Correlation between Fast Food Eating Habits and the Occurrence of Dysmenorrhea

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ABSTRACT

Background : Dysmenorrhea is a common complaint experienced by women of reproductive age, including female students, characterized by pain in the lower abdomen during menstruation. One factor that is thought to contribute to dysmenorrhea is dietary habits, particularly the consumption of fast food that is high in saturated fat and sodium. **Objective:** This study aims to determine the correlation between fast food consumption habits and the incidence of dysmenorrhea in female students aged 18–25 years. **Methode:** This study used a descriptive analytical design with a cross-sectional approach. A total of 140 female students were selected as respondents using accidental sampling. Data were collected through questionnaires and analyzed using the chi-square test. **Results:** The results showed that 135 female students (96.4%) experienced dysmenorrhea, and 137 female students (97.9%) had a habit of frequently consuming fast food. The chi-square test results showed a significant relationship between fast food consumption and the incidence of dysmenorrhea (p = 0.0). **Conclusion**: It can be concluded that the habit of eating fast food is associated with the incidence of dysmenorrhea in female students. Education about healthy eating patterns is important as an effort to prevent dysmenorrhea.

Introduction

Dysmenorrhea is pain or cramping in the lower abdomen that occurs before or during menstruation and may be accompanied by other symptoms such as nausea, vomiting, headache, back pain, and fatigue. This pain is caused by excessive uterine muscle contractions due to increased prostaglandin production in the endometrial lining, which causes blood vessel constriction and pain. Dysmenorrhea can interfere with daily activities and reduce the quality of life of sufferers (Akhfar & Khaera, 2022; Siwi et al., 2022; Indonesian Ministry of Health, 2021).

Based on data from the World Health Organization (WHO) in 2020, there are approximately 1,769,425 women (90%) who experience dysmenorrhea, with 10–16% of them experiencing severe dysmenorrhea. Globally, the incidence of dysmenorrhea is quite high, with more than half of the female population experiencing it. In Indonesia alone, according to a 2020 report by the Indonesian Ministry of Health, the prevalence of dysmenorrhea reached 72.89%, with 54% of cases experienced by adolescent girls.

In 2021, the Indonesian Ministry of Health and the Burnet Institute conducted a study on the prevalence of dysmenorrhea in adolescent girls. The results showed that 93.2% of adolescents experienced dysmenorrhea. In West Java Province, the incidence of dysmenorrhea was also relatively high, with 21.28% of adolescents experiencing moderate dysmenorrhea and 24.5% experiencing mild dysmenorrhea (Swandari, 2022).

This condition not only causes physical discomfort, but can also interfere with daily activities, reduce quality of life, and adversely affect academic achievement and work efficiency. Various factors have been identified as triggers or exacerbants of dysmenorrhea, including stress, lack of physical activity, and unhealthy eating habits. One type of eating habit that has attracted attention is the consumption of fast food. Fast food is usually rich in saturated fat, sodium, and additives that can trigger inflammation in the body. These contents are thought to encourage increased production of prostaglandins, substances that function in uterine muscle contractions and can worsen pain during menstruation.

Previous research conducted by Qomarasari (2021) on 162 female students in grades X, XI, and XII at MAN 2 Lebak, Banten, used the Proportional Random Sampling technique through a lottery. Data analysis was performed using univariate and bivariate tests using the Chi-Square test at a significance level of 5% ($\alpha = 0.05$).

The results showed a significant relationship between age at menarche ($p = 0.022$), fast food consumption ($p = 0.029$), stress ($p = 0.006$), and exercise ($p = 0.015$) with the incidence of dysmenorrhea. Thus, it can be concluded that age at menarche, fast food consumption patterns, stress levels, and exercise habits have a significant relationship with the occurrence of dysmenorrhea in adolescent girls (Qomarasari, 2021).

