

## ORIGINAL ARTICLE

# The Effect of Multiple Treatment Action: Yoga and Chamomile on Dismenore and Adolescent Anxiety

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## ABSTRACT

**Introduction:** Dysmenorrhea is a gynaecological problem that most often occurs in 90% of adolescents in the world, and 10-20% of them experience severe pain. Dysmenorrhea in adolescents causes limited daily activities, is unable to study, anxiety and, can affect academic achievement at school. One of the appropriate dysmenorrhea interventions in adolescence is physical exercise. Yoga has the greatest effect in reducing menstrual pain and offering chamomile drinks can relax uterine muscle spasms and, reducing anxiety. Purpose: This study aims to know the effectiveness of yoga and chamomile drinks on dysmenorrhea and an anxiety. **Methods:** This study used a quasi-experimental post-test design with a control group. **Results:** The results showed that the average post-test pain score in the intervention group was 3.89, and the control group was 5.44. The average anxiety of the intervention group was 35.70, and in the control group was 40.19. The result of the independent t-statistic test shows that p-value = 0.003 for the dysmenorrhea variable, and p-value = 0.013 for the anxiety variable. The results showed that there was a significant difference in the average dysmenorrhea and average anxiety between adolescents who did yoga and drank chamomile and the control group. **Conclusion:** In conclusion, yoga and chamomile drinks are more effective in reducing dysmenorrhea and anxiety than doing deep breath relaxation.

**Keywords:** Chamomile, Dysmenorrhea, Menstrual pain, Yoga.

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## INTRODUCTION

Dysmenorrhea is a gynecological problem that occurs most frequently in 90% of adolescent girls and more than 50% of menstruating women in the world, and 10-20 % of them experience severe pain (1). The prevalence of dysmenorrhea was 77.6% and only 8% of them did physical exercise (2). In Indonesia in 2008 amounted to 64.25% of dysmenorrhea which consists of 54.89% of dysmenorrhea primary and 9.36% of secondary dysmenorrhea (3). Primary dysmenorrhea occurs in adolescents in age 12-20 years (4), with a prevalence of 60-93% (5). Figures incidence of dysmenorrhea in Jawa Barat has not been known for sure. Based on the survey of researchers in the month February 2018 in three SMAN Kota Cimahi, from 1422 the number of students

female class X and XI as many as 956 students (67.2%) experienced dysmenorrhea.

Primary dysmenorrhea is the most common gynecological problem in adolescent girls (5). Dysmenorrhea disrupts daily activities in school-age adolescents. The physical changes are felt when dysmenorrhea pain, dizziness, weakness, nausea, abdominal bloating, vomiting, diarrhea until unconscious. Psychological changes experienced by adolescents become sensitive, anxious, and unable to concentrate. With dysmenorrhea who suffered, teenagers are not able to concentrate on learning in the classroom, anxiety and makes them not comfortable that the motivation for the study is low, sometimes they do not go to school (6).

More than two-thirds of teenagers (63.8%) when dysmenorrhea using the medication at home as the top choice of intervention (2). One of the appropriate dysmenorrhea interventions for adolescence is physical exercise. Research shows that exercise physically

increases the activity of endogenous opioids in the system nervous central and peripheral and induces a sense of happiness (*euphoria*) and reduces pain (7).

In general, the treatment of dysmenorrhea is divided into two categories, namely pharmacological and non-pharmacological approaches. Pharmacologically, pain can be treated with analgesic therapy, which is the most commonly used method for pain relief. To reduce pain, non-steroidal anti-inflammatory drugs such as ibuprofen, naproxen, and mefenamic acid can be given. Although analgesics can relieve pain effectively, the use of analgesics will have an addictive effect and will have dangerous side effects (8), (9). Meanwhile, non-pharmacological treatments include warm compresses, relaxation techniques such as deep breathing and yoga (10).

Yoga is described as a combination of breathing exercises, physical postures, and meditation used to calm the nervous system and balance the body, mind, and spirit (11). One of the best known and frequently used mindbody interventions is yoga (12). Its conceptual background is originated from Indian philosophy, and there are numerous schools or types of yoga (ie, Iyengar, Viniyoga, Shivananda, etc.) with distinct priorities in terms of spiritual and physical practices. A typical yoga session with a specific sequence of postures (asanas of Hatha Yoga) breathing techniques (pranayama), and mental concentration/meditation (dhyana) lasts between 1 and 2 hours. For yoga practitioners, there is no need to adopt specific spiritual attitudes or specific religious behavior. Yoga practices (particularly the asanas) may increase patient's physical flexibility, coordination, and strength; the breathing practices and mediation may calm and focus the mind to develop greater awareness and diminish anxiety; thus, resulting in higher quality of life. Other beneficial effects involve a reduction of distress, blood pressure, and improvements in metabolic regulation (12).

