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The Relationship Between Knowledge and Patterns of Herbal Drink Product Consumption with Dysmenorrhea of Female Adolescent

Hubungan Pengetahuan dan Pola Konsumsi Produk Minuman Herbal dengan Kejadian Dismenore Pada Remaja Putri

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ABSTRACT

Background: Adolescence is when there is a sex change, both primary and secondary. In adolescent girls, the primary sex change is marked by the arrival of menstruation. Dysmenorrhea is pain that is felt during the menstrual process. Several types of non-medical therapy can be used to treat dysmenorrhea, including herbal drink products.
Objectives: This research analyzed the relationship between knowledge and herbal drink product consumption patterns with dysmenorrhea of female adolescents in *Pondok Pesantren* Subulussalam Surabaya.
Methods: This research was an analytical observational study with the cross-sectional method. This study's population was young women living in *Pondok Pesantren* Subulussalam Surabaya, Indonesia. The research sample was taken using the census sampling method where the population was sampled, namely 49 students. Data were collected by interview using a knowledge questionnaire of herbal drink products, the SQ – FFQ questionnaire, and the Numeric Rating Scale questionnaire.
Results: From the research that has been done, the results showed that the average age of the research respondents was 14 years six months, and as many as 85.7% of respondents have normal menarche age, as many as 26.5% of respondents have long menstrual periods, as many as 30.6% of respondents know it is classified as lacking, and 75.5% of respondents have a consumption pattern of herbal beverage products with a seldom category.
Conclusions: There was a relationship between knowledge of herbal drink products and the incidence of dysmenorrhea, but there was no relationship between consumption patterns of herbal drink products and the incidence of dysmenorrhea.

INTRODUCTION

In adolescents, there is primary and secondary sexual growth. Primary sexual growth in young women is marked by the start of menstruation. Menarche is the onset of the first menstruation in young women. Menstruation is a process of bleeding that occurs because there is a continuous change of hormones, and it leads to the creation of endometrial chambers and ovulation so that uterine chambers decay if there is no pregnancy process[1]. One of the disorders that can occur in the menstrual process is dysmenorrhea. Almost 90% of young women worldwide experience menstrual disorders, and more than 50% of menstruating women suffer from dysmenorrhea[2]. Dysmenorrhea is pain during the menstrual process, which is clinically characterized by varying degrees of pelvic pain. There are two types of dysmenorrhea, primary dysmenorrhea, and secondary dysmenorrhea. Primary dysmenorrhea is pain during menstruation without any pathological problems in the pelvis. Secondary dysmenorrhea is a condition of dysmenorrhea that occurs due to abnormalities in the reproductive organs.

Globally, the estimated range of dysmenorrhea is 50% to 95%[3]. Dysmenorrhea can disrupt a person's quality of life. Research by Romina et al. in 2021 states that 63.4% of medical students believe dysmenorrhea affects the quality of life. Moreover, research by Gunawan in 2000 at four junior high schools in Jakarta showed that 76.6% of female students did not attend school because of pain during menstruation. It is estimated that as many as 140 million hours annually are lost from school or work due to dysmenorrhea in women[4]. A study by Hailemeskel et al. (2016) states that dysmenorrhea in young women affects 65% of students' daily activities. Besides that, a finding shows that pain during menstruation affects students' daily activities and influences academic performance and social life[5].

The pathophysiology of primary dysmenorrhea is that when the menstrual process occurs, there is an increase in prostaglandin levels, especially PGF2a and PGE2. The increase in prostaglandins comes from the biosynthesis of arachnoid acid, which is produced through the hydrolysis of phospholipids through the oxygenase cycle (COX3)[6]. A study by Wiknjosastro (2011)

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increased levels of prostaglandins trigger hypertonicity and myometrial vasoconstriction, which causes decreased blood flow and ischemia and necrosis in cells and tissues. Ischemia and necrosis are the causes of pain during menstruation[7].