However, there are still limitations in the literature regarding the phenomenon of dysmenorrhea specifically related to the frequency and habits of fast food consumption across different ages and social backgrounds. Therefore, the purpose of this study is to provide deeper insight into the occurrence of dysmenorrhea in students aged 18–25 years who have a habit of consuming fast food, which can be the basis for educational and promotional interventions in efforts to prevent dysmenorrhea through improving eating habits. Fast food is a type of food that is packaged, easy to serve, and practical. Fast food is categorized into two types: modern

fast food and traditional fast food. Modern fast food includes fried chicken, nuggets, hamburgers, pizza, spaghetti, etc., while traditional fast food includes foods that are often consumed by students, such as meatballs, chicken noodles, fried chicken, instant noodles, kebabs, siomay, batagor, etc. (Fauziya et al., 2023). Most fast food contains high levels of saturated fat, which is unhealthy. According to Sivamaruthi et al. (2021, Frontiers in Nutrition), fast food consumption has increased sharply among the younger population, especially women, due to lifestyle and social factors. Fast food generally contains high amounts of saturated fat and trans fat, which can trigger systemic inflammation, as well as high sodium, which can potentially disrupt fluid balance and blood pressure. In addition, fast food tends to be low in fiber and important micronutrients such as magnesium, vitamin E, and vitamin B6, which play a role in hormonal regulation and uterine muscle contractions. According to Al-Katib et al. (2022, Nutrients), consumption of foods high in saturated fat and simple sugars has been shown to increase the production of prostaglandins, compounds that play a role in the onset of menstrual pain (dysmenorrhea).

Objective
This study aims to determine the correlation between fast food consumption habits and the incidence of dysmenorrhea in female students aged 18–25 years.

Method
The design and setting of this study was quantitative analytical observational with a cross-sectional approach, measuring fast food consumption and dysmenorrhea simultaneously at one point in time.

This study was conducted at Muhammadiyah University Tasikmalaya. The population in this study consisted of 993 female students aged 18-25 years at Muhammadiyah University Tasikmalaya using accidental sampling with the inclusion criteria of female students registered as active students at the time of the study, experiencing regular menstruation every month, willing to be respondents and fill out the questionnaire completely, and did not consume hormonal drugs. The exclusion criteria were students who had a history of medically diagnosed reproductive disorders, respondents who did not complete the questionnaire or provided invalid data. The sample size obtained was 140 respondents. Data collection used fast food consumption using the Food Frequency Questionnaires (FFQ).

Results
The univariate analysis in this study focused on fast food consumption and dysmenorrhea.

A. Univariate Analysis of Fast Food Consumption

Table 1. Frequency Distribution of Fast Food Eating Habits

Fequency of Fast Food Eating Habits	Count (n)	Percentage (%)
Frequent (≥3 times/week)	137	97.9%
Infrequent (<3 times/week)	3	2.1%
Total	**140**	**100%**

Table 1 shows that respondents who frequently consumed fast food amounted to 137 respondents (97.9%), while female students who infrequently consumed fast food amounted to 3 respondents (2.1%).

B. Incidence of Dysmenorrhea among Female Students

Table 2. Frequency Distribution of Respondents Based on Dysmenorrhea Incidence

Dysmenorrhea Incidence	Count (n)	Percentage (%)
Experiencing Dysmenorrhea	135	96.4%
Not Experiencing Dysmenorrhea	5	3.6%
Total	**140**	**100%**

Table 2 shows that respondents experiencing dysmenorrhea amounted to 135 (96.4%), and respondents not experiencing dysmenorrhea amounted to 5 respondents (3.6%).

C. Bivariate Analysis

Table 3. Relationship between Fast Food Consumption Habits and Dysmenorrhea Incidence

Fast Food Consumption	Dysmenorrhea (Yes)	Dysmenorrhea (No)	Total	p-value
Infrequent (<3x/week)	1 (33.3%)	2 (66.7%)	3 (2.1%)	
Frequent (≥3x/week)	134 (97.8%)	3 (2.2%)	137 (97.9%)	
Total	**135 (100%)**	**5 (100%)**	**140 (100%)**	

Based on the research results from 140 respondents, it is known that the majority of respondents, namely 137 people (97.9%), had the habit of frequently consuming fast food (≥3 times per week), while only 3 people (2.1%) were categorized as infrequent consumers of fast food (<3 times per week).

Out of 137 respondents who frequently consumed fast food, 134 people (97.8%) experienced dysmenorrhea, and only 3 people (2.2%) did not experience dysmenorrhea. Meanwhile, out of 3 respondents who infrequently consumed fast food, 1 person (33.3%) experienced dysmenorrhea and 2 people (66.7%) did not.

