

## LIFESTYLE AND NUTRITIONAL STATUS OF THE EVENT OF ADOLESCENT WOMEN'S DYSMENORRHEA

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### ABSTRAK GAYA HIDUP DAN STATUS GIZI KEJADIAN DYSMENORHE REMAJA WANITA

Latar Belakang: Nyeri perut merupakan salah satu keluhan yang dialami saat menstruasi yang disebut dismenorea. Kebiasaan berolahraga <3x dalam seminggu, mengonsumsi *fast food* lebih dari 3x dalam seminggu dan IMT yang terlalu gemuk ataupun kurus dapat mempengaruhi terjadinya dismenorea.

Tujuan : untuk mengetahui hubungan gaya hidup dan status gizi terhadap kejadian dismenorea di SMA Negeri 2 Pekanbaru.

Metode: Jenis penelitian adalah *cross sectional*. Populasi dalam penelitian adalah seluruh siswi yang mengalami menstruasi berjumlah 130 siswi kelas X. Sampel pada penelitian ini berjumlah 56 orang yang merupakan siswi kelas X yang telah memenuhi kriteria inklusi yang ditentukan dengan teknik *consecutive sampling*. Pengumpulan data melalui lembar kuesioner *Menstrual Symptom Questionnaire*, *Physical Activity Level*, *Food Frequency Questionnaire*. Analisis data menggunakan uji *chi square* dengan taraf signifikansi 95%.

Hasil : didapatkan adanya hubungan antara dismenorea dengan aktivitas fisik ( $p$  value= 0.037), mengonsumsi *fast food* ( $p$  value=0.000), dan status gizi ( $p$  value=0.013).

Kesimpulan: ada hubungan aktivitas fisik, mengonsumsi *fast food*, dan status gizi terhadap kejadian dismenorea.

Saran : siswa harus menerapkan pola hidup sehat seperti rajin berolahraga minimal 3x dalam seminggu dengan durasi 30 menit, mengurangi konsumsi *fast food*, menjaga IMT tetap normal untuk mengurangi terjadi dismenorea.

Kata Kunci : Aktivitas Fisik, Dismenorea, *Fast Food*, Status Gizi.

### ABSTRACT

*Background: abdominal pain is one of the complaints experienced during menstruation called dysmenorrhea. The habit of exercising <3x a week, consuming fast food more than 3x a week, and having a BMI that is too fat or thin can affect the occurrence of dysmenorrhea.*

*Purpose: To determine the relationship between lifestyle and nutritional status on the incidence of dysmenorrhea in SMA Negeri 2 Pekanbaru.*

*Method: This type of research is cross-sectional. The population in the study were all students who experienced menstruation totaling 130 students of class X. The sample in this study amounted to 56 students who were class X students who had met the inclusion criteria determined by the consecutive sampling technique. Data collection through questionnaire sheets Menstrual Symptom Questionnaire, Physical Activity Level, Food Frequency Questionnaire. Data analysis used the chi-square test with a significance level of 95%.*

*Results: i There was a relationship between dysmenorrhea and physical activity ( $p$  value = 0.037), consuming fast food ( $p$  value = 0.000), and nutritional status ( $p$  value = 0.013).*

*Conclusion: there is a relationship between physical activity, consuming fast food, and nutritional status to the incidence of dysmenorrhea.*

*Suggestions: students must apply a healthy lifestyle such as diligently exercising at least 3 times a week with a duration of 30 minutes, reducing fast-food consumption, and maintaining normal BMI to reduce dysmenorrhea.*

*Keywords: Dysmenorrhea, Fast Food, Nutritional Status, Physical Activity*

## INTRODUCTION

Abdominal pain is one of the complaints experienced during menstruation called dysmenorrhea. Complaints experienced are pain before and during menstruation, decreased appetite, laziness to move, and even unable to do any activities as long as the pain is unbearable (Anurogo, D., & Wulandari, 2011).

