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Effect of Slow Stroke Back Massage on the Intensity of Dysmenorrhea in Adolescents

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ABSTRACT Dysmenorrhoea is a problem for adolescent girls and causes interference with daily activities. Dysmenorrhoea may occur before or at the onset of menstruation and last from several hours to several days. Analysis of factors affecting dysmenorrhoea, frequency, intensity, time and type of dysmenorrhoea can be used as a basis for assessing the dysmenorrhoea scale. The purpose of the study was to apply the cutaneous stimulation module in reducing dysmenorrhoea in adolescents. The research was conducted qualitatively by looking for dominant factors that influence the incidence of dysmenorrhoea, to create a theme analysis instrument. The study population was students of Polkesbaya Prodi D III Midwifery Sutomo, a sample of 77 students taken by executive sampling. The dependent variables of the study: Age, Family History, Exercise, Junkfood Habits, Frequency, Intensity, Time, Type of dysmenorrhoea. Independent variable: cutaneous stimulation. Analysis was carried out descriptively, Developing instruments, Focus Group Discussion, Expert Consultation and compiling modules. Early adolescent age factors, 84% of adolescents experience dysmenorrhoea, family history factors, 63%, there is a family history. Jogging exercise factor, 67% of adolescents experience dysmenorrhoea. The junkfood habit factor 45.7% of adolescents said junkfood was their favourite food. Frequency of dysmenorrhoea 95.7% of adolescents often have dysmenorrhoea in the menstrual cycle. Dysmenorrhoea intensity 45.7% of adolescents said the pain picture was mild and moderate intensity. Time dysmenorrhoea 80% of adolescents experience dysmenorrhoea at the beginning of menstruation. type of adolescent dysmenorrhoea, 98% primary dysmenorrhoea. Age, family history, jogging habits and Junkfood consumption habits are factors that affect adolescent dysmenorrhoea. Conversely, light exercise will produce endorphin, a neuropeptide that can reduce dysmenorrhoea. The habit of consuming junk food can create a pile of fat and lead to obesity and risk of primary dysmenorrhoea. According to Prawirohardjo & Wiknjastro (2011: 182), dysmenorrhoea that occurs in adolescents is usually primary dysmenorrhoea type, which is not associated with gynaecological abnormalities. The intensity of dysmenorrhoea in adolescents is categorised as mild and moderate because adolescents are still able to withstand pain and hormones are still good. Suggestions, the cutaneous stimulation module should be used as a solution to dysmenorrhoea..

INDEX TERMS: Dysmenorrhea, Pain Factors, Cutaneous Stimulation

I. INTRODUCTION

Discomfort due to pain during menstruation (dysmenorrhoea) is a problem for adolescent girls and causes disruption in daily activities. Dysmenorrhoea occurs shortly before or together with the onset of menstruation and lasts for several hours although in some cases it can last several days. The nature of dysmenorrhoea is spastic, usually confined to the lower abdomen but may spread to the lumbar region and thighs.[1]. Dysmenorrhea is also accompanied by complaints of nausea, vomiting, headache and diarrhea. According to several international reports, the prevalence of dysmenorrhea is very high and at least 50% of adolescent girls experience dysmenorrhea during the reproductive years. The results of the latest study show that almost 10% of adolescents with dysmenorrhea experience school

absences and work absences 1-3 days per month or the ability of adolescents to perform daily tasks due to severe pain[2]. In Indonesia, the incidence of dysmenorrhea consists of 54.89% primary dysmenorrhea and 9.36% dysmenorrhea secondary. According to research, dysmenorrhea pain can be reduced by using Mozart music therapy on the first day of menstruation for 20 minutes.

Dysmenorrhea is lower abdominal pain and can extend to the waist, lower back and thighs. Dysmenorrhea occurs due to an increase in prostaglandin (PG) F₂-alpha which is a cyclooxygenase (COX-2) that causes hypertonus and vasoconstriction in the myometrium resulting in ischemia and menstrual pain. In addition, there is also PGE₂ alpha which participates in causing primary dysmenorrhea[3]. Dysmenorrhea that often occurs in adolescents is primary

dysmenorrhea, which is menstrual pain that is not related to gynecological disorders[4]. This can happen because the hormonal cycle experienced is not so stable, and young women do not often experience uterine contractions like young adult women (Junizar, Sulianingsih & Widya, 2001).

