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Decreasing the Intensity of Primary Dysmenorhoea by Giving Low Fat Liquid Milk to Students of Health Polytechnic the Ministry of Health Malang

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ABSTRACT
Background: Primary dysmenorrhea is pain that is felt during menstruation due to endometrial hypertonicity and vasoconstriction resulting in ischemia and pain in the lower abdomen.
Method: The research design uses Pre Experimental (One Group Pre Test Post Test). The population of this study is 62 students. In selecting the sample using the Simple Random Sampling method, a sample of 56 students was obtained. Data analysis used the Wilcoxon test.
Results: Tshe results obtained were that out of 45 students, 40 students (88.9%) experienced primary dysmenorrhea and 5 students (11.1%) did not experience dysmenorrhea at during menstruation. The aim of this research is to analyze the decrease in the intensity of primary dysmenorrhea by giving low fat liquid milk to students of the Ministry of Health Malang Jember Bachelor of Midwifery Study Program. Most students after being given low fat liquid milk experienced moderate and mild dysmenorrhea. The results of the statistical analysis showed that there was a significant decrease in the intensity of primary dysmenorrhea in students before and after being given low fat liquid milk, with a p-value of 0.000 <0.05, because the p-value <α.
Conclusion: So it can be concluded that giving low fat liquid milk can reduce the intensity of primary dysmenorrhea. Low fat liquid milk can be used as a non-pharmacological treatment to reduce the pain intensity of primary dysmenorrhea.The abstract should be clear, concise and descriptive.

Keywords : *Low Fat Liquid Milk; Primary Dysmenorhea*

Introduction

Dysmenorrhoea is the most common gynaecological disease in women in their reproductive years and one of the most frequent causes of pelvic pain, yet it is under-diagnosed, under-treated and even underestimated by women themselves, who accept it as part of the menstrual cycle. Dysmenorrhoea is the most common problem experienced by teenagers or women.

There are still many women who consider menstrual pain as a normal thing that women experience during the first day of menstruation, they think that 1-2 days the pain will disappear. Meanwhile, menstrual pain can be a sign and symptom of a serious disease such as endometritis which can make it difficult to get offspring. According to data from the World Health Organisation (WHO) in 2018, the incidence of dysmenorrhoea in the world is very large. On average, more than 50% of women in each country experience dysmenorrhoea, such as in America the percentage is around 60%, in Sweden around 72% and in the UK a study states that 10% of advanced school adolescents appear to miss 1-3 days each month due to dysmenorrhoea. The prevalence of dysmenorrhoea in Indonesia is 64.25% which consists of 54.89% experiencing primary dysmenorrhoea and 9.36% experiencing secondary dysmenorrhoea. The prevalence of dysmenorrhoea in East Java with the acquisition of 15% incidence of dysmenorrhoea that affects activities, and 85% incidence of dysmenorrhoea that does not affect activities. Then in the Jember area the incidence of primary dysmenorrhoea was 69.5% and 30.5% did not experience dysmenorrhoea.

Dysmenorrhoeal pain is caused by increased levels of prostaglandins which have the effect of increasing uterine muscle contractility, vasoconstriction and increasing ischaemia in the uterine muscles resulting in pain during menstruation. When a woman experiences dysmenorrhoea, the pain will extend to the waist, lower back and thighs, causing nursing problems and disrupting basic human needs, one of which is sleep. Because sleep is a physiological need. Excess prostaglandins are caused by a lack of micronutrients including vitamins and minerals that trigger dysmenorrhoea. Calcium is a micronutrient that plays a role in the interaction of proteins in the muscle, namely actin and myosin. Lack of calcium in the blood can cause the muscles cannot relax after contraction, causing the body to be stiff and can cause spasms (Dysmenorrhea). Dysmenorrhea is a detrimental condition for many women and causes a major impact on the quality of life related to reproductive health. The impact of dysmenorrhea in addition to disrupting daily activities, for example, students who experience primary dysmenorrhea cannot concentrate on learning, their motivation to learn decreases because of the pain they feel.

