

Measurement of Nutritional Status and Sleep Hygiene Among Adolescents

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ARTICLE INFO

Keywords: Measurement, Nutritional Status, Sleep Hygiene, Adolescents

Received : 15, July

Revised : 30, July

Accepted: 22, August

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ABSTRACT

Nutritional status and sleep quality are two interrelated health aspects that affect adolescents' physical and mental health. Poor sleep quality significantly increases body mass index (BMI). This study aimed to assess the nutritional status of adolescents, sleep quality, and provide health education on healthy eating patterns and sleep management. Preparation and identification of adolescent problems; Assistance in measuring nutritional status using weight scales, height, and measuring BMI, assessing sleep quality using the Pittsburgh Sleep Quality Index (PSQI); Developing health education materials about nutritional status, healthy food, and sleep hygiene; 4) Evaluating the achievement of program targets and documenting. The implementation of activities had gone well which 90% of adolescents had normal BMI, and showed good eating behavior, the consumption of meals and fruit in daily was still low. Furthermore, the quality of sleep was mostly in the good category because scheduled sleeping hours every day.

INTRODUCTION

Nutritional status and sleep quality are two interrelated aspects of health that affect physical and mental balance in adolescents. Ideal nutritional status is essential for maintaining health and improving quality of life, while good sleep quality also plays a key role in maintaining hormonal balance, metabolism, and the immune system.

Nutritional status in adolescents is influenced by various factors, including food intake, sleep duration, physical activity, age, gender, and infectious diseases. An unbalanced food intake pattern can lead to less than ideal nutritional status, either in the form of malnutrition or excess nutrition (Vania, MK, 2022). Meanwhile, poor sleep quality can cause an increase in body mass index (BMI) because it affects hormones related to appetite and metabolism, forms unhealthy eating patterns, and reduces physical activity (Audyena, RR, 2023). Sleep is said to be of good quality if it has gone through the sleep phases. Sleep quality is a condition where a person will feel fresh and healthy after waking up. Poor sleep quality is characterized by long sleep latency, lower sleep efficiency, sleep disturbances, use of sleeping pills, and daytime dysfunction (Kakinami et al., 2017).

To improve the overall health and well-being of adolescents through effective sleep management strategies. Adolescents often experience sleep difficulties and disturbances that can affect their health and development (Jeon, 2023; Silva-Caballero et al., 2023). There are several interventions that can help to reduce sleep disorders in adolescents, including cognitive-behavioral therapy for insomnia, sleep hygiene, deep breathing exercises, and documenting a sleep diary (Lunsford-Avery et al., 2021; Vallido et al., 2010).

Although previous studies have highlighted the link between nutritional status and sleep quality, there is still limited evidence on how these two factors interact specifically among adolescents. Most existing research tends to examine nutrition and sleep separately, rather than considering their bidirectional relationship. Furthermore, interventions designed to improve adolescent health often focus solely on dietary habits or sleep hygiene, without integrating both aspects into a comprehensive approach. This leaves a gap in identifying effective, evidence-based strategies that simultaneously target nutritional status and sleep quality, which could have a greater impact on adolescent well-being.

IMPLEMENTATION AND METHODS

The method used through coordination with partners in this case is the "Az-Zahra Malaysia Orphanage House Organization" Bandar Laguna Merbok, Sungai Tani, Kedah on May 2024. The first stage is preparation, in this preparation stage, a team of lecturers from Faculty of Health Sciences, University of Muhammadiyah Malang, as organizers and supervisors conducted a preliminary study by meeting with the head of Orphanage House to discuss the problems.

This international service was in collaboration with Universiti Teknologi Mara (UiTM) Penang, Malaysia. The stages of activities carried out consist of: 1) Preparation, problem identification teenager with the Head of Orphanage House; 2) Assistance in measuring nutritional status using a weighing scale,

height and measuring BMI, then continued by assessing sleep quality using the PSQI questionnaire; 3) Compiling health education materials on nutritional status, healthy food and its impacts, then on sleep hygiene; 4) Conducting an evaluation of the achievement of program targets and documenting the activities.

RESULTS AND DISCUSSION

All community service activities had gone well. The 90% of teenagers have normal BMI, showing good diverse eating behavior, such as consumption of meat dishes and fruits every day. While the quality of sleep is mostly in the good category because they have a scheduled sleep time every day. However, in the weekend, the sleep schedule was changed and they had more sleep time. The main complaint that occurs in adolescents at the service location was difficulty in initially falling asleep.



Figure 1. Community Service Activity Timeline

Based on the problem, the team presented examples of healthy food and also sleep hygiene to make it easier for teenagers to understand, we provided leaflets as a guide. All teenagers were able to follow the activities well and as evaluation material, teenagers were given pretest and posttest questions to measure their level of knowledge.

Table 1. Pretest Level of Knowledge about Sleep Management and Healthy Food

No	Knowledge	Results		
		Pre-test		
		Good	Enough	Not enough
1.	Healthy food	25%	66%	9%
2.	Sleep Management	35%	60%	5%

Based on the results in table 1, it was found that the level of knowledge about healthy food was mostly in the sufficient category, namely 66%. Meanwhile, the level of knowledge about sleep hygiene is mostly in the sufficient category, namely 60%.

Table 2. Posttest Level of Knowledge about Sleep Management and Healthy Food

No	Knowledge	Results		
		Post-test		
		Good	Enough	Not enough
1.	Healthy food	75%	25%	0%
2.	Sleep Management	85%	15%	0%

Based on the results in table 2, it was found that the level of knowledge about healthy food was mostly in the good category, which was 75%. While the level of knowledge about sleep hygiene was mostly in the good category, which was 85%.



Figure 2. Implementation of health education activities related to sleep hygiene to overcome sleep disorders in adolescents



Figure 3. Implementation of health education activities related to healthy food and balanced nutritional menus.

Based on figures 2 and 3, it shows that teenagers participated in the activities well and actively.



Figure. 4 Information leaflet about healthy food



Figure. 5 sleep hygiene leaflet

Figures 4 and 5 are leaflets made by the community service team as a tool to make activities more interesting and easier for teenagers to understand.

CONCLUSIONS AND RECOMMENDATIONS

The main problems experienced by adolescents are nutritional status and sleep quality, two aspects of health that are interrelated and affect physical and mental balance in adolescents. Based on the results of the study, most adolescents at partner locations have a normal BMI, with good eating behavior but are still lacking in consuming protein and fruits. While the quality of sleep is mostly in the good category because they have scheduled sleep hours every day.

Based on the findings, it is recommended that health education programs for adolescents continue to be strengthened, particularly focusing on the importance of balanced nutrition and adequate sleep hygiene. Although most adolescents demonstrate normal BMI and good eating behavior, attention should be given to increasing the intake of protein and fruits in their daily diet. Regular reinforcement through school-based or community-based health promotion activities can help adolescents translate their knowledge into sustainable healthy habits. Furthermore, integrating nutrition education with sleep hygiene practices in a comprehensive program will support not only their physical growth but also their mental well-being, thereby fostering a healthier lifestyle among adolescents.

ACKNOWLEDGMENT

We would like to thank the Faculty of Health Sciences for providing the opportunity for International Service in collaboration with Universiti Teknologi Mara (UiTM) Penang, Malaysia. As well as "Establishment of the Az-Zahra Malaysia Orphanage Home" Bandar Laguna Merbok, Sungai Tani, Kedah as a location for service.

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