



A Correlational Study: Fast Food Consumption Patterns And Menstrual Cycle Regularity In Adolescent Girls

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ABSTRACT

Adolescence is an important period of development marked by the maturation of the reproductive system and the onset of menstruation. A regular menstrual cycle becomes an indicator of a healthy reproductive system. However, a preliminary study showed that 68.4% female students experienced menstrual disorders. One suspected factor influencing the condition is fast-food consumption. This paper examines the relationship between fast-food consumption patterns and menstrual cycle regularity among adolescent girls. This paper was a correlational study. It used a cross-sectional research approach. It was conducted at MA Al-Munawwaroh, Kembangbahu, Lamongan, during January-March 2026. The population consisted of all female students at MA Al-Munawwaroh, totaling 45. The sample included 45 female students using a total sampling technique. The instruments were a menstrual cycle regularity checklist and a Food Frequency Questionnaire (FFQ). Data analysis used the test Chi-Square with $\alpha=0.05$. Most respondents had high fast-food consumption patterns (71.1%), and almost half had low fast-food consumption (28.9%). In addition, half of the respondents had irregular menstrual cycles (53.3%), and almost half had regular menstrual cycles (46.7%). The Chi-Square test yielded $p = 0.000$, indicating a relationship between fast-food consumption patterns and menstrual cycle regularity among adolescent girls. In conclusion, fast-food consumption patterns correlate with menstrual cycle regularity among adolescent girls. Adolescent girls should increase awareness of adopting a healthy, balanced diet and limit fast-food consumption to help balance hormone levels, so that menstrual cycles become regular and the reproductive system remains healthy.

INTRODUCTION

Adolescence is a transitional period from childhood to adulthood, marked by many changes in physical, psychological, and hormonal development. During this period, teenagers need a balanced diet to support growth and maintain health. However, in reality, the need for nutrition is often not balanced. Changing style of life, influencing the environment, as well as easy access to (fast food), make teenagers more often choose food that is practical, high in fat, sugar, and salt. In addition, social media shows various viral foods, which also encourage teenagers to follow trends out of curiosity and fear of being left behind, thereby increasing the habit of consuming unhealthy food. It can cause weight gain, obesity, and metabolic disturbances, which can affect hormone balance, including reproductive hormones. Disrupted reproductive hormones can lead to irregular menstrual cycles. Menstruation becomes longer, shorter, or irregular.

WHO data showed that 75% of adolescent girls experienced disturbances in their menstrual cycle (Efendi, Lestari, and Basit, 2024). Meanwhile, 11.7% of adolescent girls in Indonesia were reported to have experienced irregular menstruation. This number tended to be higher among teenagers living in

urban areas, namely by 14.9%. Data from East Java in 2023 showed that 13.3% of women experienced irregular menstrual cycles (Septiana, 2024). Research by Martini et al (2022) at Pondok Islamic boarding school Assalafi Nurul Huda Lamongan also reported that 66% of teenage daughters experienced irregular menstrual cycles, consisting of from 30% of cases polymenorrhea and 70% of cases oligomenorrhea (Martini et al., 2022).

A preliminary study conducted at MA Al Munawwaroh Lamongan through interviews showed that 13 of 19 female students (68.4%) experienced menstrual disorders, while 6 students (31.6%) did not experience menstrual disorders. Sixteen of the 19 female students (84.2%) stated that they often consumed fast food such as *seblak*, fried noodles, various fried foods, burgers, and donuts, as well as drink sweetened beverages such as soft drinks. In contrast, 3 other female students (15.8%) stated that they more often bring food from home. The reasons students chose fast food included not liking the food prepared at home, preferring the taste of food sold in the school canteen, or because parents rarely cook at home. Some mentioned that there were many fast-food options in the school environment, so they often ate them.

Factors that can influence the menstrual cycle include genetics, age, lifestyle (including diet and activities), physical factors, sleep patterns, stress levels, nutritional status and habits (including smoking or alcohol consumption), environment, and socioeconomic status. An unhealthy diet is one of the lifestyle factors that can contribute to disturbances in the menstrual cycle. One example of a pattern that eats no healthy food is the habit of frequent fast-food consumption. Fast food is high in fat, sodium, and sugar, but low in fiber and vitamins. The nutritional content of fast food is unbalanced; if consumed in excess, it can lead to nutritional deficiencies and increase the risk of diseases, such as obesity, skin disorders, degenerative diseases, and menstrual cycle disorders (Suryatno et al., 2023).