Voluntarily regulated yoga breathing techniques are called pranayamas (prana = 'vital force' or 'life energy', also conveying 'breath', and ayama = 'to prolong', in Sanskrit) (13). In general, the correct way of breathing according to yoga is recognized to be slow, deep and with inhalation and exhalation in a ratio of 1:2 (13). An exception to this concept of pranayama techniques being slow in rate is a yoga technique called kapalabhati, which involves active exhalation and breath rates from 60–120 breaths/ minute. This practice has been considered a pranayama as well as a kriya or cleansing practice. Pranayamas differ in the way they modify breathing, involving: 1. changes in rate 2. alternate nostril breathing 3. exhalation during which a sound is produced 4. volume changes of breathing 5. breathing with a constricted glottis 6. breath holding, and 7. mouth breathing (13).

The practice of yoga, which involves practicing asanas, is originally a sitting position for meditation. In modern yoga, asanas are exercises including *reclining, standing, inverted, twisting*, and balance positions for meditation. Some postures as if the body of yoga could be done to reduce the pain at the time of dysmenorrhea, include *butterfly pose, seated forward pose, child's pose, camel pose, cat pose, bow pose, and downward-facing dog pose* (8).

Apart from doing yoga postures, giving warm chamomile drinks is done to relax uterine muscle spasms, improve sleep quality and reduce the anxiety that may occur during dysmenorrhea. With the treatment of double action is expected dysmenorrhea in adolescents reduced and independent adolescents (*self-care*) can be overcome, and teens not dependent on drugs deduction of pain (*painkiller*).

Problems core that needs to be investigated more advanced in this case is about the effectiveness of yoga and giving drink chamomile to the quality of pain and level of anxiety adolescents at the time of dysmenorrhoea. Research on the effect of this *double action* treatment has never been carried out in the Cimahi city area. Based on the analysis of differences in treatment of dysmenorrhea with methods *effleurage, kneading*, and yoga in overcoming dysmenorrhea stated that the three methods the method of yoga that affects large in the reduction of pain dysmenorrhea (9). While giving a drink to reduce dysmenorrhea is still limited to the provision of drinks ginger, turmeric acid, and others.

The purpose of the research is to determine the effect of treatments *double action*: yoga and giving chamomile on the quality of pain and level of anxiety adolescents dysmenorrhoea by comparing the control group.

## MATERIALS AND METHODS

### Research Design

The research design used was a quasi-experimental post-test with a control group (10).

### Place of research

This research was conducted in the provinces of West Java and Banten from March to October 2020.

### Population and Research Sample

The study population was female student STIKES Jenderal Achmad Yani Cimahi who experience dysmenorrhea, aged 17-21 years as many as 224 people. The sample was taken using a simple random sampling technique of 54 people who met the inclusion criteria, namely: respondents who had menstruated for 1 year or more, had regular menstruation every month, had dysmenorrhea every month, were not sports athletes, were willing to drink chamomile tea and had no history of allergies. Chamomile and the Asteraceae group of plants and

are in good health. The research subjects were divided into two groups, namely the intervention group and the control group, each group of 27 people.

### Research Procedure

Respondents were assessed during menstruation, 2 weeks before menstruation the following month given yoga interventions based on SOPs and yoga tutorial videos that had been designed by the researcher. Then the respondents did yoga 2x a week for 30- 45 minutes. Respondents drank 2 glasses of chamomile a day, in the morning and evening when there were signs of menstruation when the blood came out, and continued until the second day of menstruation. Meanwhile, the control group was given a deep breath relaxation technique intervention without giving chamomile drinks.

After the intervention of the post-test measurements menstrual pain using instruments Zung's Self-rating Anxiety Scale (ZSAS) on a 24- hour first period.

### Research Ethics

Before data collection, the researcher submitted an ethical clearance for the study and received approval from the Health Research Ethics Committee (KPEK) of Stikes Jenderal Achmad Yani Cimahi with NO. 01 / KEPK / III / 2020 dated 3 March 2020.

### Data Analysis

Data analysis was performed using SPSS 16 in the form of univariate analysis and independent t-test.

## RESULTS

Results of the study showed the average age of the respondents 19 years, the average long menstrual 7 years, the average pain menstrual 6, and the average anxiety 42 in the intervention group (Table I). In the control group, the average age of the respondents was 19 years, the average length of menstruation was 7 years, the average menstrual pain was 7, and the average anxiety was 39 (Table I).