The results of the statistical test using Chi-Square (χ^2) showed a p-value = 0.0000118 ($p < 0.05$), which means there is a significant relationship between the habit of consuming fast food and the incidence of dysmenorrhea in adolescent girls.

Thus, it can be concluded that the more frequently adolescents consume fast food, the greater the likelihood of experiencing dysmenorrhea. This indicates that a diet high in fast food has the potential to trigger menstrual pain due to the content of saturated fats and trans fatty acids which can increase prostaglandin production in the endometrium, thereby triggering excessive uterine contractions and pain.

Discussion

The results showed that 135 respondents (98.4%) experienced dysmenorrhea, while 5 respondents (3.6%) did not. Most respondents who experienced dysmenorrhea had a habit of frequently consuming fast food. This condition is thought to be related to a lack of knowledge about diet and balanced nutrition, which affects habits and food choices. These findings are in line with the research by Simbung et al. (2020), which states that high consumption of fast food is associated with an increase in the incidence of dysmenorrhea.

Dysmenorrhea is a condition of pain that occurs during menstruation, with varying degrees of pain from mild to severe. The severity of dysmenorrhea can be influenced by the duration and amount of menstrual blood (Siwi et al., 2022). One cause of dysmenorrhea is high levels of prostaglandins in the endometrium, which trigger myometrial contractions, blood vessel constriction, and uterine ischemia. This condition causes a further increase in prostaglandins, leading to menstrual pain (Akhfar & Khaera, 2022).

Factors that can influence the occurrence of dysmenorrhea include early menarche (<12 years), menstrual patterns and duration, abnormal body mass index (BMI), stress, lack of physical activity, smoking, genetic factors, and unhealthy eating patterns, including the habit of consuming fast food (Zukhrina & Martina, 2023).

This study also showed that 137 respondents (97.9%) frequently consumed fast food, while 3 respondents (2.1%) rarely consumed it. All respondents who frequently consumed fast food reported experiencing dysmenorrhea. This can be explained because fast food contains trans fatty acids, which act as free radicals and can damage cell membranes. The phospholipid component in cell membranes is a source of arachidonic acid, which is converted into prostaglandins. Excessive levels of prostaglandins trigger excessive uterine contractions, causing menstrual pain (Kusumawati et al., 2020).

These results are consistent with the study by Aulya et al. (2021), which states that the more often a person consumes fast food, the higher the risk of experiencing dysmenorrhea. The fat, salt, and additive content in fast food that exceeds normal limits causes a longer absorption process in the body and can interfere with organ function, including female reproductive organs.

Researchers argue that teenagers' habit of consuming fast food is influenced by modern lifestyles and social environments. Teenagers tend to choose fast food because it is practical, inexpensive, has a desirable taste, and is served in a comfortable place. Other factors that influence this habit include a lack of nutritional knowledge, peer influence, the availability of pocket money, fast food restaurant brand trends, and the urge to follow a modern lifestyle.

Researchers assume that the intensity of fast food consumption can increase the risk of dysmenorrhea. The unbalanced and excessive nutritional content in fast food takes longer to be absorbed by the body, which can disrupt organ function, including reproductive organs, and ultimately contribute to dysmenorrhea in women.

Conclusion

Based on the results of a study of 140 respondents regarding the relationship between fast food consumption habits and the incidence of dysmenorrhea, it was found that most respondents (97.9%) had a habit of frequently consuming fast food ($\geqslant$ 3 times per week). Of this group, 134 respondents (98%) experienced dysmenorrhea.

The Chi-Square statistical test showed a p-value of 0.0000118 ($p < 0.05$), indicating a significant relationship between fast food consumption habits and the incidence of dysmenorrhea in adolescent girls. The more frequent the consumption of fast food, the greater the risk of dysmenorrhea.

The habit of consuming fast food is thought to increase the levels of trans fatty acids and prostaglandins in the body, which can trigger excessive uterine contractions, causing menstrual pain. Therefore, a diet high in fast food is a risk factor for dysmenorrhea in adolescents.

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