Excessive consumption of fast food can negatively affect the regularity of the menstrual cycle in teenagers because fast food is usually high in saturated fat, sugar, and sodium but low in nutrients essential to the body, such as fiber, vitamins, and minerals. It affects hormonal regulation, especially of estrogen and progesterone, as well as the hypothalamus-pituitary-ovarian axis, which plays an important role in menstrual cycle regulation. As a result, teenagers potentially experience irregular menstrual cycles until amenorrhea. In addition, trans fats can improve leptin and estrogen levels. Excess leptin can disrupt hypothalamic function by inhibiting the release of gonadotropin-releasing hormone (GnRH), which is important for ovulation. High sugar content can also cause insulin resistance, which affects the balance of the hormones luteinizing hormone (LH) and follicle-stimulating hormone (FSH), both of which play a role in the menstrual cycle. Moreover, excess sodium can increase systemic oxidative and inflammatory stress, thereby affecting hormonal stability during reproduction. Thus, all can cause disturbances in menstruation disorders, such as irregular menstruation cycle, menorrhagia, or amenorrhea (Wardani,

2023). This paper examines the correlation between fast-food consumption patterns and menstrual cycle regularity among adolescent girls.

METHOD

This paper was a correlational study. It used a cross-sectional research approach. It was conducted at MA Al-Munawwaroh, Kembangbahu, Lamongan, during January-March 2026. The population consisted of all female students at MA Al-Munawwaroh, totaling 45. All of them are female students from 3 classes: grades 10, 11, and 12. The sample included 45 female students using a total sampling technique. The independent variable in the study was fast-food consumption patterns. The dependent variable was menstrual cycle regularity. The instruments were a menstrual cycle regularity checklist and a Food Frequency Questionnaire (FFQ). FFQ was used to describe respondents' eating patterns over the past month. Data analysis used the test Chi-Square with $\alpha=0.05$. Research. It has passed ethical clearance from the Committee for Ethics in Health Research of Universitas Nahdlatul Ulama Surabaya, with the certificate number 0028/EC/KEPK/UNUSA/2026.

RESULT

Most respondents were late adolescents (62.2%), and almost half were middle adolescents (37.8%). In addition, almost half of the respondents were obese (33.3%), and a small proportion were normal (24.4%), underweight (22.2%), and overweight (20%) (Table 1).

Table.1 The Characteristics of Respondents Based on Age and Body Mass Index

The Characteristics of Respondents	Frequency	Percentage (%)
Age		
Early adolescence	0	0
Middle adolescence	17	37.8
Late adolescence	28	62.2
Body Mass Index (BMI)		
Underweight	10	22.2
Normal	11	24.4
Overweight	9	20.0
Obesity	15	33.3
Total	45	100

Most respondents had high fast-food consumption patterns (71.1%), and almost half had low fast-food consumption (28.9%). In addition, half of the respondents had irregular menstrual cycles (53.3%), and almost half had regular menstrual cycles (46.7%) (Table 2).

Table 2. Fast Food Consumption Patterns and Menstrual Cycle Regularity among Adolescent Girls

Variables	Frequency	Percentage (%)
Fast Food Consumption Patterns		
Low	13	28.9
High	32	71.1
Menstrual Cycle Regularity		
Regular	21	46.7
Irregular	24	53.3
Total	45	100

Half of the respondents with high fast food consumption patterns had irregular menstrual cycles (75.0%). In contrast, almost half of the respondents with low fast-food consumption patterns had regular menstrual cycles (28.9%). The Chi-Square test obtained $p = 0.000$, indicating that H_0 is rejected and H_1 is accepted. Thus, there was a relationship between fast-food consumption patterns and menstrual cycle regularity among adolescent girls.

Table 3. Cross Tabulation Relationship between Fast Food Consumption Patterns and Menstrual Cycle Regularity and Statistical Analysis

Fast Food Consumption Patterns	Menstrual Cycle Regularity				Total	
	Regular		Irregular		n	%
	n	%	N	%		
Low	13	28.9	0	0	13	28.9
High	8	17.8	24	53.3	32	71.1
Total	21	46.7	24	53.3	45	100
Chi-Square Test $p = 0.000$						

DISCUSSION

Fast Food Consumption Patterns in Adolescent Girls

The findings showed that most respondents had high fast-food consumption patterns (71.1%) (Table 1). In the modern era, fast food has already become a common food among the public, particularly teenagers. There are many types of fast food currently sold, which are very easy for teenagers to consume. In addition, fast food is easy to find anywhere and can be consumed in any condition. Adolescents can easily find fast food in the school canteen. Moreover, fast and easy delivery technology has made it easier for teenagers to buy fast food, even outside of school. Television advertisements or social media also influence fast-food consumption among teenagers. They tend to suffer from FOMO (Fear Of Missing Out) and follow viral food trends on social media, most of which are fast foods high in salt, sugar, and fat. Fast food is a type of food with low nutritional value that is served quickly. It has become an alternative for some people because it is considered more efficient and practical to consume. In one portion of fast food, 45% of the total calories come from saturated fat. The high-calorie, saturated-fat content of fast food is due to its being generally processed using deep-frying. The method often requires a lot of oil, high temperatures, and the use of recycled oil, which can promote the formation and oxidation of trans fatty acids. In addition, the sodium content of fast food ranges from 200 to 480 mg, which is about 30% of

daily sodium requirements, and is met by one portion of fast food (Anggraini, Herviana, and Rizma, 2025).