The results of the t-independent statistical test showed that the average menstrual pain in adolescents after doing yoga and drinking chamomile was lower than after doing deep breath relaxation. Statistical test results obtained a value of  $p = 0.003$  (Table II) it can be concluded at alpha 5% seen no difference significant average painful menstruation among adolescents who do yoga and drink chamomile with teens who did not do yoga and drink chamomile.

The results of the statistical test t-independent were found that the average teen angst after doing yoga and drinking chamomile is 35.70 (the level of anxiety is normal) with a standard deviation of 6,838, while the average anxiety teenager after doing relaxation breath

is 40.19 (the level of anxiety is normal) with standard deviation 5,910. Statistical test results obtained a value of  $p = 0.013$  (Table II) it can be concluded at alpha 5% seen no difference significantly the average anxiety among adolescents who do yoga and drink chamomile with a control group that did relaxation breath in.

**Table I. Distribution of Respondents in the Intervention Group and Control Group by Age, Length of Menstruation, Menstrual Pain, and Anxiety**

Variable	Mean		Median		SD		Min-Max	
	Inter-ven-tion	Con-trol	In-ter-ven-tion	Co-nt-rol	Inter-ven-tion	Co-nt-rol	In-ter-ven-tion	Control
Age	18.96	18.81	19	19	0.759	0.557	17-20	18-20
Length of Menstruation	6.67	7.26	7	7	1,414	1.789	3-10	4-13
Menstrual Pain	6.48	6.26	6	7	1,341	1.701	4-9	2-10
Anxiety	42.81	39.63	42	39	6,140	5,732	34-57	29-52

**Table II: The Distribution of Average Menstrual Pain and Anxiety of Respondents in the Double Action Treatment Intervention Group and the Control Group**

Variable	Mean	SD	SE	P Value	N
Menstrual Pain					
- The intervention group	3.89	1,340	0.258	0.003	27
- Control group	5.44	2,154	0.415		27
Anxiety					
- The intervention group	35.70	6,838	1,316	0.013	27
- Control group	40.19	5,910	1,137		27

## DISCUSSION

### Characteristics of Respondents

The results of data processing, it was shown the mean average age of the respondents 19 years, meaning that the respondents including age teenagers. According to WHO, adolescents are the population in the age range of 10-19 years. The period of adolescence was associated with the transition from children to adults. The period is a period of preparation for adulthood will melena several stages of development is important in life. In addition to physical and sexual maturity, adolescents are also experiencing the stages towards independence socially and economically, build identity bags, acquisition capability ( *skill* ) for the life period of the adult as well as the ability to negotiate ( *abstract reasoning* ) (11). The results of the 2015 Inter-Census Population Survey show that the population aged 15-24 years reaches 42,061.2 million or 16.5 percent of

the total population of Indonesia. Population projection results show that the adolescent population will increase until 2030 (12).

Respondents were already menstruating on average over the 7 years, the average scale of menstrual pain in adolescents included in the scale of painful menstruation in the category of moderate pain (6:27) and leads to pain severe (6.48≈7.00). The average score of the quality of sleep adolescents above 5 including the quality of sleep is bad. The average score of anxiety including levels of anxiety teenage normal because it is in the range of 20-44. In dysmenorrhea, Primary encountered little factor of risk that is associated with the development and most women with primary dysmenorrhea have no predictive factors. In the future, many risk factors have been identified by an association/organization, but the causal mechanism is less supportive. The results of a *systematic literature review* to identify risk factors for dysmenorrhea are younger than 30 years, body mass index less than 20 kg / m<sup>2</sup>, smoking, menarche less than 12 years, the cycle of menstrual length or duration output blood, irregular or expenditure blood of menstruation many, and history sexual rudeness associated with higher rates of menstrual pain (13).

#### **Differences in Menstrual Pain After Yoga and Drinking Chamomile Compared to the Control Group**

The results showed that the average menstrual pain in adolescents after doing yoga and drinking chamomile was lower than after doing deep breath relaxation. The results of statistical tests showed that there was a significant difference in the average menstrual pain between adolescents who did yoga and drank chamomile and adolescents who did not do yoga and drink chamomile, namely only doing deep breath relaxation. Although qualitative painful menstruation remains in the category of the level of pain being, a quantitative difference in scores of pain is very meaningful that is 1.55.