Several journals show that cutaneous stimulation can reduce pain scale with various levels of scale. The use of the NRS scale in several studies can easily determine the pain scale. The advantage of this NRS is that adolescents' pain levels can be directly measured by determining a scale that is adjusted to the complaints they feel and the results can be determined by a pain scale. However, pain management in some studies has been limited to research adolescents and there is no module that can be used as a guide in doing stimulation to reduce the pain scale.

To reduce the pain scale for adolescents who experience dysmenorrhea, it begins with an assessment and analysis of the factors that influence dysmenorrhea, frequency, intensity, time and type of pain and pain scale using a dysmenorrhea questionnaire. Furthermore, the application of the cutaneous stimulation module (slow-stroke back massage) in reducing dysmenorrhea in adolescents is expected to reduce the dysmenorrhea scale even until the pain is gone and in patients with complaints of pain with mild and moderate pain scales[5]. The purpose of this study is to apply cutaneous stimulation module in reducing dysmenorrhea in adolescents through identification of factors of age, family history, exercise habits, junkfood consumption habits, frequency, intensity, time and type of dysmenorrhea.

II. METHODS

This research method is qualitative which is done by looking for the dominant factors that influence the incidence of dysmenorrhea, to make an instrument of theme analysis. The population in this study were students of the Applied Midwifery Study Program with a sample of 46 students who were taken by executive sampling. The dependent variable of this study is the factors that influence dysmenorrhea consisting of Age, Family History, Sports, Junkfood Habits, Frequency of Dysmenorrhea, Intensity of dysmenorrhea, time of dysmenorrhea, type of dysmenorrhea while the independent variable is cutaneous stimulation[6]. Data analysis was carried out descriptively, then variable instruments were arranged, FGD (Focus Group Discussion), Expert Consultation and the last was compiling a module. This research method is qualitative by looking for strategic issues about the dominant factors that influence the incidence of dysmenorrhea, which are used to create a theme analysis variable instrument. which was carried out with independent interviews. The results of this interview were then used as the basis for compiling the variable instrument. The population in this study were students of the Bachelor of Applied Midwifery Study Programme with a sample of 46 students taken by executive sampling. Data analysis was carried out descriptively.

III. RESULTS

The results of the preparation of the dysmenorrhea variable questionnaire instrument, then carried out a trial of the instrument to 46 adolescents conducted randomly via google form with the following results: Identify Factors (Age, Family History, Exercise, Junk Food Consumption Habits) That Affect Dysmenorrhea in Adolescents.

A. AGE FACTOR

TABLE 1.
Characteristics of Adolescents Based on Age at the Time of Early Dysmenorrhea.

| Age | Catagori | f | % |
|--|--------------------|----|--------|
| Age at the time of occurrence dysmenorrhea | Less than 12 years | 3 | 6.5 % |
| | 13-17 years | 39 | 84.8 % |
| | 18-20 years old | 4 | 8.7 % |

From **TABLE 1.** the age factor at the beginning of experiencing dysmenorrhea can be analyzed that 84% of adolescents experience dysmenorrhea at the age of 13-17 years.

B. FAMILY HISTORY FACTORS

TABLE 2.
Frequency distribution of dysmenorrhea in adolescents based on family history:

| Indicator | Catagory | f | % |
|--------------------------------|----------|----|------|
| Mother / Sibling History woman | Yes | 29 | 63 % |
| | No | 17 | 37 % |

From **TABLE 2.** family history factors can be analyzed that 63% have a family history (mother and siblings) of the mother experiencing dysmenorrhea, then adolescents also experience dysmenorrhea

C. SPORTS FACTOR

TABLE 3
Distribution of Dysmenorrhea Frequency in Adolescents Based on Sports

| Indicator | Catagory | f | % |
|---|----------|----|-----|
| Strenuous exercise (Jogging) as a youth sport | 1. Yes | 31 | 67% |
| | 2. No | 15 | 33% |

From **TABLE 3** Sports Factors, it can be analyzed that 67% of adolescents experience dysmenorrhea, and those who often do exercise the most are jogging