Excessive consumption of fast food is harmful to a teenager's health. It can lead to fat accumulation and contribute to obesity (Anisa, Lestari, and Amaliyah, 2024). This investigation found that almost half of the respondents were obese (Table 1). The Authors argue that fast food is high in fat and calories, so if consumed excessively and not balanced with sufficient physical activity, it can lead to excessive weight gain. Obesity is a complex condition characterized by excessive accumulation of body fat, resulting from an imbalance between energy intake and expenditure. Fast food usually contains high calories, saturated fat, added sugar, and excessive sodium, as well as low fiber and nutrients, which makes it one of the main contributors to weight gain when consumed excessively. Physiologically, excess calories from fast food that are not burned become energy and are stored as body fat. It can cause increased BMI and risk of obesity, especially in teenagers who are at the stage of active development (Vera Vera, 2025). It is supported by research conducted by Septiana (2024), which found a significant correlation between the frequency of fast-food consumption and the incidence of obesity.

Menstrual Cycle Regularity in Adolescent Girls

This research indicated that half of the respondents had irregular menstrual cycles (53.3%) (Table 2). It is likely related to an imbalance in reproductive hormones, estrogen and progesterone, caused by a lack of a healthy lifestyle. Imbalanced hormones can interfere with the ovulation process, causing irregular menstrual cycles. Therefore, it is important to maintain a balanced hormone level through a healthy lifestyle to support regular menstrual cycles.

Teenagers tend to experience menarche that has not occurred regularly, with cycles shorter than 21 days or longer than 35 days. With increasing time since menarche, menstrual cycles in teenagers become more stable and regular. In addition, the age of menarche also influences the characteristics of the menstrual cycle. Teenagers who experienced menarche at a young age were more likely to have shorter, irregular menstrual cycles and dysmenorrhea compared to adolescents who experienced menarche at a later age (Harley et al., 2024).

The menstrual cycle is the time from the first day of menstruation until the next menstrual period begins. In contrast, the length of the menstrual cycle is the interval between the start date of the previous menstruation and the start date of the next menstruation. Normal menstrual cycles range from 21 to 35 days. But menstrual cycles are often irregular and tend to vary during adolescence. A hormonal imbalance causes an irregular menstrual cycle. There are fluctuations in estrogen and progesterone levels on the hypothalamic-pituitary-ovarian axis, which can disrupt ovulation (the release of eggs) and trigger disturbances in the menstrual cycle (Habibah, Putriana, and Hidayati, 2024).

The Correlation between Fast Food Consumption Patterns and Menstrual Cycle Regularity in Adolescent Girls

This investigation showed there was a relationship between fast-food consumption patterns and menstrual cycle regularity among adolescent girls (Table 3). It aligns with research by Sulistya *et al.* (2023), which found a correlation between consuming junk food and an irregular menstrual cycle. It is also supported by research by Suryatno *et al.* (2023) Suryatno *et al.* (2023), which found a relationship between fast-food consumption patterns and menstrual cycle regularity.

Individuals who frequently consume fast food produce more estrogen. It was not only produced by the graft follicles but also produced by the glands adiopsa. The cell produces androgens and responds to Luteinizing hormone (LH) by increasing the number of receptors. Low-density lipoprotein (LDL) also plays a role in cholesterol uptake into cells. LH also stimulates the activity of specific proteins, thereby increasing androgen production. When androgen diffuses into granulosa cells and adipose tissue (fat), it undergoes aromatase-mediated metabolism into estrogen (Pang *et al.*, 2014).

The higher an individual's fat intake, the higher their estrogen levels will be. Estrogen levels should be down as a consequence of a degraded corpus luteum. Still, because excessive estrogen levels are high, the corpus luteum has to work hard too for degradation, so that causes a decline in estrogen levels, which slows down the menstrual process, causing degeneration, bleeding, and detachment from the endometrium, or the menstrual process slows down, so that the cycle becomes longer (oligomenorrhea). In addition, increased estrogen levels will cause the ovaries to stop releasing egg cells. The hormone estrogen also causes thickening of the uterine wall, which can result in disturbances in the menstrual cycle, such as long menstruation or irregular periods, and, when periods do come, the duration of her period will be longer (Naz, Dovom, and Tehrani, 2020).

CONCLUSION

Fast-food consumption patterns correlate with menstrual cycle regularity among adolescent girls. Adolescent girls should increase awareness of adopting a healthy, balanced diet and limit fast-food consumption to help balance hormone levels, so that menstrual cycles become regular and the reproductive system remains healthy.

Seblak (n): a popular Indonesian street food from Bandung, West Java, known for its fiery, savory, and aromatic broth. Its signature feature is chewy, wet crackers (tapioca) cooked in a spicy sauce alongside proteins like eggs, chicken, and meatballs, heavily flavored with aromatic ginger.

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