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RESEARCH PAPER

# Association between Junk Food Consumption and Menstrual Health among Early Adults Female University Students

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**ABSTRACT**

Eating habits have found to be related with several health components among young females. This study sought to assess association between Junk Food Consumption and menstrual health among early adult's female university students. With this aim, a total of 320 female studying in undergraduate programs in five universities were asked to respond to cross-sectional survey questionnaire. The questionnaire composed of three sections that included demographics, junk food consumption and menstruation related questions. The t-test analysis showed that eating junk food had a significant effect on female student's menstrual health. The participants reported irregular menstruation who consumed significantly higher level of refined grains, salty snacks, sweet snacks, bakery items and fast food compared with participants reported regular menstruation. The result also revealed that consumption of sweet snacks, carbonated drinks, street food and fast food were significantly higher in those participants who have pre-menstrual symptoms compared with participants reported regular menstruation. These findings suggest that junk food consumption has negative effect on menstrual health of early adult female studying in under graduate study programme in universities professional in higher education institutions should introduce policies and interventional, strategies, polices, awareness programmes students cancelling to reduce junk food consumption in the universities.

**KEYWORDS** Early Adult's University Students, Junk Food, Menstruation

## Introduction

Junk food consumption and menstrual disorders among early adult girls apparently viewed as distinct issues, however some researchers argue that there may be link between two variables. Menstrual health has been recognized as a critical aspect of female's overall health and well-being that suggested to be played a significant role in their overall reproductive and physical health. Menstrual cycle is a natural physiological process, regulated by complex hormonal interactions, that ensures female reproductive functions properly De Leo (2018). Concurrently, junk food has become a popular dietary pattern, determined by the intake of highly processed, energy, dense items with low nutritional value (Monteiro, 2013). Junk food, known as ultra-processed food, that included a wide range of products such as sugary snacks carbonated beverages, and fast food. These foods are often higher in unhealthy fats, like refined sugars, and low in essential nutrients, which make them a concern for overall health Malik (2019) Understanding the potential link between junk food consumption and menstrual health has become critical, as current evidence revealed that nutrition might influence menstrual health.

A significantly higher level of menstrual related disorders has been frequently reported by several studies. Evidences has found that menstrual problem, including irregular periods, heavy bleeding, painful periods, and other menstrual related disorders, were common among early adults' females. R. E. B. Jones, A. M. (2018) reported that

approximately 25-30% of early adult female experienced irregular menstrual cycles along with polycystic ovary syndrome (PCOS). In addition, Ghandour et al. (2023) revealed that dysmenorrhea, or painful periods, experienced by approximately 50-80% of young women. They also found that Pre-menstrual symptoms (PMS) marked by emotional and physical symptoms before menstruation, affects around 75-85% of early adult's female (J. K. J. Smith, L. M., 2020). Although less common, pre-menstrual symptoms impact the emotional well-being of approximately 3-8% of individuals (Miller, 2019). These findings collectively demonstrated that observance of significance level of menstrual disorders has become an issue of serious concern among early adult females.

A growing body of evidence indicated the certain dietary habits, such as excessive consumption of junk food intake, may lead to menstrual disruptions and exacerbate premenstrual symptoms, affecting the well-being of female university students (Negi, Mishra, & Lakhera, 2018).

In addition to menstruation problems high prevalence of Junk food consumption has emerged as another crucial issue among early adults' girls. Therefore junk food consumption has been a subject of interest for the researchers, and several studies had explored the prevalence in this age group. Anderson (2020) conducted a survey and revealed that 80% of early adults aged 18-25 reported consumption of junk food at least once per week, while 20% reported consumption of theses foods multiple time per week. Furthermore, J. S. Lee, Mishra, V., & Lee, J. H. (2018) found that 70% of early adults living in urban environments consumed junk food regularly, indicating a significantly higher level of prevalence of unhealthy dietary habits in urban populations. Additionally, West (2021a) found that people from lower-income backgrounds were more likely to routinely consumed junk food (80%) compared to those from higher-income backgrounds (60%). These findings suggest that excessive consumption of junk food has become a significant concern, particularly young university students.

Some researchers have argued that there maybe a link between junk food consumption and physical psychological health of the females. The relationship between junk food consumption and its impact on the physical and psychological health of females has become an area of significant interest. Dietary habits and lifestyles changing, understanding the intricate interplay between nutrition and well-being were crucial. Research conducted by A. B. W. Smith, C. D.; Jones, R. E. (2019) explored the dietary patterns of young adult females, uncovered a noteworthy connection between frequent consumption of junk food and gradual increase in body mass index (BMI) over time. This emphasizes the need to consider the potential consequences of dietary choices on physical health. L. M. B. Johnson, E. F. (2020) Delved into the psychological ramifications of indulging in junk food, particularly among early adult females. The study revealed a compelling link between such consumption and an elevated vulnerability to depressive symptoms and reduce self-esteem. These findings suggest that dietary habits contribute negatively effecting psychological and physical effect of young girls negative and physical consequences further may affect menstrual health of young females.