According to Proverawati & Misaroh 2012, the incidence of dysmenorrhea in Indonesia consisted of 72.89% primary dysmenorrhea and 27.11% secondary dysmenorrhea. As many as 50% of women who have menstruated experience dysmenorrhea, both mild and moderate, and 10% of them experience severe symptoms that interfere with activities and need to rest at home or in bed (Anjarwati, 2012; Atikah Proverawati, 2009).

There are several causes of dysmenorrhea, one of which is the influence of prostaglandin levels. The hormone progesterone in the ovulatory cycle causes the synthesis of prostaglandins. The increase in the hormone prostaglandin and its release causes uncoordinated and irregular uterine contractions, causing pain. Prostaglandins that enter the bloodstream in excess can also cause dysmenorrhea (Sharon J.Reeder, 2011).

Dysmenorrhea usually occurs in adolescents or women of childbearing age. The level of pain experienced by each woman is different, there is mild, moderate, and severe pain that interferes with activities. The impact of dysmenorrhea on adolescents such as lack of or not focus while studying, headaches, and feeling tired and weak. Students who experience severe pain levels interfere with learning activities (Saguni et al., 2013).

Dysmenorrhea is divided into 2 types, namely primary and secondary dysmenorrhea. Primary dysmenorrhea is cramping in the lower abdomen, which can radiate to the back or lower thighs. Discomfort in dysmenorrhea is usually felt 1-2 days before menstruation and the most severe for 24 hours. Several risk factors cause primary dysmenorrhea such as family history, age <30 years, early menarche age (<12 years), longer menstrual cycle, nullipara, nutritional status, low economic status, and lifestyle (consuming fast food). food, stress, smoking, physical activity) (Latthe et al., 2006) (Atikah Proverawati, 2009; Nuzula & Oktaviana, 2019).

Some lifestyles that can affect dysmenorrhea in adolescents are not doing physical activity and consuming fast food. Based on research, 80% of adolescents who do not do activity experience primary dysmenorrhea compared to those who do 20% physical activity, because oxygen cannot be

delivered to the blood vessels of the reproductive organs that are experiencing vasoconstriction. Furthermore, consuming fast food 3 in 1 week has a greater risk of experiencing dysmenorrhea because fast food has an unbalanced nutritional content for the body, one of which is fatty acids in fast food which can interfere with progesterone metabolism in the luteal phase of the menstrual cycle (Latthe et al., 2006; Salari et al., 2017)

In addition to lifestyle, nutritional status is also one of the factors that influence the occurrence of dysmenorrhea. Low nutritional status (underweight) can be caused by inadequate food intake. Meanwhile, overweight (overweight) status can cause dysmenorrhea because there is an excessive fat tissue that pushes the blood vessels in the reproductive organs so that the blood that should flow during the menstrual process is disrupted and causes pain during menstruation (Indahwati et al., 2017; Novita, 2018).

Handling dysmenorrhea can be done using prevention and treatment. Prevention that can be done is to avoid stress, maintain a healthy diet, get enough rest, do exercise regularly, and apply warm compresses. While the treatment that can be done is with herbal treatment, supplements, relaxation, hypnotherapy, and acupuncture (Anurogo, D., & Wulandari, 2011).

High School 2 Pekanbaru is located on Jalan Nusa Indah during the community. Based on a preliminary survey, the number of students at SMA Negeri 2 Pekanbaru is 920 people. The situation at SMA Negeri 2 Pekanbaru supports teenagers to consume fast food because the snacks provided in the school canteen are classified as fast food such as instant noodles, fried foods, fried sausages, and on the roadside such as kebabs, fried chicken, fried/grilled sausages, even the ones they order online like burgers, fries, spaghetti. The physical activity carried out by school children is also usually due to sports lessons, outside of sports lessons they do not exercise, there are even some of them who just sit around if, given the freedom during sports hours, this causes them to do less physical activity.

Based on this background, it turns out that many young women do not know that many of their habits or lifestyle can affect the onset of dysmenorrhea, therefore researchers are interested in researching the relationship between nutritional status, consuming fast food, physical activity to the incidence of dysmenorrhea in SMA Negeri 2 Pekanbaru.