Dysmenorrhea can be treated with two types: pharmacological and non-pharmacological. Drugs that can be used to treat dysmenorrhea NSAIDS (Non-Steroidal Anti-Inflammatory Drugs), namely ibuprofen, naproxen, and mefenamic, analgesics, and administration of oral contraceptive drugs. The non-pharmacological therapies that can treat dysmenorrhea are using herbal beverage products, physical activity, diet therapy, acupuncture, and hypnotherapy. Women in Iran prefer using herbal plants as an alternative therapy for dysmenorrhea because the use of herbal plants is considered more natural and has fewer side effects compared to the consumption of drugs[8]. A review by Mirabia et al. on 25 studies said that overcoming dysmenorrhea using herbal plants is a promising alternative treatment as a solution for medical treatment. Herbal plants that are usually used to treat dysmenorrhea are ginger, fennel, and roses, as well as turmeric, which is an exciting thing because these plants are easy to get and are usually readily available at home[9]. This study aims to see whether there is a relationship between knowledge of herbal beverage products and consumption patterns of herbal beverage products with the incidence of dysmenorrhea in young women.

METHODS

This research was conducted at the Subulussalam Islamic Boarding School in Surabaya, Indonesia. This research began in April - July 2022. This study used an analytic observational research design using a cross-sectional research design. There were also independent variables in this study, namely knowledge of herbal beverage products and consumption patterns of herbal beverage products. The dependent variable in this study was the incidence of dysmenorrhea. This study used primary data and secondary data. The primary data in this study was related to knowledge of herbal beverage products and consumption patterns of herbal beverage products, pocket money data, and data related to the incidence of dysmenorrhea in respondents. At the same time, this study's secondary data was related to the student's name, class, and age.

Data related to knowledge of herbal beverage products were obtained through a questionnaire on knowledge of herbal beverage products that had been tested for validity and reliability. The validity test of the questionnaire using the Pearson product-moment test. The results of the questionnaire validity test were declared valid if they have a calculated r-value ≥r table (2-sided test with sig. 0.05), with an r table value of 0.2404. Obtained r count for each item - each question≥0.2404, then declared valid. In contrast, the reliability test of the questionnaire used the Cronbach alpha test of 0.705. The questionnaire was declared reliable if the value *Cronbach Alpha*>0.60. The researcher developed a questionnaire containing ten true-false questions about herbal beverage products. This questionnaire focuses on seeing the level of knowledge of respondents regarding the benefits and consumption of herbal beverage products. The questionnaire used Indonesian, which was done offline; after that, the knowledge level of the respondents was grouped into three the category of good knowledge (correct answer 76 – 100%)), enough (correct answer 56 - <76%), and less (correct answer <56%).

Respondents' pattern consumption of herbal beverage products was obtained by interviewing through the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) questionnaire divided into commercial and traditional herbal beverage products. The herbal products included in the questionnaire were herbal products that are easy to find in the Islamic boarding school area, making the SQ-FFQ form using a market survey, namely at cooperatives and grocery stores in the area around the Islamic Boarding School. The researcher also asked the person in charge of food at the Islamic Boarding School about the types of herbal beverage products that are often consumed by Islamic boarding school students Boarding school. Meanwhile, data related to dysmenorrhea was obtained using the NRS (Numeric Rating Scale) questionnaire. The NRS questionnaire serves as a measuring tool to describe words. This questionnaire used a scale of 0-10 to describe the pain experienced by respondents. The recommended distance for each number for the NRS scale is 1 cm. A scale of 0 means the respondent has no pain, 1-3 means mild pain, 4-6 means moderate pain and 7-10 means severe pain[10]. The pocket money that was asked of the respondents was the amount of pocket money given in one day, which was then grouped into low < IDR 13,000.00/day and high > IDR 13,000.00/day.

The study sample was a teenage daughter who stays in a Cottage Boarding school in Subulussalam, Surabaya, Indonesia. Determination of significant sample in the study used sampling non-probability, where the sample is fed up. Sampling fed up is a method of taking a sample That takes the whole sample population. Respondents' inclusion criteria were willing to be studied, aged 10-18 years, and had menstruated. As for the respondents' exclusion criteria, they did not consider the age of menarche and youth as athletes. The total population of young women in Islamic boarding schools is 49 people.

Moreover, based on the criteria and the type of sampling set, 49 respondents became sample study respondents. In this study were those who fall into the category of adolescents based on PERMENKES RI No. 25 of 2014, the population group that falls into the age category of 10-18 years. Study This was approved on 11 July 2022 by the Committee of Ethics Faculty Health Public University Airlangga (KEPK FKM UNAIR) with number 143/EA/KEPK/2022. The data obtained will then be processed in the following stages: editing, coding, cleaning, tabulating, and analyzing. The analysis performed was multivariate analysis and bivariate analysis. The bivariate analysis was the chi-square test using the IBM SPSS 25.0 application.