D. JUNKFOOD CONSUMPTION HABITS FACTORS:

TABLE 4
Distribution of the frequency of dysmenorrhea in adolescents based on Junkfood consumption habits:

| Meal | Catagori | f | % |
|--|----------|----|------|
| Junk food is a food that preferred by teenagers / ready to eat | Usually | 35 | 76 % |
| | Seldom | 11 | 24% |

From TABLE 4, the junk food habit factor can be analyzed that 45.7 of teenagers say junk food is their preferred food

E. FREQUENCY OF DYSMENORRHEA IN ADOLESCENTS

TABLE 5

Distribution of the frequency of dysmenorrhea in adolescents.

| Frequency | Category | f | % |
|--|----------|----|--------|
| The occurrence of dysmenorrhea one menstrual cycle | Often | 44 | 95.7 % |
| | Seldom | 2 | 4.3 % |

From TABLE 5 the frequency of frequent dysmenorrhea can be analyzed that 95.7% of adolescents experience dysmenorrhea in frequent menstrual cycles

F. INTENSITY OF DYSMENORRHEA IN ADOLESCENTS

TABLE 6.

Intensity of dysmenorrhea in adolescents

| Intensity | Category | f | % |
|---|----------------------|----|--------|
| An illustration of how painful it is when experiencing dysmenorrhea | Mild | 21 | 45.7 % |
| | Moderate | 21 | 45.7 % |
| | Heavy | 3 | 6.5 % |
| | Heavy Not Controlled | 1 | 2.2 % |

From TABLE 6 dysmenorrhea based on the intensity of dysmenorrhea, it can be analyzed that 45.7% of adolescents said that the pain was of mild and moderate intensity

G. TIME OF DYSMENORRHEA IN ADOLESCENTS

TABLE 7

Time of dysmenorrhea in adolescents

| Time | Category | f | % |
|---|----------|----|------|
| Sibling is always have dysmenorrhea in early menstruation | Early | 37 | 80 % |
| | During | 7 | 15 % |
| | End | 2 | 5 % |

From TABLE 7 Time of dysmenorrhea, it can be analyzed that 80% of adolescents say they experience pain at the beginning of menstruation.

H. TYPES OF DYSMENORRHEA IN ADOLESCENTS

TABLE 8

Type of dysmenorrhea that occurs in teenagers

| Type of dysmenorrhea | Category | f | % |
|---|----------|----|------|
| Type of dysmenorrhea that occurs in teenagers | Primer | 45 | 98 % |
| | Sekunder | 1 | 2 % |

From TABLE 8 types of adolescent dysmenorrhea that 98% type / type of primary dysmenorrhea

IV. DISCUSSION

Most early adolescents experience dysmenorrhea at the age of 13-17 years. Adolescence is a transition period that generally begins at the age of 12-13 years and ends at the end of the 17-year-old teenager when adolescents experience physical, emotional/psychological changes[7]. Physical changes experienced can occur in adolescents occur at the time of menarche, and emotional and psychological changes. This happens because of the activity of adolescents who show that when they are active, there can be a clash of activities and emotions which causes an increase in the hormone prostaglandin which causes menstrual pain in adolescents. Most teenagers when they are experiencing dysmenorrhea, those who often do sports with the most exercise are jogging[8]

In Harry's theory (2007) in Sari 92015) it is said that exercise/gymnastics is one of the relaxation techniques that can be used to reduce or reduce pain. These sports/exercise activities will have an impact on producing endorphins. Endorphins are neuropeptides that the body produces when relaxed. Endorphins are produced by the brain and spinal cord[8]. This endorphin hormone can function as a natural sedative produced by the brain, causing a sense of comfort and increasing levels of endorphins in the body to reduce pain during contractions. So if in women who are experiencing menstruation, there will be an increase in the hormone prostaglandin which functions to help uterine contractions so that blood secretion/secretion will occur. This increase in the hormone prostaglandin will have an impact on pain. However, with the action of exercise/gymnastics, the body will gradually secrete endorphins which function to provide relaxation so that the mind becomes calm and in the end can reduce or even eliminate pain due to dysmenorrhea[9].