The purpose of this study was to determine the relationship between lifestyle and nutritional

status on the incidence of dysmenorrhea in High School 2 Pekanbaru.

**RESEARCH METHODOLOGY**

This type of research uses analytical observational with a cross-sectional research design. This research was conducted from August 2019 to July 2020 at High School 2 Pekanbaru. The population in the study were all students who experienced menstruation totaling 130 students of class X at High School 2 Pekanbaru. The sampling technique used was the Consecutive Sampling technique, namely taking samples according to the inclusion criteria until the number was met in a short time. Determination of the number of samples is done by using the Slovin formula with the number of samples to be taken being 56 students. The data collection instruments used the Menstrual Symptom Questionnaire (MSQ), the Food Frequency Questionnaire (FFQ) for the frequency of fast food, the Physical Activity Level (PAL) for physical activity, anthropometric measurements of body weight using a stepping scale (GEA) and height using a meter, recording sheet of inspection results. Data analysis using univariate and bivariate analysis with chi-square test. Chi-square statistical test was carried out using SPSS with a 95% confidence degree ( $p = 0.005$ ).

**RESEARCH RESULT**

This research is about the relationship of lifestyle and nutritional status to the incidence of dysmenorrhea in High School 2 Pekanbaru which was carried out on 56 respondents, the discussion and final results will be stated as follows:

**Univariate Analysis**

**Tabel 1**

**Frequency Distribution of Students Based on Dysmenorrhea, Lifestyle, and Nutritional Status**

Criteria	Frequency (n)	Percentage (%)
Dysmenorrhea		
Yes	42	75
No	14	25
Physical activity		
Light	41	73.2
Medium	15	26.8
Eating <i>fast food</i>		
Seldom	11	19.6
Often	45	80.4
Nutritional Satus		
Normal	30	53.6
Skinny/Fat	26	46.4
Total	56	100%

Based on table 1, it can be seen that the respondents who experienced dysmenorrhea were 42 people (75%) while those who did not experience dysmenorrhea were 14 people (25%). Physical activity that respondents do daily is light activity (73.2%) Often consume fast food (80.4%).

**Bivariat Analysis**

**The Relationship of Physical Activity to the Incidence of Dysmenorrhea**

The results of the analysis of the relationship between physical activity and the incidence of dysmenorrhea showed that of the 41 respondents who did the light physical activity, 46.7% of respondents did not experience dysmenorrhea and 82.9% of respondents experienced dysmenorrhea. Meanwhile, of the 15 respondents who did the moderate physical activity, 17.1% did not experience dysmenorrhea and 75% experienced dysmenorrhea at High School 2 Pekanbaru. The results of the chi-square statistical test obtained a  $p\text{-value} = 0.037 < 0.05$ , it can be concluded that there is a significant relationship between physical activity and the incidence of dysmenorrhea in High School 2 Pekanbaru.

**Tabel 2**  
**The Relationship of Physical Activity to the Incidence of Dysmenorrhea**

Physical activity	Dysmenorrhea				TOTAL		P Value
	No		Yes		N	%	
	N	%	N	%			
Light	7	17.1%	34	82.9%	41	100%	0.037
Medium	7	46.7%	8	53.3%	15	100%	
Total	14	25.0%	42	75.0%	56	100%	

The Relationship between Eating Fast Food and the Incidence of Dysmenorrhea

**Tabel 3**  
**The Relationship between Eating Fast Food and the Incidence of Dysmenorrhea**

Eating fast food	Disminorea				TOTAL		P Value
	No		Yes		N	%	
	N	%	N	%			
Seldom	9	81.8%	2	18.2%	11	100%	0.000
Often	5	11.1%	40	88.9%	45	100%	
Total	14	25.0%	42	75.0%	56	100%	

The results of the analysis of the relationship between consuming fast food and the incidence of dysmenorrhea showed that of the 11 respondents who rarely consumed fast food, 81.85 did not experience dysmenorrhea and 18.2% experienced dysmenorrhea. Meanwhile, of the 45 respondents who frequently consumed fast food, 11.1% did not experience dysmenorrhea and 88.9% experienced dysmenorrhea at High School 2 Pekanbaru. The results of the chi-square statistical test obtained a value of  $p = 0.000 < = 0.05$ , so it can be concluded that there is a significant relationship between consuming fast food and the incidence of dysmenorrhea in High School 2 Pekanbaru.