The consequences of junk food consumption on menstrual health can be far-reaching. Previous research found that unhealthy dietary patterns lead to the irregular menstrual cycle and cause emotional distress and physical discomfort in female university students (Latif, Naz, Ashraf, & Jafri, 2022). Furthermore, premenstrual symptoms intensify and become more pronounced and disruptive, impacting both academic performance and general quality of life. By investigating the possible effects of junk food on menstrual health, this research aimed to shed light on potential health hazards and emphasize the importance of adopting healthy dietary practices (West, 2021b). Although a few studies demonstrated that there is link between junk food consumption and me menstrual health, whoever there is still lack of strong evidence on this topic. Further study may indeed enhance more understanding that may contribute to strengthen existing evidence.

Despite the emerging evidence about how eating the junk food affects menstrual health, there still exists a study gap in the specific context of female university students. Previous research has explored the relationship between diet and menstrual health, but further research was necessary to fully understand the extent of the influence of junk food consumption on this specific population. Addressing this research gap can provide valuable insights into potential risk factors and informs targeted interventions for promoting healthier dietary choices and improving menstrual health among female university students (K. R. Jones, Harrison, A., Kurzer, M., & Frongillo, E. A., 2019).

Scholars in the field of nutrition and reproductive health have highlighted the potential role of physical activity and exercise as preventive measures for menstrual health issues and junk food consumption. Engaging in regular physical activity could promote hormonal balance and over-all being, potentially mitigating the negative effects of junk food on menstrual health. By incorporating regular exercise into their lifestyle, female university students could enhance their menstrual health and reduce the risk of menstrual irregularities associated with junk food consumption (Daley, 2018).

**Literature Review:**

Menstrual health was a crucial aspect of female well-being, involving the regularity and normal functioning of menstrual cycle. This literature review aimed to explore the impact of junk food consumption on menstrual health in female university students. Consumption of Junk food has become increasingly prevalent among young adults, including female university students. Junk food often has a high calorie content, lot of sugar, harmful fats and few important nutrients. Numerous studies have found that dietary habits of university students and findings consistently indicate a high consumption of junk food. Over 70% of female university students surveyed by White (2019) acknowledge to regularly consuming junk food, such as sugary snacks, fast food sugary and sweetened beverages. Moreover, Smithson (2020) found that during the course of their academic years, female university students significantly increased their consumption of junk food.

High consumption of junk foods can result in nutrient deficiencies, especially in vitamin B and D, zinc magnesium and iron which was crucial for health of menstrual Patel (2018). Junk food's high sugar content and the harmful fats could cause insulin resistance, hormonal disruptions and inflammation. These hormonal disruptions could affect the regularity of menstrual cycles and contributes to the menstrual irregularities (K. Brown, Jenkins, L., & Williams, A., 2017; M. Johnson, Smithson, R., & Lee, C., 2019). Eating junk food was frequently linked to obesity and weight increase. Excess body weight could lead to the hormonal imbalances, including increase in oestrogen production which might influence the menstrual health (M. Johnson, Smithson, R., & Lee, C., 2019).

Jenkins (2021) conducted a cross-sectional study involving a large sample of female university students and found positive association between a high intake of junk food and menstrual irregularities. In a related study conducted by C. Lee, & Williams, A. (2022) that women who frequently consumed junk food had longer menstrual cycles and more instances of menstrual pain.

These finding collectively demonstrate the increase in consumption of junk food has been related with increased menstruation problem among female whoever other studies were essential to establish the strength of the evidence. Moreover, conduction more studies on varying demographic populations help to genialize these findings in the population different characteristics hence due to remarkable prevalence of junk food among university female students with ages between 18-25 years seems more important to understand generalize ability of the findings of past research and adding new knowledge on this topic.

## Material and Methods

### Research design

This study used a cross-sectional research design.

### Population and Sample

A total of 320 students from 32 different departments of five different universities of Lahore voluntarily participated in the current research. The age group of female university students were between 18-25.

### Instruments

Questionnaire was used to collect data that included questions related to demographic information and junk food consumption menstrual abnormalities. In demographic section information concerning institute name, department, semester, age, marital status, sports status, level of playing, years of participation, height, weight, and BMI were collected.