Management of menstrual pain is divided into two categories, namely pharmacological and non-pharmacological approaches. Pharmacological pain management using analgesic drugs can relieve pain effectively, but the use of analgesics will have an addictive effect and will provide dangerous side effects for users. Non-pharmacological pain management includes warm compresses on the lower abdomen, drinking warm water, bathing in warm water, taking deep breaths and riding or prostrate position. In addition, various kinds of nutrients in the food consumed have also been the focus of a number of studies that have beneficial effects on women experiencing primary dysmenorrhoea, one of which is calcium. The main source of calcium in food is found in milk.

Results

Table 1. Frequency distribution of respondents based on menarch age

Menarch age	Frequency	Percentage
<12 yrs	18	32,20 %
≥12 yrs	38	67,80 %
Total	56	100,00%

There are many benefits of consuming milk regularly. Table 1 illustrates that most of the respondents whose menarch age was ≥ 12 years were 38 or 67.80%. The rest of the age

Table 2. Frequency distribution of cycle menstruation

Cycle mentruation	Frequency	Percentage
< 21 days	8	14,30 %
21-30 days	41	73,20 %
> 30 days	7	12,50 %
Total	56	100,00%

Table 2 illustrates that most respondents had a menstrual cycle of 21-30 days as many as 41 or 73.20%. The rest experienced a menstrual cycle < 21 days as many as 8 or 14.30% and those who experienced a menstrual cycle > 30 days were 7 or 12.50%.

Table 3. Pain intensity of primary dysmenorrhoea before being given low fat liquid milk

Pain intensity before given low fat liquid milk	Frequency	Percentage
Moderate pain	17	30.40 %
Severe pain	31	55.40 %
Very seere pain	3	14.20 %
Total	56	100 %

Most respondents experienced severe pain intensity as many as 31 or 55.40%. The rest with moderate pain intensity as many as 17 or 30.40% and very severe pain intensity as many as 8 or 14.20%.

Table 4. Pain intensity of primary dysmenorrhoea after being given low fat liquid milk

Pain intensity of primary dysmenorrhoea after being given low fat liquid milk	Frequency	Percentage
Mild pain	25	44,60 %
Moderate pain	31	55,40 %
Total	56	100,00 %

Table 4 illustrates the pain intensity of primary dysmenorrhoea after being given low fat liquid milk, most of the respondents experienced moderate pain intensity as many as 31 or 55.40%. The rest with mild pain intensity as many as 25 or 44.60%.

Table 5. Reduction in pain intensity of primary dysmenorrhoea before and after being given low fat liquid milk

Pain intensity	Before administering low fat liquid milk		Ater administering low fat liquid milk		Test results
	F	%	F	%	
Mild pain	0	0	25	44,6	α 0,05
Moderate pain	17	30,4	31	55,4	
Severe pain	31	55,4	0	0	
Very severe pain	8	14,2	0	0	
Total	56	100	56	100	

Table 5. showed that primary dysmenorhea pain intensity before being given low fat liquid milk decreased from severe pain intensity 55.40% to 0.00% after being given low fat liquid milk. In moderate pain intensity there was an increase from 30.40% to 55.40%. In very severe pain intensity there was a decrease from 14.20%

to 0.00%. Furthermore, before being given low fat liquid milk from mild pain intensity as much as 0.00% to 44.60% after being given low fat liquid milk.

After being tested with the help of SPSS tested with the Wilcoxon Signed Rank Test, the results obtained α <0.05 or 0.000, it can be concluded that H0 is rejected where there is a decrease in the intensity of primary dysmenorhea pain before and after being given low fat liquid milk to students of the Health Polytechnic of the Ministry of Health of Malang Bachelor of Midwifery Study Program in Jember, meaning that the administration of low fat liquid milk can reduce the intensity of pain in primary dysmenorhea.giving low fat liquid milk can reduce the intensity of primary dysmenorrhoea pain.