The ten yoga movements that are trained include *sukhasana pose (easy pose)*, *seated twists pose*, *butterfly pose*, *child's pose*, *cat and cow pose*, *bridge pose*, *camel pose*, *downward-facing dog pose*, and end with *savasana pose* reducing dysmenorrhea with yoga duration. within 15-30 minutes. According to the guidelines of yoga, to do yoga a minimum of 10 minutes can change the pattern of acceptance of pain into a phase that is more soothing to stimulate the body to release opioids endogenous (compounds that function to inhibit pain) (14).

Yoga includes exercise physical or if the body. Exercise Physical increases the activity of endogenous opioids in the system nervous central and peripheral and induces a sense of happiness (euphoria) and reduce pain (7). Yoga for 60 minutes, week 1 once, for 12 weeks, consists of physical exercises combined with meditation. The results showed that yoga reduces cramping and distress

of menstruation (15). Doing yoga for 30 minutes per day, 2 times a week for 12 weeks. The result is yoga significantly reduces dysmenorrhea pain, improves physical fitness and quality of life (16). The results of a meta-analysis of 2 RCTs showed that yoga interventions were more effective and beneficial in overcoming dysmenorrhea (17).

#### **Difference of Anxiety After Yoga and Drinking Chamomile Compared to the Control Group**

Results of the study found that the average anxiety teenager after doing yoga and drinking chamomile is lower than teens who do deep breathing relaxation, although the qualitative level of anxiety within the range of normal. The results of statistical tests concluded that there was a significant difference in average anxiety between adolescents who did yoga and drank chamomile and the control group who did deep breath relaxation.

The results showed that there was a significant difference in the average anxiety level between adolescents who did yoga and drank chamomile and the control group who did deep breath relaxation. Results of the research are relevant to studies in pregnant women, with the results of the study showed that exercise Yoga Prenatal helps decrease the anxiety related to the process of labor, increase confidence in the ability of self to face childbirth, as well as reduce the complaints of physical (18). Likewise, also the research (Ashari, A., Pongsibidang, GS, & Mikhrunnisai, A., 2019) in the third-trimester pregnant women obtained the results of the study that there is a relationship that significant between intervention gymnastics prenatal yoga in reducing the incidence of anxiety in the mother's third trimester pregnant in PHC Pattingalloang and Puskesmas Tamalate Makassar City (19).

Research Shohani, M., et al (2018) showed that depression, anxiety, and stress SCARA significantly decreased in women after doing hatha yoga 12 sessions regularly. And yoga can be used as a complementary medicine (20). While the results of research Lance, M. M. (2012) showed no influence that significantly between yoga already done that one time per week for 20 minutes with anxiety. Research previously had to document the influence of yoga in lowering anxiety on academic performance and improve psychological well-being among the younger students. This study contributes to the change social that positive to inform the development of interventions anti-anxiety effective that will benefit students (21).

The results of the meta-analysis of Hofmann, SG, Andreoli, G., Carpenter, J. K., & Curtiss, J. (2016) concluded that hatha yoga is a promising method for dealing with anxiety. However, more controlled research is needed to compare the efficacy of yoga Hatha in overcoming anxiety with medication others

are more established and to understand the mechanism (22).

Yoga is a sport that is not only good for physical health but also mental health. Not only physical training, but yoga can also help a person relax his mind. Of a study that is done, there are linkages between yoga with decreased levels of cortisol or stress hormones in the body, increasing endurance and pain, an increase in the atmosphere of the liver, as well as reduced interference anxiety. These things are believed to happen by doing certain yoga poses because they can activate the parasympathetic nervous system. Nerves that act as an antidote to the body to fight or avoid the disease that became a threat to the body. Several yoga movements prevent anxiety disorders, including *savasana pose*, *sukhasana pose*, *child pose*, *seated forward bend pose*, and *cobra pose* (23).

## CONCLUSION

Intervention double action: yoga and drink chamomile have proven to be more effective in reducing dysmenorrhea and anxiety compared with doing relaxation breath. The results of the study are to describe although scores of painful menstruation and anxiety are both declining, scores decline more pain by doing yoga and drinking chamomile.

## ACKNOWLEDEMENT

Thank you for the Directorate RISTEKDIKTI which has funded research and STIKES Jenderal Achmad Yani Cimahi which has facilitated the implementation of this study.

## Suggestion

Giving treatment of double action yoga and drink chamomile it can be recommended as an act of non-pharmacological and complementary therapies to reduce menstrual pain and anxiety with the cost of the cost, risk a little, the benefit is more substantial and effective and very appropriate for the teenage girls who want a light activity and easily and healthy contemporary drinks.

It is necessary to develop further research with the RCTs method on a larger sample. It is recommended to conduct a similar study on adult women with menstrual pain or other pain and can be tried on respondents with anxiety or stress.

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