RESULTS AND DISCUSSION

Based on research conducted at the Subulussalam Islamic Boarding School in Surabaya with as many as 49 respondents, it can be seen that the average

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age of respondents is entering middle adolescence, where middle adolescence is a teenager in the age range of 14 to 16 years. The average age of the respondents at the time the study took place was 14 years and six months. The period teenager share becomes three periods, i.e., time in the early teens starting at age 11-13; middle adolescence, which starts at age 14-16 and period teenagers carry on, which starts at age 17-21. During puberty, individuals experience physical and mental changes. In adapting to change, the teenager generally looks for information that will later influence his life as a teenager, like understanding health reproduction[11]. Teenager needs to understand reproductive health so that teenagers are more familiar with the body and reproductive organs, know the function and development of the reproductive organs correctly, understand what physical and psychological changes occur, protect themselves from threats related to reproduction, and grow attitude And behavior Which responsible answer related process reproduction Useful for preparing period front healthy. The condition of dysmenorrhea is not a condition that can threaten the mental safety of adolescents, but if the condition of dysmenorrhea is not handled correctly can affect adolescent life, academic performance, and social life of adolescents.

Pocket money is money that parents or guardians routinely give to children, which can be used for savings and buying snacks in the form of food or drinks while the child is at school. Based on Ayuningsih and Setiyo Nugroho (2021), teenagers' pocket money can be classified into high and low for high, namely those with pocket money > IDR 13,000.00 per day, and low, namely those with pocket money < IDR 13,000.00/day[12]. According to Hartanto (2016), pocket money affects a person's purchasing power and influences what that person consumes. The more pocket money was given to children, the higher the consumption patterns of these children[13].

Table 1. Frequency distribution of respondent characteristics

Variables	n (%)
Age	
Early Teens	11 (22.4%)
Middle Teens	32 (65.3%)
Advanced Youth	6 (12.2%)
Class	
7	14 (28.57%)
8	13 (26.53%)
9	10 (20.41%)
10	12 (24.49%)
Pocket money (IDR)	
< 13,000 / day	39 (79.6%)
> 13,000 / day	10 (20.4%)
Age of Menarche	
Precox	4 (8.2%)
Normal	42 (85.7%)
Tarda	3 (6.1%)
Menstrual Length	
Normal	36 (73.5%)
Long	13 (26.5%)

Menarche's age indicates that a child has a good transition from childhood to adolescence[14]. A study by Wiknjosastro (2005) the age of menarche is divided into three categories: precocious menarche, namely, the age of menarche <10 years. The normal age of menarche in adolescents is adolescents who experience menarche aged 10-14 years, and the age of menarche namely adolescents who experience menarche> 14 years[15]. In this study, most respondents (85.7%) had an average menarche age, namely in the age range of 10-14 years. The average age of menarche in this study was 12 years. According to RISKESDAS 2010, the average age of menarche in Indonesia is 13 years. Several factors can cause the difference in menarche age in this study with RISKESDAS 2010[16]. One of the factors that affect the age of menarche is nutritional status. Adolescent girls who have more nutritional status will affect the age of menarche. Aishah (2011), in her research, said that adolescents who have nutritional status or higher BMI tend to have menstruation earlier because of leptin levels secreted by the adipose glands[17]. Leptin influences oocyte maturation and stimulates the cell egg, which generates the ovary. In addition, the age of the first menstruation in young women is also influenced by the age of the mother's menarche and intake factors. The factor of low fiber intake and high intake of fatty foods and calcium will affect influence the incidence of early menarche. Foods that tend to be high in fat content will cause an increase in body weight in young women, leading to an increase in estrogen levels[10]. The increase in these hormones affects the arrival of menarche in young women.

Menstrual length is defined as the average time from the first day of menstruation until the bleeding stops in one menstrual cycle. Menstrual duration categories are divided into three, short menstrual duration, namely menstruation that occurs for less than three days; expected menstrual duration, namely menstruation that occurs for 3-8 days; and long menstrual duration, namely menstruation that occurs for

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> 8 days[18]. The majority of respondents in this study had regular menstrual periods (36 respondents, 73.5%), and 13 respondents (26.5%) had long menstrual periods. This research is in line with a study by Adriana (2013) that as many as 42 respondents had regular menstrual periods, and as many as 16 respondents had menstrual periods that tended to be abnormal, namely short and long menstruation (<3 days and > eight days)[19]. According to Basith (2017), the duration of menstruation can be influenced by several things, such as the type of food intake, physical activity, hormonal factors and enzymes that work in the body, and vascular problems and genetic factors (heredity)[20]. Research by Kural (2015) showed that a person with a menstrual length of more than five days has the potential to experience dysmenorrhea 1.9 times[21].