Discussion

Pain intensity of primary dysmenorrhoea before being given low fat liquid milk to students of the Health Polytechnic of the Ministry of Health of Malang Bachelor of Midwifery Study Programme in Jember. The pain intensity of primary dysmenorrhoea before being given low fat liquid milk, most of the respondents experienced severe pain intensity as many as 31 or 55.40%. The rest with moderate pain intensity as many as 17 or 30.40% and very severe pain intensity as many as 8 or 14.20%. Severe dysmenorrhoea pain is pain with high intensity. Objectively, women sometimes could not follow orders, but could still respond with actions, could show the location of pain but could not describe it anymore. While moderate dysmenorrhoea pain is pain such as hissing, grimacing, but the patient can still show the location of the pain she feels, can still describe it and can still follow orders well (Asmadi, 2008). The data above shows that severe and moderate pain is the majority of pain experienced by most respondents.

Primary dysminorhea pain can be caused by unsaturated fat (PUFA) intake. This causes the start of the prostaglandin release cascade. The increase of fatty acids in the phospholipid part is caused by consumption or high fat intake. When women experience menstruation, prostaglandin hormones increase but progesterone and oestrogen hormones decrease. Linoleic fatty acid can form prostaglandins FGF2α and PGE2. FGF2α is produced by the metabolism of arachidonic acid and cyclooxygenase enzyme. This causes the uterus to contract during menstruation which will cause vasoconstriction and contraction of the myometrium leading to ischaemia, pain and systemic symptoms of dysmenorrhoea. Myometrial contractility during menstruation can be inhibited by the presence of PGE2 and can stimulate during the proliferative phase and luteal phase (Emilia, et al, 2010).

Primary dysminorhea is influenced by several risk factors such as age at menarche and menstrual cycle. Based on the existing theory, the age of menarche is the first menstruation experienced by women which is a sign of the beginning of a new life as an adolescent in puberty which usually occurs in the age range of 12-16 years (Proverawati, 2014). Menarche at an earlier age causes the reproductive organs to not function optimally and are not ready to experience changes so that pain occurs during menstruation. The length of the menstrual cycle is the distance between the beginning of the last menstruation and the beginning of the next menstruation, the average menstrual cycle lasts about 21-35 days. Although generally accepted, not all women have the same menstrual cycle. Based on this study, it was found that most students had a normal age of menarche as many as 38 students or (67.80%) and a normal menstrual cycle as many as 41 or (73.20%).

According to Setyowati (2006), the dominant factor causing primary dysminorhea is hormonal factors, namely increased estrogen levels. The source of estrogen is body fat, especially fat in the peripheral tissues. If the composition of fat in a person's body is excessive, it can affect estrogen levels in the reproductive system so that hormonal imbalances can occur which can lead to primary dysminorhea (Waryana, 2010). Several studies have mentioned the cause of menstrual complaints, among others, due to the imbalance between estrogen and progesterone hormones produced in adipose tissue (Karyadi, 2005).

From this study, most of the students of the Health Polytechnic of the Ministry of Health of Malang, Bachelor of Applied Midwifery Jember before being given low fat liquid milk experienced severe and moderate pain intensity, and the least experienced very severe pain intensity. Menstrual pain (primary dysmenorrhoea) is caused by the hormone esterogen and hormones produced by the ovaries stimulate the release of prostaglandin E (PGE) by the uterus. The source of estrogen production is body fat, especially fat in the peripheral tissues. If the composition of fat in a person's body is excessive, it can affect estrogen levels in the reproductive system so that hormonal imbalances can occur which can lead to primary dysminorhea. The more prostaglandin release by the uterus, the higher the intensity of pain felt. During observations and interviews, respondents said that when they experienced dysmenorrhoea, they could not concentrate and understand when attending lectures, and they could not carry out normal activities.

