

UNIVERSITI TEKNOLOGY MARA

**THE ASSOCIATION OF BODY MASS INDEX, EATING HABITS,
AND PHYSICAL ACTIVITY ON MENSTRUAL HEALTH
AMONG FEMALE STUDENTS AGED 14 TO 16 YEARS OLD AT
SMK SHAH ALAM**

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ABSTRACT

Menstrual health is a critical part of teenage well-being influenced by body composition, food habits, and physical activity. This cross-sectional study examined the association between body mass index (BMI), eating habits and patterns, physical activity levels, and menstrual health in 237 female students aged 14 to 16 at SMK Shah Alam. BMI-for-age was determined using anthropometric measures, and validated Malay versions of the Eating Behaviour and Pattern Questionnaire (EBPQ), International Physical Activity Questionnaire (IPAQ), and Menstrual Disorder of Teenagers (MDOT) questionnaire were used to evaluate dietary behaviour, physical activity, and menstrual health, respectively. Dysmenorrhea was the most frequent menstrual disorder, with 50.6% of respondents reporting at least one problem. BMI-for-age and menstrual health were significantly correlated ($\chi^2 = 11.221$, $p = 0.024$), especially for those classified as thin or severely thin. BMI status and dysmenorrhea were significantly correlated ($p = 0.018$), but not with other diseases. A substantial correlation was found between eating habits and menstrual health ($\chi^2 = 10.978$, $p = 0.004$), with students with good dietary patterns reporting fewer menstruation problems. Physical activity level was substantially correlated with menstrual health overall ($\chi^2 = 7.148$, $p = 0.028$), although eating habits and physical activity levels did not significantly correspond with specific menstrual diseases. The results highlight how crucial it is to maintain a healthy weight, have good eating behaviour, and exercise regularly to promote adolescents' reproductive health. These findings are helpful in directing school-based health initiatives and educating parents, teachers, and medical professionals on how to promote the long-term health of teenage females.

Keywords: Menstrual health, Dysmenorrhea, Body mass index, Eating behaviour and pattern, Physical activity, Female adolescent

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CHAPTER 1

INTRODUCTION

1.1 Research Background

According to the World Health Organization (WHO), adolescence is between the ages of 10 and 19, marked by significant physical and psychological changes that prepare a person for adulthood. During this phase, girls start ovulation and menstruation, which is also seen as the development of secondary sexual features, sexual development, and sexual maturity (Azhary et al.,2022). Normal menstruation refers to cyclic bleeding from the uterus between menarche and menopause. However, not all girls have normal menstrual bleeding. Previous studies show that up to 30% may experience changes in the volume or pattern of menstrual blood flow (Critchley et al.,2020). Many girls might experience symptoms related to their menstrual cycle, including dysmenorrhea. According to research by Mariappen et al. (2022), 63.9% of adolescents from 20 selected secondary schools in the Klang Valley reported having menstrual problems. According to this study, dysmenorrhea (30.9%) was the most frequent menstrual condition in the study population, followed by heavy menses bleeding (28.1%), oligomenorrhea (4.5%), and amenorrhea (0.4%). Thus, it is essential to determine lifestyle factors that might affect menstrual health, especially in student populations where early intervention may eventually have positive benefits.

Some studies have shown how menstrual health can be strongly impacted by differences in body mass index (BMI), dietary consumption, and level of physical activity. According to past research by Taheri et al. (2020), teenagers with a BMI that is higher than normal are more likely to experience irregular menstruation due to hormonal imbalances caused by adipose tissue. Aside from that, nutrition is important in controlling menstrual health, as a lack of vital nutrients such as protein, vitamins B3, B5, and K can exacerbate menstrual diseases (Güzeldere et al., 2024). Research by Amgain and Neupane (2019) revealed that 84.3% of participants were not vegetarians, and those following a non-vegetarian diet experienced greater menstruation issues than those following a vegetarian diet. Similarly, individuals who skip breakfast, lunch, or dinner are more likely to experience menstruation issues frequently. In addition, it has been demonstrated that moderate physical activity can