Table 2. Distribution of respondents' menstrual history

Variables	n (%)
Regular menstruation every month	
Yes	36 (73.4%)
No	13 (26.6%)
Over the past year, how often have you had pain in your menstrual cycle?	
Almost every month	18 (36.8%)
Often (once every 3 months)	10 (20.4%)
Rarely (once every 6 months)	14 (28.6%)
Never	7 (14.3%)
Dysmenorrhea	
No Dysmenorrhea	7 (14.3%)
Mild Pain	17 (34.7%)
Moderate Pain	17 (34.7%)
Severe Pain	8 (16.3%)

According to the FDA (2004), herbal beverage products are all types of drinks made from plant parts consumed by brewing them with water. Good fertile land and climate supported by diverse plants give Indonesia rich potential to produce raw vegetables[22]. The existence of herbal beverage products in Indonesia has been known since the days of our ancestors in Indonesia. In Indonesia, there are two types of herbal beverage products, standardized herbal beverage products and traditional herbal beverage products. Standardized herbal beverage products are those whose safety and efficacy have been tested and using raw materials have been standardized. Product drink herbs traditional, in other words, is product herbs made from material vegetable, component animal, component mineral, plant essence, or a mixture of ingredients. ProHerbal drink has been widely used in various countries to treat several conditions, including dysmenorrhea. Gholami (2015), in his review, showed that several types of herbal plants positively affect the incidence of dysmenorrhea[23]. The review stated that thyme leaves, cinnamon, and organic honey help treat primary dysmenorrhea. All age ranges can consume herbal beverage products. Teenagers' own perception Which positive about vulnerability or vulnerability to drug herbs And perceive that herbal products prone to For used when content drug herbs No is known. Matter This because No all types of drug herbs are available in a manner accessible without knowledge, experience, And information supporters[24].

Table 3. Distribution of respondents' consumption patterns of herbal beverage products

Variable	n (%)
Knowledge	
Good	31 (63.3%)
Enough	3 (6.1%)
Not enough	15 (30.6%)
Consumption pattern of herbal beverage products	
Often	7 (14.3%)
Seldom	37 (75.5%)
Never	5 (10.2%)

Knowledge of herbal beverage products aims to see how far knowledge respondents have regarding herbal beverage products, both traditional and commercial. The results showed that as many as 15 (30.6%) respondents had low knowledge regarding herbal beverage products. A lack of access to information about herbs and herbal beverage products in Islamic boarding schools can cause this. Teenagers usually access information through social media, television, parents, or the Internet. While access to these things is also limited in the Pondok Pesantren environment, besides that, at the Subulussalam Islamic Boarding School, there has never been any socialization or introduction regarding herbal beverage products, so this can lead to a lack of knowledge regarding herbal beverage products in the community. In a study conducted by Defitasari (2022), the consumption of herbal products is currently dominated by the female gender group aged 36-45 years[25]. In the research that has been done, the majority of respondents (75.5%) consume these herbal beverage products at infrequent frequencies, namely 1-2x/week, 2x/month, and 1x/month, which are usually consumed

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only during menstruation. In addition, other factors influence children's consumption patterns, namely pocket money. In this study, most respondents had pocket money <13,000/day, which was relatively low (79.6%).

Table 4. Cross-tabulation of the relationship between knowledge level of herbal beverage products and consumption patterns with the incidence of dysmenorrhea

Variable	Dysmenorrhea								Total N (%)	p-value
	No Dysmenorrhea		Mild Pain		Moderate Pain		Severe Pain			
	n	%	n	%	n	%	n	%		
Knowledge										
Good	7	22.6	13	41.9	11	35.5	0	0	31 (63.3)	
Enough	0	0	1	33.3	0	0	2	66,7	3 (6.1)	0.001
Not enough	0	0	3	20	6	40	6	40	15 (30.6)	
Consumption Pattern										
Often	0	0	3	42.9	3	42.9	1	14,3	7 (14,3)	
Seldom	7	18.9	11	29.7	13	35.1	6	16,2	37 (75.5)	0.663
Never	0	0	3	60	1	20	1	20	5 (10.2)	

Relationship of Herbal Beverage Product Knowledge with Dysmenorrhea Incidence

Table 4 shows the results of statistical tests on the relationship between knowledge of herbal drink products and the incidence of dysmenorrhea, which, based on the test results, obtained a value of p=0.001 with a significance level of α = 0.05, so p<0.05 which means that there is a relationship between knowledge of herbal beverage products and the incidence of dysmenorrhea. Align with a study by Lasmawanti (2021), the difference was significant between the knowledge of teenage daughters and the treatment of dysmenorrhea in teenage middle school girls Country III Weigh the Elephant (2021). Knowledge about something will influence attitude And behavior, pushing them to take a specific action when needed.