The Relationship between nutritional status and incidence of dysmenorrhea

The results of the analysis of the relationship between nutritional status and the incidence of dysmenorrhea showed that of the 30 respondents who had normal nutritional status, 40% did not experience dysmenorrhea and 60% had dysmenorrhea. Meanwhile, of the 26 respondents who were underweight and obese, 7.7% did not experience dysmenorrhea and 92.3% had dysmenorrhea at High School 2 Pekanbaru. The results of the chi-square statistical test obtained a p-value =  $0.013 < = 0.05$ , so it can be concluded that there is a significant relationship between nutritional status and the incidence of dysmenorrhea in High School 2 Pekanbaru.

**Tabel 4**  
**Relationship between nutritional status and incidence of dysmenorrhea**

Nutritional Status	Disminorea				TOTAL		P Value
	No		Yes		N	%	
	N	%	N	%			
Normal	12	40.0%	18	60.0%	30	100%	0.013
Skinny/Fat	2	7.7%	24	92.3%	26	100%	
Total	14	25.0%	42	75.0%	56	100%	

## DISCUSSIONS

### The Relationship of Physical Activity to the Incidence of Dysmenorrhea

Physical activity and the incidence of dysmenorrhea in High School 2 Pekanbaru. From the results of this study, we can see that there are still many teenagers who do not do physical activity. Usually, teenagers spend more time lying down while playing cellphones for hours, watching TV, playing on computers, sleeping more than 9 hours per day or less than 7 hours a day than doing strenuous activities such as exercising on the grounds of being lazy, tired, or not having anything. sports equipment. Schoolgirls in general only exercise in sports subjects.

The incidence of dysmenorrhea will increase if there is a lack of physical activity because it can

cause blood oxygen circulation to decrease. Decreased oxygen and blood circulation will cause pain. Exercise is one of the relaxation techniques that can reduce pain during dysmenorrhea. Minimum limit of physical activity or exercise that can be done 3-5 days a week with a duration of 30 minutes every day (Ismalia et al., 2019; Litbang Kemkes, 2013)

Physical activity is the movement of limbs that causes energy expenditure which is very important for physical, mental maintenance, and quality of life (Marmi, S.ST., 2013). Therefore, most female students who do little exercise will experience greater dysmenorrhea. Based on research 37 respondents (67%), had light activity, and 35 respondents (77.8%) experienced dysmenorrhea (Nuzula & Oktaviana, 2019). In line with Ismalia's research, it was found that respondents who experienced primary

dysmenorrhea were more common in adolescents who had mild physical activity (67.3%) (Ismalia et al., 2019).

Eighty percent of adolescents who do not do physical activity experience dysmenorrhea than those who do physical activity. This happens because oxygen cannot be delivered to the blood vessels of the reproductive organs at that time vasoconstriction (narrowing of blood vessels) occurs, which causes women to experience pain during menstruation. Physical activity is one of the relaxation techniques to reduce pain. This is because when doing a physical activity the body will produce endorphins. Endorphins are produced by the brain and spinal cord. This endorphin hormone will provide a relaxing and happy effect so that it reduces menstrual pain (Salari et al., 2017).

### **The Relationship between Eating Fast Food and the Incidence of Dysmenorrhea**

The results of the chi-square statistical test obtained  $p = 0.000$ , so it can be concluded that there is a significant relationship between consuming fast food and the incidence of dysmenorrhea in High School 2 Pekanbaru. Based on research, most schoolgirls will consume fast food (fast food). Wherever and whenever to access fast food very quickly, including in schools. Fast food that is most often consumed by school children is fried food that is available at school. Apart from fried foods, there are still fried potatoes, kebabs, fried chicken, burgers, and pizzas which are school children's favorite foods. Fast food is food that contains high fat, protein, and salt but is low in fiber. This is what causes many students who experience dysmenorrhea (Pramanik & Dhar, 2014).

