DIFFERENCES IN THE EFFECTIVENESS OF DRY AND WET CUPPING TO REDUCE DYSMENORRHEA AMONG TEENAGER AT NGEMPLAK SLEMAN YOGYAKARTA

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ABSTRACT

The prevalence of dysmenorrhea worldwide ranges from 15.8 to 89.5% and Indonesia was 64.25%. Dysmenorrhea was experienced by young women aged 18 to 24. The teenagers at Wedomartani, Ngemplak, Sleman, Yogyakarta reported that they experienced dysmenorrhea at 18 to 20 years old. Dysmenorrhea might affect daily activities. Pain can be managed using non-pharmacological methods such as dry and wet cupping therapies. The goal of this study is to find out the differences in the effectiveness of dry and wet cupping to reduce dysmenorrhea among teenagers at Wedomartai, Ngemplak, Sleman, Yogyakarta. This is quantitative quasi-experimental research with a pretest-posttest without control group design. This research used a random sampling technique. thirty teenagers became respondents. The research instruments were questionnaires, a numerical scale, a cupping set, and observation sheets. Data were analyzed using the paired t-test and independent t-test. The paired t-test on dry cupping therapy showed a p-value of 0.000. The pretest score was 4.67 then the post-test was 2.93. The analysis of wet cupping therapy showed a p-value of 0.000. A decrease in dysmenorrhea can be seen at the pretest score of 5.53 and the posttest of 3.20. The independent t-test showed a p-value of 0.704 after receiving dry and wet cupping therapies. So we can dry and wet cupping therapy is equally effective in reducing dysmenorrhea pain in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta dan Wet cupping is more effective than dry cupping. Teenagers can use wet cupping to relieve menstrual pain.

Keywords: Teenagers, Dysmenorrhea, dry cupping, and wet cupping

Introduction

Dysmenorrhea or menstrual pain is the main problem among women during puberty (Andriyani, 2013). According to the World Health Organization (WHO), the incidence of dysmenorrhea, throughout the world, is high. The average occurrence of dysmenorrhea in women is between 16.8-81%. The incidence of dysmenorrhea in Indonesia reaches 64.25%, where 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea (Muflih, 2012). Meanwhile, the prevalence of adolescents in Yogyakarta who reported dysmenorrhea pain was around 52% and reported can not do carry out daily activities properly when dysmenorrheal pain (Andriyani, 2013).

Some impacts will occur if it is not treated immediately. There are disturbances in activities of daily living, anxiety, depression, retrograde menstruation or menstruation that moves backward, infertility or infertility, undetectable pregnancy, ruptured ectopic, ruptured cyst, uterine perforation of the uterus. IUDs and infections. Common disorders among women while menstruating are menorrhagia and dysmenorrhea (Sugiyanto & Luli, 2020). Dysmenorrhea in teenagers and can cause emotional conflict, tension, and anxiety. It can cause Learning activities disrupted, concentration decreases, or absence in class. So, Women who experience dysmenorrhea cannot receive learning materials well. (Lestari, 2013).

Menstrual pain can be treated by pharmacological and non-pharmacological methods. Consuming analgesic drugs is an example of pain management through pharmacology (Maksum, 2019). Consumption of drugs continuously and without consulting a doctor can cause side effects such as abdominal pain, skin bruising, nausea, vomiting, etc (Elysia, 2017). Whereas, the non-pharmacological methods that can be used to reduce menstrual pain are the use of warm compresses or warm baths, acupuncture or acupressure, cupping and taking herbal medicines, as well as practicing relaxation techniques (Maksum, 2019). Complementary therapies have safe side effects compared to side effects side effects of chemical drug reactions (Trisnawati and Jenie, 2019).

Cupping therapy is a traditional treatment using bloodletting in the back area with a certain point that can be able to cure the disease. Cupping therapy is done when a person is menstruating, not before menstruation (Armini, 2019). Cupping itself has benefits for the body experiencing circulatory disorders and pain; 1) Cupping increases the elasticity of the erythrocyte walls for capillaries to deliver O2; 2) Cupping can increase natural antioxidants; 3) Cupping stimulates erythropoiesis (production of red blood cells) in the bones or kidneys; 4) Cupping increases the number of macrophages; 5) Increase natural killer cells; 6) Increases CD8+ and 7 T lymphocytes, reduces free radicals (Maksum, 2019).