Knowledge is an indicator that comes from knowing and occurs after someone senses an object[26]. Factors such as education, age, access to information, and experience influence knowledge[27]. In this study, respondents who live in Islamic boarding schools have limited access to information due to limited time to access electronic media such as cell phones and television. Therefore, Islamic boarding schools must be able to provide information related to herbs and dysmenorrhea. In addition to limited access to information, the average age of respondents is 14 years and six months, and this age is in the middle adolescent category, so they learn and receive information but cannot yet apply it in their lives. According to Andriati (2016), social factors are also factors that can influence a person to consume herbs or herbal beverage products[28]. Currently, dissemination of the benefits of herbal medicine in the community is through advertisements, outreach, and advice from family and closest people such as neighbors.

Correlation Between Consumption Patterns of Herbal Beverage Products and Dysmenorrhea

Table 4 shows the results of statistical tests on the relationship between knowledge of herbal drink products and the incidence of dysmenorrhea, which is based on the results of the Spearman correlation test with a p-value of 0.663 with a value of α = 0.05. There was no relationship between consumption patterns of herbal beverage products and the incidence of dysmenorrhea. Most respondents consumed herbal beverage products with rare intensity (37 respondents (75.5%)).

Herbs are currently believed to be able to overcome pain due to dysmenorrhea. The use of herbs in Iran to treat dysmenorrhea is believed to be because herbal plants have contents that negatively affect side effects compared to drug use[29]. Research conducted by Niazi (2021) states that using herbs can be effective if the herbal products contain 2 or 3 types of herbal plants, such as chamomile with ginger and honey or chamomile with turmeric and honey[30]. In addition, these herbal products are consumed two days before menstruation and three days during menstruation to reduce pain due to dysmenorrhea. Research conducted by Alsiyabi et al. (2016) showed results, namely to treat dysmenorrhea besides using herbs as a way to deal with pain due to dysmenorrhea, in the study, it was said that it was necessary to meet the needs of other nutrients, such as magnesium, vitamin B6, and vitamins A and E. together to overcome the condition of dysmenorrhea[31].

In addition, other factors, such as pocket money, affect adolescents' consumption of herbal beverage products at Islamic boarding schools. In this study, the average number of teenagers with pocket money > IDR13,000 per day was 39 respondents (79.6%). A research conducted in Tomohon, the knowledge related to herbal medicine products, especially turmeric tamarind, was quite good because the respondents in the study were aged 33-41 years with an average education of graduating from high school and equivalent, who had an income of IDR1,500,000 - 2,500,000[32]. Hence, they knew more about the benefits and use of herbal beverage products for menstrual pain. The advantage of this research is that the results of this study can provide information for respondents, young women, and related parties such as Islamic boarding schools, especially about dysmenorrhea, herbal beverage products, and the benefits of consuming herbal beverage products for treating dysmenorrhea. The drawback of this study is that it uses a cross-sectional research method where the dependent and independent variables are only studied once simultaneously, so they cannot accurately describe

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correlations to predict a trend. In addition, this study used an observational research design where the researcher only observes and does not give treatment

CONCLUSIONS

Knowledge is an indicator that comes from knowing and occurs after a person senses an object which is influenced by several things such as education, age, access to information, and experience. A person's knowledge of a thing will influence the person's attitude in dealing with something that the person needs. The consumption pattern of herbal beverage products in adolescents is also influenced by the person's knowledge of herbal beverage products. However, the consumption pattern is influenced by knowledge and factors other than money, pocket, and environmental factors. Recommendations that can be explicitly given to Islamic boarding school administrators and related parties, such as providing nutrition education related to the importance of nutritional status, as well as food intake at the age of menarche, as well as an introduction to types of herbal products, especially as an alternative to handling dysmenorrhea in young women.

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