Almost half of the teenagers say that junk food has become a favorite food and has become a habit and some say it has become an elite culture for teenagers. Novia & Puspitasari (2008) in Utari (2016) said that the habit of consuming junk food for snacks or large meals will make the accumulation of fat and more, causing dysmenorrhea. Junk food is a type of food that contains high calories, fat, salt, and oil, but is low in vitamins and fiber. Usually, junk food also contains various food additives (BTP) such as sweeteners, flavors, and preservatives[1]. Eating too much junk food can lead to an increased risk of being overweight or obese. In someone who is overweight, there is excessive fat tissue which can lead to hyperplasia of blood vessels (pushing blood vessels by fatty tissue) in the female reproductive organs so that the blood that should flow during the menstrual process is disrupted and primary dysmenorrhea arises[10][11].

Dysmenorrhea that occurs in adolescents due to obesity usually occurs in primary dysmenorrhea.[12][13] This dysmenorrhea can occur because of the lifestyle of teenagers which at this time has become a culture where consuming junk food is a culture and is considered elite for teenagers[14]. Especially for teenagers who are out of the

house, junk food solutions have become an option that is very available with a variety of choices, affordable, and even cheaper. This food is also very easy to get online. But for them, they may not think about the negative impact if the culture is carried out continuously and even makes junk food a staple food. This can lead to a sharp increase in calorie levels and can lead to obesity with various risks in obesity conditions, one of which is if the teenager is menstruating, it is certain that they will be accompanied by dysmenorrhea. Junk food with high calories will also accelerate the increase in blood sugar levels[15][16]. This increase in blood sugar levels can cause hyperglycemia and will have an impact on the pancreas gland resulting in insulin resistance. This insulin resistance then results in disturbances in the pancreas gland by producing too little insulin or even not producing insulin at all and ultimately results in a disorder known as diabetes mellitus.

Frequency of Pain/ Dysmenorrhea in Adolescents According to Prawirohardjo & Wiknjastro (2011: 182), dysmenorrhea that occurs in adolescents is usually primary dysmenorrhea[17]. Primary dysmenorrhea is pain during menstruation that occurs without finding any pathological abnormalities in the pelvis. Primary dysmenorrhea is not related to age, race, or economic status. Or gynecological or anatomical abnormalities.

Primary dysmenorrhea is associated with the ovulatory cycle and is caused by contraction of the myometrium resulting in ischemia due to the presence of prostaglandins produced by the endometrium in the secretory phase. Dysmenorrhea is often accompanied by complaints of nausea, vomiting, headache, or diarrhea which is thought to be caused by prostaglandins[18]. However, the degree of pain felt and the duration had a relationship with age at menarche, duration of menstruation, smoking, and an increase in Body Mass Index. On the other hand, the symptoms of primary dysmenorrhea are reduced when associated with a parity amount[19]

In this study, almost all adolescents experienced dysmenorrhea at the beginning of menstruation. Several factors can affect this dysmenorrhea, such as a family history of dysmenorrhea from both the mother and female siblings and regular exercise activities that can affect body relaxation[20]. Menstrual pain occurs due to the release of prostaglandin (PG) F₂-alpha, which is a cyclooxygenation (COX) that can cause hypertonus and vasoconstriction in the myometrium resulting in ischemia. And there is also PGE-2 which contributes to primary dysmenorrhea. Where increased levels of PGF₂alpha and PGE-2 will clearly increase pain during menstruation.

A. PAIN INTENSITY/ DYSMENORRHEA IN ADOLESCENTS

Based on the results of the study, it was found that most of the adolescents said that the description of the intensity of pain was in the mild and moderate categories

The intensity of pain in dysmenorrhea is an illustration of how severe the pain is felt by the individual at the time of

dysmenorrhea[21]. The intensity of this pain is categorized into mild pain, moderate pain, severe pain, and uncontrollable severe pain. To measure the pain scale in dysmenorrhea, a pain scale is used, which can be described in the form of numbers, namely 1-10. Pain intensity can be measured using a numerical rating scale (NRS), verbal rating scale (VRS), visual analog scale (VAS) and faces rating scale (FPS). To measure the pain scale in this study using the VAS scale. VAS (Visual Analogue Scale) has been used very widely in recent decades in research related to pain with reliable, valid, and consistent results. The VAS is an instrument used to assess pain intensity using a 10 cm line table with a scale reading of 0 –100 mm with a range of meaning >0 -<10 mm No pain, 10 – 30 mm mild pain, 30 – 70 mm moderate pain, 70 – 90 mm severe pain, and 90 – 100 mm Very severe or uncontrolled pain.