Damayanti (2012) mentioned that cupping therapy is divided into two types, namely dry cupping therapy and wet cupping therapy. Taherpour et al., (2018) said that dry cupping significantly reduced the severity and duration of primary dysmenorrhea. Cupping therapy can reduce pain because of the strong suction of the cupping apparatus on the nerve pathways that signal the brain about pain so that the stimulus that reaches the brain makes the pain no longer felt by the patient. Thus, there is no significant result between dry cupping therapy and wet cupping therapy to reduce dysmenorrhea pain.

Based on the description above, researchers are interested in researching the difference in the effectiveness of dry and wet cupping therapy on reducing dysmenorrhea pain in adolescents in Wedomartani, Ngemplak, Sleman, Yogyakarta. This study was conducted to determine the difference in the effectiveness of dry and wet cupping on reducing dysmenorrhea pain in teenagers in Wedomartani, Ngemplak, Sleman, Yogyakarta.

Methods

This research is a quantitative study using a quasi-experimental research design Pre and Post Test Without Control. The sample in this study was teenagers in Wedomartai, Ngemplak, Sleman, Yogyakarta who experienced dysmenorrhea, amounting to 30. They were divided into two groups, the dry cupping therapy and the wet cupping therapy group. The selection of research subjects using a random sampling technique. According to Prasanjaya & Ramantha (2013), the sample random sampling technique is a random sampling technique that provides equal opportunities for all sample groups to be designated as research subjects.
The inclusion criteria in this study were healthy teenagers who are willing to be respondents, teenagers who experience dysmenorrhea pain, and teenagers who follow all treatments.The exclusion criteria in this study were teenagers who have acute infections (asthma attacks, ARI, fractures, and burns), teenagers who take anticoagulant drugs (drugs that prevent blood clots, such as trisodium citrate, heparin, and sodium oxalate), teenagers who have a history of chronic disease (heart disease), there was an inflammation of the skin at the cupping point and also there was an open wound in the cupping point area.

This research was conducted from June to July 2021. The research instruments used were: (1) Questionnaire, (2) Dysmenorrhea Pain Scale, using a numeric pain scale, (3) Cupping Therapy SOP. Cupping is given at one point in the right and left-back area, then one point in the right and left calf area, (4) Observation sheet, consisting of pretest and posttest

sheets. Dataanalysis was analyzed using Paired t-test and an independent t-test.

Result and Discussion

The results and discussion of this research will be presented in the narratives form and tables. The explanation will be started from the dysmenorrhea pain scale before and after dry cupping therapy. Then the dysmenorrhea pain scale before and after the wet cupping was followed. After that, we will discuss the difference between the pain scale on dry cupping therapy and wet cupping therapy. And at the last, We will look for differences in the effectiveness of dry cupping and wet cupping therapy to reduce dysmenorrhea pain.

Table 1. Respondents Pain Scale Before and After in the Dry Cupping Therapy Groupat Teenagers in the Wedomartani, Ngemplak. Sleman (N = 15)

Result	Mear	SD	Min-Max	α
Pre-Test	4.67	1.676	1-7	0.000
Post-Test	2.93	1.710	0-7	

The dysmenorrhea pain scale among teenagers in the Wedomartani, Ngemplak, Sleman, Yogyakarta had an average value of 4.56 for Wet cupping therapy group. The minimum valuewas one and the maximum value was seven. Three respondents showed mild pain (1-3 scale pain), Ten respondents showed moderate pain (4-6 scale pain) and two respondents showed severe pain (7-10 scale pain). After dry cupping therapy, it can be seen that the average posttest value of dry cupping is 2.93. It included the mild pain scale. Two respondents reported no pain, eight respondents showed mild pain, then four respondents reported moderate pain and only one respondent showed severe pain.

