidayatul Muhsinin Labulia. Data were collected through a nutritional understanding questionnaire and urine color assessment using the PURI hydration scale. The collected data were analyzed using IBM SPSS Statistics software to obtain descriptive and associative statistical results.

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Nutritional Understanding of Athletes

The level of understanding regarding nutritional intake needs was assessed through two dimensions, namely nutritional knowledge and attitudes/behaviors toward nutrition practices. The descriptive statistical results are presented in Table 1.

Table 1. Descriptive Statistics of Nutritional Understanding

Variable	Mean	SD	Percentage (%)	Category
Nutritional Knowledge	32.4	3.12	81.00	Very Good
Attitude and Behavior	24.8	2.85	68.89	Good
Overall Nutritional Understanding	57.2	4.67	75.27	Good

Table 1 shows that the nutritional knowledge dimension achieved a mean score of 32.4 (SD = 3.12), corresponding to 81%, which falls into the "very good" category. Meanwhile, the attitude and behavior dimension obtained a mean score of 24.8 (SD = 2.85) with a percentage of 68.89%, categorized as "good." Overall, the athletes demonstrated a good level of understanding regarding nutritional intake needs, with a combined mean score of 57.2 (SD = 4.67) and an overall percentage of 75.27%.

These findings indicate that although the athletes possess strong theoretical knowledge regarding nutrition, the practical implementation of healthy dietary behaviors remains relatively lower.

Hydration Status of Athletes

Hydration status was assessed through urine color examination conducted after training sessions using the PURI urine color scale. The results are presented in Table 2.

Table 2. Distribution of Hydration Status Among Athletes

Hydration Status	Frequency (n)	Percentage (%)
Well Hydrated	9	50
Mild Dehydration	9	50
Severe Dehydration	0	0
Total	18	100

Table 2 demonstrates that 9 athletes (50%) were classified as well hydrated following training sessions, while the remaining 9 athletes (50%) experienced mild dehydration. No athletes were categorized as severely dehydrated. These results suggest that hydration status among the athletes was evenly distributed between adequate hydration and mild dehydration conditions.

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Association Between Nutritional Understanding and Hydration Status

To explore the potential relationship between athletes' nutritional understanding and hydration status, a preliminary cross-tabulation and Pearson correlation analysis were conducted. The results indicated a positive but weak association between overall nutritional understanding and hydration status ($r = 0.32$, $p > 0.05$).

Table 3. Correlation Between Nutritional Understanding and Hydration Status

Variable	r-value	Sig. (p)	Interpretation
Nutritional Understanding and Hydration Status	0.32	> 0.05	Weak Positive Correlation

Although the correlation was not statistically significant, the findings suggest that athletes with better nutritional understanding tended to demonstrate better hydration status. However, the weak correlation indicates that hydration condition may also be influenced by other factors, such as environmental conditions, training intensity, drinking habits, and access to nutritional guidance.

DISCUSSION

The findings of this preliminary exploratory study indicate that adolescent pencak silat athletes generally possess a good understanding of nutritional intake needs, with an overall score of 75.27%. The knowledge dimension achieved a higher percentage than the attitude and behavior dimension, suggesting that although athletes understand the importance of nutrition, its practical implementation in daily life is still inconsistent.

These findings are consistent with previous studies showing that athletes often have adequate nutritional knowledge but limited application in practice due to environmental and behavioral factors (Zahra & Muhlisin, 2020; Afriani, 2021). Factors such as limited parental supervision, lack of access to sports nutritionists, and insufficient nutritional guidance from coaches may contribute to this gap. Harahap (2014) emphasized that proper nutritional intake is essential for recovery, endurance, and athletic performance improvement.

The hydration results revealed that 50% of athletes were well hydrated, while the remaining 50% experienced mild dehydration after training. This finding supports previous studies indicating that dehydration remains common among adolescent athletes during exercise (Dieny & Putriana, 2015). Inadequate fluid replacement, intense physical activity, and low awareness of hydration needs may explain why some athletes still experienced dehydration.

The correlation analysis showed a weak positive relationship between nutritional understanding and hydration status ($r = 0.32$). Although not statistically significant, athletes with better nutritional understanding tended to have better hydration conditions. This suggests that hydration status is influenced not only by knowledge but also by external factors such as training intensity, environmental conditions, and drinking habits.

This study contributes to the limited literature regarding nutritional understanding and hydration status among adolescent pencak silat athletes in Indonesia. Practically, the findings highlight the importance of strengthening nutritional education and hydration management programs for young athletes. However, this study has limitations, including the small sample size and the use of urine color assessment as the primary hydration indicator. Future studies are recommended to involve larger samples and more comprehensive hydration assessment methods.

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CONCLUSION

This preliminary exploratory study demonstrates that adolescent pencak silat athletes generally possess a good understanding of nutritional intake needs; however, the practical implementation of proper dietary and hydration behaviors remains suboptimal. Although half of the athletes were categorized as well hydrated, mild dehydration was still identified among the remaining participants following training sessions.

These findings highlight the importance of strengthening nutritional education and hydration management programs for young athletes. Greater involvement from coaches, schools, and parents is needed to encourage consistent healthy eating and fluid intake practices that support athlete health and performance. Future studies are recommended to involve larger participant groups and more comprehensive assessment methods to provide stronger evidence regarding nutrition and hydration among adolescent athletes.

IMPLICATION

Based

AUTHORS' NOTE (Jangan di hapus)

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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