The pain intensity of primary dysmenorhea after being given low fat liquid milk, most of the respondents experienced mild pain intensity as many as 31 or 55.40%. The rest with moderate pain intensity as many as 25 or 44.60%. Dysmenorrhoea is abdominal pain caused by uterine contractions

and occurs during menstruation (El-Manan, 2011). Primary dysmenorrhoea occurs since the first day of menstruation and improves by itself over time. Efforts to reduce the pain of dysmenorrhoea are nonpharmacological treatment, namely by consuming low fat liquid milk, in low fat liquid milk there is tryptophan content (which is one of the essential amino acids) which functions to play a role in reducing pain during dysmenorrhoea by controlling neuromuscular activity in the uterus due to excessive prostaglandins and omega-3 fatty acids can suppress the production of inflammatory cytokines and eicosanoids and some anti-inflammatory by PUFA which can inhibit the occurrence of dysmenorrhoea pain. This situation is related to the Gate Control theory, where nutrition can stimulate motor fibres that are directly connected to the thalamus, so that endorphins increase and prostaglandin production decreases resulting in a decrease in uterine contractions.

In this study, it was found that most experienced moderate dysmenorrhoea pain intensity and mild dysmenorrhoea pain intensity after being given low fat liquid milk. The researcher believes that the administration of low fat liquid milk is one of the non-pharmacological treatments that can reduce the pain of primary dysmenorrhoea. This happens because the content in low fat liquid milk with high calcium and low fat contains tryptophan (which is one of the essential amino acids) which functions to play a role in reducing pain during dysmenorrhoea by controlling neuromuscular activity in the uterus due to excessive prostaglandins and low fat contained in low fat liquid milk containing omega-3 fatty acids can suppress the production of inflammatory cytokines and eicosanoids and some anti-inflammatory by PUFA which can inhibit the occurrence of primary dysmenorrhoea pain. Analisa data menggunakan uji statistic Wilcoxon didapatkan nilai asymptotic significance 0,000 atau nilai p-value sebesar 0,000<0,05.

Primary dysmenorrhoea pain is subjective. Dysmenorrhoea pain is also caused by the hormone esterogen and hormones produced by the ovaries will stimulate the release of prostaglandins by the uterus and the higher the release of prostaglandi hormones, the higher the uterine contractions that will eventually lead to the appearance of primary dysmenorrhoea. Low fat liquid milk is high in calcium, low in fat, contains fat soluble vitamins (vitamin A, D and K), and contains water soluble vitamins (vitamin B1, B2, B6, B12, Vitamin C and folic acid) (Andrizal et al., 2013). The high calcium and low fat content contained in low fat liquid milk contains tryptophan (which is one of the essential amino acids) which functions to play a role in reducing pain during dysmenorrhoea by controlling neuromuscular activity in the uterus due to excessive prostaglandins and low fat contained in low fat liquid milk (omega-3 fatty acids) can suppress the production of inflammatory

cytokines and eicosanoids and some anti-inflammatory by PUFA which can inhibit the occurrence of primary dysmenorrhoea pain.

In this study, most students experienced a decrease in primary dysmenorrhoea pain intensity but students were still in moderate pain intensity and mild pain. This is supported by the existing theory that each student's intake of nutrients consumed every day is not the same, especially calcium and fat. The researcher assumed that students who still experienced moderate and mild dysmenorrhoea intensity after being given low fat liquid milk, they did not consume foods and drinks that contained a lot of calcium and consumed a lot of foods that contained fat. Low fat liquid milk is milk with high calcium (40% per 250 ml package) and low fat (3.5 grams per 250 ml package) than full cream liquid milk. Therefore, researchers used low fat liquid milk containing high calcium and low fat to reduce the intensity of primary dysminorhea in students at the Health Polytechnic of the Ministry of Health of Malang, Jember Midwifery Undergraduate Program.

Conclusion

Most of the students of the Polytechnic Health Ministry of Health Malang Bachelor programme Applied Midwifery Jember before given low fat liquid milk experienced severe and moderate pain intensity, and the the least experienced pain intensity very severe. Most of the students of Politeknik Health Ministry of Health Malang Bachelor programme Applied Midwifery Jember after being given low fat liquid milk experienced pain intensity pain intensity and moderate pain intensity. There is a decrease in pain intensity intensity of primary dysmenorrhoea after being given low fat after being given low fat liquid milk to students of Politeknik Health Ministry of Health Malang Bachelor Programme Midwifery Study Programme in Jember.

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