According to the theory, dysmenorrhea is pain during menstruation. It is usually experienced by some women. Dysmenorrhea was caused by an imbalance of the hormone progesterone in the blood and psychological factors (Salamah (2019). Ilham (2020) said that primary dysmenorrhea occurs in adolescents after menarche or during the ovulatory cycle. Pain felt just before or during menstruation and will decrease for up to 72 hours.

In line with the research from Pangestika (2019), which showed pain scale of dysmenorrhea in the experimental group was 2.14 and the control group was 4.43. The pain experienced by respondents in the treatment group was mild, while the control group experienced moderate pain with different intensities with the maximum values in the treatment group being 4 and 6 in the control group, while the minimum values were 1 in the treatment group and 4 in the control group. The results of the statistical test showed that there were differences between the two groups.

This is reinforced by Gate Control Theory namely cupping plays a role in releasing excessprostaglandin substances during menstruation, where prostaglandin substances function to sendpain signals to the brain. Through the cupping process, this substance is released so that the pain felt by the patient is reduced. Cupping is also able to close the defenses to inhibit impulsesto the brain, this is due to the strong suction of the cupping apparatus which plays a role in busying the nerve pathways that transmit pain signals to the brain (Sharaf, 2012).

Maksum (2018) said that the effect of cupping treatment on the pain level of dysmenorrhea. It showed the average value of dysmenorrhea pain after receiving cupping treatment of 5.09 and the difference in the average pain scale before and after treatment. after cupping, the pain scale decreased by 1.69. Another study from Kurniawati (2016) reported that the dysmenorrhea pain scale in Nursing Undergraduate Students at the Muhammadiyah University of Jember decreased from 5.73 to 2.60. before cupping therapy, The treatment group

had four scale pain for the minimum value and seven for the maximum. After cupping therapy, it reported one for minimum value and four for the maximum.

Bivariate analysis was used to determine the effectiveness of dry cupping therapy for pain scale during dysmenorrhea. It used paired sample t-test analysis. Table 1 showed the differencein the average pain scale before and after dry cupping therapy with a decrease in the pain scaleof 1.74. It showed that there was a significant difference in the dysmenorrhea pain scale beforeand after dry cupping therapy (p-value = 0.000), which means that there was a statistically significant difference between dysmenorrhea pain before and after dry cupping therapy. So it can be concluded in the above test that there is the effectiveness of dry cupping therapy on reducing dysmenorrhea pain in teenagers in Wedomartani, Ngemplak, Sleman, Yogyakarta.

Maksum (2019) reported that the management of dysmenorrhea pain can be done non-pharmacologically, namely cupping therapy. Dry cupping therapy can reduce sensitivity to pain by stimulating the release of enkephalins and the release of endorphins. Dry cupping can release substances that function to stimulate pain signals to the brain, namely prostaglandins which are formed as a result of cell inflammation. Taherpour et al., (2018) also said that dry cupping significantly reduced the severity and duration of primary dysmenorrhea. Cupping therapy can reduce pain because of the strong suction of the cupping device on the nerve pathways that signal the brain about pain so that the stimulus that reaches the brain makes the pain no longer felt by the patient. In addition, according to Armini et al., (2019), cupping affects muscles by stimulating blood circulation in the muscles so that muscle spasms disappear. Cupping can also release substances that function to stimulate pain signals to the brain, namely prostaglandin substances that are formed as a result of cell inflammation.

Another study reported of 21 people who experienced primary dysmenorrhea who had regular menstrual cycles had a decreased pain level after dry cupping (Purwaningrum, 2019). In dry cupping, cupping is carried out on intact skin, with negative pressure (suction) the skin will be lifted causing increased capillary filtration and local collection of fluid and dilution of chemicals, inflammatory mediators, and nociceptive substances (analgesia) resulting in decreased pain and resolution. network adhesion. Whereas in wet cupping, skin incisions are made and blood is drawn out, cupping pressure causes pressure gradients and forces through the skin and capillaries, and releases endogenous opioids (analgesia) which causes a decrease in pain scale (Cao H, et al, 2015).