Junk food consumption and menstruation of female university students were measured using the questionnaire which was developed by (Latif et al., 2022). This tool consisted of 3 items related to menstruation (dysmenorrhea, irregular menstrual cycle, pre-menstrual symptoms) and 9 items related with junk food like sweet snacks, salty snacks, street food, fast food, processed drinks, frozen meat, carbonated beverages, bakery items and refined grains. This tool considered valid and reliable to obtain information concerning junk food consumption and menstruation for the age group of early adults.

### Procedure

Data collection was performed directly by the researcher filling out the questionnaires from the selected sample. First, a brief introduction about the research was given to the participants and humbly requested them to read the questionnaire first before filling in and advised them to reach in case of any confusion related to questionnaire. To fill the questionnaire, 15-20 minutes were given to each participant.

### Data Analysis

SPSS version 20-22 was used to analyse the data, and the T- test was used for statistical analysis of the data. P value was set at <0.05 as significant.

## Results and Discussion

T-test was used to check the association of junk food on menstrual health of female university students. The result indicated the impact of following junk food consumption on irregular menstrual cycle (see in Table 1)

Table 1
Irregular Menstrual Cycle

| Variables | Irregular | | Regular | | t (318) | P | Cohen's d |
|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | | | |
| Consumption of Junk food components | | | | | | | |
| Refines grains | 2.26 | .692 | 1.98 | .663 | 3.224 | **.002** | 0.1 |
| Salty Snacks | 2.21 | .691 | 1.99 | .732 | 2.384 | **.018** | 0.3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sweet Snacks | 2.15 | .839 | 1.86 | .830 | 2.741 | **.007** | 0.3 |
| Bakery Items | 1.81 | .757 | 1.61 | .693 | 2.073 | **.040** | 0.2 |
| Frozen Meat | 1.49 | .698 | 1.55 | .722 | -.726 | .469 | 0.08 |
| Carbonated drinks | 1.92 | .818 | 1.88 | .786 | .368 | .714 | 0.04 |
| Street food | | | | | | | |
| Fast food | 2.23 | .788 | 2.00 | .842 | 2.171 | **.032** | 0.2 |
| Processed drinks | 2.18 | .721 | 2.14 | .795 | .470 | .639 | 0.05 |
| | 1.78 | .732 | 1.70 | .759 | .870 | .386 | 0.1 |

The results revealed that those who have irregular menstrual cycle because of consumption of refined grains formed significantly higher score *(M = 2.26, SD = .692), t (318) = 3.224, p < .002.* than those who have regular menstrual cycle *(M = 1.98, SD = .663).* Cohen's d value was *0.1 (<0.5)* that illustrates small effect size.

The findings revealed that those who have irregular menstrual cycle because of consumption of salty snacks formed significantly higher score (*M = 2.21, SD =.691), t (318) = 2.384, p < .018* than those who have regular menstrual cycle *(M = 1.99, SD = .732).* Cohen's d value was *0.3 (<0.5)* that demonstrate the small effect size.

The finding also revealed that those who have irregular menstrual cycle because of consumption of sweet snacks formed significantly higher score *(M = 2.15, SD = .839), t (318) = 2.741, p <.007.* than those who have regular menstrual cycle *(M = 1.86, SD = .830).* The Cohen's d value was *0.3 (<0.5)* that represents the small effect size.

The finding revealed that those who have irregular menstrual cycle because of consumption of bakery items formed significantly higher score *(M = 1.81, SD = .757), t (318) = 2.073, p < .040* than those who have regular menstrual cycle *(M = 1.61, SD = .693*). Cohen's d value was *0.3 (<0.5)* that demonstrate the small effect size.

The finding revealed that those who have irregular menstrual cycle because of consumption of street food formed significantly higher score *(M = 2.23, SD = .788), t (318) = 2.171, p < .032* than those who have regular menstrual cycle *(M = 2.00, SD = .842*). Cohen's d value was *0.2 (<0.5)* illustrate small effect size.

The findings also revealed that there is no significance difference in frozen meat, carbonated drinks, fast food and processed drinks.