Based on the results of research in the journal Nursing, Volume 13, No. 2, October 2017, (Pages 96-104) on the Effect of Stimulus Cutaneous Slow-Stroke Back Massage on the Pain Scale of Primary Dysmenorrhea conducted on Stikes Amanah Padang students. It was found that more than half of female students (75%) experienced moderate dysmenorrhea pain. with a pain scale of 5.67 ± 1.56 . After being given a slow-stroke back message (posttest) stimulus, more than half (58.2%) of female students experienced mild dysmenorrhea pain with a pain scale of 4 ± 2.09 . This shows that the action of stimulation cutaneous can reduce the pain scale in dysmenorrhea measured by VAS.

B. DYSMENORRHEA PAIN TIME

Every woman will experience menstruation throughout her life until she reaches the age of 45-55 years. On average, every woman will experience menstruation for 3-8 days with a menstrual cycle of 28 days. However, every woman experiences a different cycle depending on several factors, such as a family history of dysmenorrhea, nutritional patterns, especially for teenagers who usually consume junk food, resulting in weight gain, as well as regular physical activity, especially exercise in the form of relaxation. can affect the occurrence of dysmenorrhea. In this study, it was found that almost half of adolescents experienced dysmenorrhea at the beginning of menstruation. This dysmenorrhea can occur due to an increase in the hormone prostaglandin[22].

This hormone is produced by the body throughout the menstrual cycle which acts to stimulate the uterine muscles when they are about to contract to help drain blood during menstruation[23].

Dysmenorrhea is very felt for teenagers, especially at the beginning of menstruation, so it is felt especially for those who are experiencing menstruation for the first time, especially if it is accompanied by dysmenorrhea[1].

C. TYPE OF PAIN / DYSMENORRHEA IN ADOLESCENTS

Based on the results of the study, it was found that almost half of the adolescents experienced dysmenorrhea a few

hours before menstruation with pain from the lower abdomen that radiated to the thighs or back, and only one teenager was declared to have problems with the reproductive organs[23].

In this study, the type of adolescent dysmenorrhea was primary dysmenorrhea. And there is only one teenager who said he had been declared to have a disorder in the reproductive organs by a gynecologist. Adolescents in this study were students of the Study Program

Bachelor of Applied Midwifery. The selection of new student admissions is carried out through a series of new student admissions activities. The final stage of the activity is a medical examination in which prospective new students must be declared healthy before being declared to have passed the selection. Associated with the data above that there is one respondent declared to have a disorder in the reproductive organs, the possibility of the examination results being declared healthy so that the student passes and can be accepted as a new student. It can be proven that during the education process, all students can participate in learning activities so that students are really healthy, especially in reproductive organ disorders. It is possible that the type of dysmenorrhea pain experienced by the female adolescent (student) is primary dysmenorrhea[23]. The weakness of this study is that in collecting data to obtain strategic issues about the incidence of dysmenorrhoea in adolescents, online interviews were conducted (due to the conditions of the Covid 19 pandemic) so there is a possibility that the data obtained is not optimal.

V. CONCLUSION

The purpose of this study is to apply the cutaneous stimulation module in reducing dysmenorrhoea in adolescents through identification of age, family history, exercise habits, junk food consumption habits, frequency, intensity, time and type of dysmenorrhoea. Factors that affect dysmenorrhea in adolescents include family history, exercise age, and habits of consuming junk food: Most of the family history factors (mother and sister who suffer from dysmenorrhea) affect dysmenorrhea in adolescents. Age factor, almost all teenagers experience dysmenorrhea at the age of 13-17 years. Most of the Sports Factors, especially jogging is a sport that often affects the occurrence of dysmenorrhea in adolescents. Almost half of the adolescents who experience dysmenorrhea are teenagers who consume junk food, as a favorite food[24]. Almost entirely, the frequency of dysmenorrhea in adolescents occurs at the beginning of menstruation, not every day in the sense of not often. Almost half of the intensity of pain/dysmenorrhea in adolescents is in the mild to moderate category

Most teenagers say they experience pain at the beginning of menstruation. Almost all types of pain/dysmenorrhea in adolescents with primary type/type of dysmenorrhea[25]. The module has been structured and can be used as material in providing education about health for the community, especially adolescents to reduce pain/dysmenorrhea.

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