Consuming fast food means consuming a lot of calories, fat, and sugar which is excessive and high in sodium. The fatty acid content of fast food can interfere with progesterone metabolism in the luteal phase of the menstrual cycle. As a result, prostaglandin levels increase which causes pain during menstruation. Prostaglandins are formed from fatty acids present in the body. After ovulation, fatty acids accumulate in the phospholipid portion of the cell membrane. When progesterone levels decrease before menstruation, fatty acids, namely arachidonic acid, are released and undergo a chain reaction to become prostaglandins which can cause pain during menstruation. In addition to dysmenorrhea, the habit of consuming fast food can also cause oligomenorrhea, hypermenorrhea, and premenstrual syndrome (Indahwati et al., 2017; Nur Khasanah, 2012; Pramanik & Dhar, 2014).

Teenagers who often eat fast food 3x/week in the past month will experience dysmenorrhea. Fast food has an unbalanced nutritional content for the body, namely, high fat, high calories, high sugar, and low fiber. Respondents who often consume fast food experience primary dysmenorrhea as much as 83.03%. In this study, there was a significant relationship between the habit of consuming fast food and primary dysmenorrhea (value = 0.001) (Pramanik & Dhar, 2014).

This is also in line with research by Indahwati et.al in Ponorogo, which found that the main reason for dysmenorrhea was because it was influenced by fast food factors. Fast food contains trans fatty acids which are free radicals. One of the effects of free radicals in cell membrane damage. Ismalia's research (2018), shows that there is a significant relationship between fast food consumption and primary dysmenorrhea in students of the Faculty of Medicine, University of Lampung batch 2015 with a p-value of 0.048 (Indahwati et al., 2017).

### **The Relationship between nutritional status and incidence of dysmenorrhea**

The results of the chi-square statistical test obtained a p-value = 0.013, so it can be concluded that there is a significant relationship between nutritional status and the incidence of dysmenorrhea in SMA Negeri 2 Pekanbaru. Based on the calculation of the body mass index, most of the respondents showed normal nutritional status, however, students whose nutritional status was thin/fat were more likely to experience dysmenorrhea than normal nutritional status. The nutritional status of adolescents is determined by the state of the adolescent's body which is calculated based on BMI/U in the categories (very thin, thin, normal, fat, and obese) (Kemenkes RI, 2014).

Adolescents with poor nutrition can affect the growth of reproductive organ functions, besides that menstrual disorders can occur because during the luteal phase they need more nutrients for the body, and women with poor nutritional status cannot meet the nutrients needed, resulting in dysmenorrhea. Meanwhile, overweight status can also cause dysmenorrhea because there is excessive fat tissue which can lead to hyperplasia of blood vessels by fatty tissue in the female reproductive organs so that the blood that should flow during the menstrual process is disrupted and causes pain during menstruation (Marmi, S.ST., 2013; Novita, 2018).

Teenagers who have high-fat levels in the body will also affect the production of the hormone estrogen which is also produced by adipose tissue in addition to being produced by the ovaries so

estrogen levels become abnormal, and tend to be high. This unbalanced estrogen level can cause menstrual disorders (Novita, 2018).

## CONCLUSION

Based on the results of research on the relationship of lifestyle and nutritional status to the incidence of dysmenorrhea at High School 2 Pekanbaru in 2019, the results showed that there was a relationship between physical activity and the incidence of dysmenorrhea with a p-value = 0.037, then there was a relationship between consuming fast food and the incidence of dysmenorrhea with a p-value = 0.000, and there is a relationship between nutritional status and the incidence of dysmenorrhea with p-value = 0.013.

## SUGGESTION

It is hoped that other researchers can look for other factors that can trigger dysmenorrhea that occurs in adolescents in everyday life and look for alternatives to reduce the pain they feel.

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