**Table 2**
**Premenstrual Symptoms**

| Consumption of Junk food components | PMS | | Non-PMS | | | | |
|---|---|---|---|---|---|---|---|
| Variables | M | SD | M | SD | t (318) | P | Cohen's d |
| Refines grains | 2.04 | .696 | 2.05 | .662 | -.180 | .857 | 0.01 |
| Salty Snacks | 2.06 | .740 | 2.01 | .712 | .548 | .584 | 0.06 |
| Sweet Snacks | 2.01 | .836 | 1.81 | .833 | 2.152 | **.032** | 0.2 |
| Bakery Items | 1.65 | .700 | 1.66 | .735 | -.087 | .931 | 0.01 |
| Frozen Meat | 1.58 | .743 | 1.49 | .679 | 1.089 | .277 | 0.12 |
| Carbonated drinks | 1.98 | .826 | 1.77 | .732 | 2.434 | **.016** | 0.26 |
| Street food | 2.14 | .844 | 1.94 | .808 | 2.149 | **.032** | 0.2 |
| Fast food | 2.22 | .770 | 2.04 | .777 | 2.131 | **.034** | 0.2 |
| Processed drinks | 1.77 | .763 | 1.65 | .736 | 1.415 | .158 | 0.1 |

PMS: Pre-menstrual symptoms

Table 2 showed the impact of different junk on pre-menstrual symptoms of female university students and result revealed that those who have irregular menstrual cycle because of consumption of sweet snacks formed significantly higher score *(M = 2.01, SD =*

*.836), t (318) = 2.152, p <.032* than those who have regular menstrual cycle *(M = 1.81, SD = .833*). Cohen's d value was *0.2 (<0.5)* illustrates small effect size.

The results revealed that those who have irregular menstrual cycle because of consumption of carbonated drinks formed significantly higher score *(M = 1.98, SD = .826), t (318) = 2.434, p < .032 than* those who have regular menstrual cycle *(M = 1.77, SD = .732*). Cohen's d value was *0.26 (<0.5)* it illustrates small effect size.

The result revealed that those who have irregular menstrual cycle because of consumption of fast food formed significantly higher score *(M = 2.14, SD = .844), t (318) = 2.149, p < .032 than* those who have regular menstrual cycle *(M = 1.94, SD = .808*). Cohen's d value was *0.2 (<0.5)* it demonstrates the small effect size.

The result also revealed those who have irregular menstrual cycle because of consumption of street formed significantly higher score *(M = 2.22, SD = .770), t (318) = 2.131, p < .032 than* those who have regular menstrual cycle *(M = 2.04, SD = .777*). Cohen's d value was *0.2 (<0.5)* it represents the small effects size.

The result also reveals that there is no significance difference in refines grains, salty snacks, bakery items, frozen meat and processed drinks.

**Discussion**

The important findings in this study shed light on the association between dietary practices and premenstrual symptoms (PMS), as well as menstrual cycle anomalies First, the findings showed that more refined grain intake was Menstrual cycle irregularities were strongly related. This result was reliable. The light of prior research indicating that diets rich in refined carbs may cause hormonal abnormalities and irregularities in menstrual cycles (Harris, 2018).

Also in line with earlier studies showing that a high intake of sugary foods can contribute to hormonal disruptions and irregular menstrual cycles was found as the strong association between increasing sweet snack consumption and irregular menstrual cycles. (Ricciotti, 2021).

Additionally, research on the potential negative effects of refined grains and added sugars on reproductive health was supported by the considerable link between the intake of bakery goods and irregular menstrual cycles (L. M. M. Brown, R. A.; Turner, S. B.; Adams, J. D., 2019). Another interesting discovery was the strong correlation between eating street food and having irregular periods and more PMS symptoms. This outcome was consistent with other research that showed that eating street food, which was frequently laden with harmful fats and processed components, had a deleterious effect on hormonal balance and menstrual health (Adams, 2022).

The strong association between carbonated drink consumption and worsened PMS symptoms was found also consistent with research suggesting that excessive consumption of carbonated drinks with added sugars may exacerbate PMS symptoms through inflammation and hormonal changes (Chocano-Bedoya, 2013).

The non-significant results, on the other hand, should be regarded with caution. The fact that this study did not discover a statistically significant link between several food items (salty snacks, frozen meat, carbonated drinks, fast food, and processed drinks) and irregular menstrual cycles or PMS did not imply that these dietary components had no effect. The lack of significance in this study might be due to the complexity of the connection between nutrition and menstrual health as well as potential confounding variables. Conflicting findings from earlier studies on some of these insignificant connections, such as those

between eating fast food and irregular menstrual cycles, suggest that further research is necessary, comprehend fully how they affect reproductive health (Saghafi-Asl, 2019). In conclusion, the important results of this study offer insightful information on the potential impact of dietary practices on irregular menstrual cycles and PMS symptoms. The findings are consistent with earlier research highlighting the significance of a healthy, well-balanced diet for reproduction. Nonetheless, the non-Significant findings show that the association between specific dietary variables and Menstrual health might be more complicated and need more research. Future studies with larger sample sizes and taking numerous confounding variables into consideration are necessary to fully comprehend the relationship between diet and as well as menstrual health.

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