Table 2. Respondents Pain Scale Before and After in the Wet Cupping TherapyGroup at Teenagers in the Wedomartani, Ngemplak. Sleman (N = 15)

Result	Mean	SD	Min-Max	α
Pre-Test	5.601.805		3-9	0.000
Post Test	3.202.077		0-7	

The dysmenorrhea pain scale in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta in the pretest dry cupping therapy group with dry cupping therapy has an average value of 4.67, with a minimum value of 1 and a maximum value of 7. Two respondents reported mild pain, eight respondents showed moderate pain and five respondent said severe pain. Table 2 showed the decrease of the pain scale average after wet cupping therapy. After therapy, respondents said 3.20 for the average pain scale. One respondent reported no pain, eight respondents reported mild pain, five respondents showed moderate pain and only one respondent said severe pain.

Strengthened by Amalia (2018) that Dysmenorrhea or menstrual pain is a pain that feels very piercing in the lower abdomen and thighs. The pain is caused by an imbalance of the hormone

progesterone in the blood. Andira (2010) said that dysmenorrhea is caused by an increase in prostaglandins which then causes increased myometrial contractions, resulting in reduced menstrual blood flow and the disintegration of the endometrium in the muscle walls. Primary dysmenorrhea usually begins when a woman is 2-3 years old after menarche and reaches its peak at the age of 15 and 25 years

The results of research by Lestariningsih (2020), entitled promotive and preventive activities through hijamah (cupping) to reduce menstrual pain in female students of Madrasah Aliyah Al Muhsin Metro from 145 girls (79%) of 183 female students. The degree of menstrual pain experienced by female students is a scale of 1-3 (mild pain) as many as 75% of students (51.7%), a pain scale of 4-6 (moderate pain) as many as 45 students (31%) and a scale of 7-10 (severe pain). As many as 25 students (17.2%). The results of the hijamah action show that the average pain scale before the hijamah procedure is 7.18 and after the hijamah procedure it becomes 5.12. It can be concluded that there is a decrease in the menstrual pain scale, which is 2.06.

Bivariate analysis is to determine the effectiveness of wet cupping therapy on the pain level of dysmenorrhea using paired sample t-test. The results of the analysis in table 2 show the average value of dysmenorrhea pain before being given dry cupping therapy with a pain scale of 5.5 or moderate pain. Meanwhile, after being given dry cupping therapy, the average value of the dysmenorrhea pain scale was 3.20. Table 2 showed the difference in the average pain scale before and after wet cupping therapy with a decrease in the pain scale of 2.33. After the statistical test showed a significant difference in the dysmenorrhea pain scale before and after wet cupping therapy was given (p-value = 0.000). So it can be concluded that the above test is the effectiveness of wet cupping therapy on reducing dysmenorrhea pain in teenagers in Wedomartai, Ngemplak, Sleman, Yogyakarta.

Strengthened by the theory of Chen (2015), Cupping therapy is believed to be effective for various diseases. In recent years, cupping therapy is often used for pain, lower back pain, shoulder pain, fatigue, and anxiety. In addition, Armini et al., (2019), said that cupping plays a role in the inflammatory process such as reducing blood and fluid released through the gaps between cells. Able to reduce pain and make the body more comfortable, 10% said the pain felt healed or no longer felt and 4% of the body became comfortable but the pain did not decrease. Pain reduction sensitivity is also caused by the release of enkephalins and endorphins. Cupping also affects the blood, namely stimulating blood circulation in the body with nitric oxide (NO) which plays a role in expanding blood vessels. This is reinforced by a theory known as the Gate Control Theory. In addition, cupping puncture and blood clots in cupping therapy stimulates the fibrinolytic system to dilute the frozen menstrual blood so that the uterus does not need to contract to expel the blood, besides that cupping therapy plays a role in reducing levels of prostaglandin substances formed due to cell inflammation, thereby reducing sensitivity to pain without any side effects. (Sharaf, 2012)

This study is the same as the research of Maksum et al., (2019), entitled the effect of cupping on the reduction of dysmenorrhea pain in college students. It showed a decrease in the dysmenorrhea pain scale after wet cupping therapy. Cupping has a method involving the withdrawal of Qi (energy) and Xue (blood) to the surface of the skin by using a vacuum (vacuum) created in the glass which can remove 6 pathogens from outside the body consisting of wind, heat, cold, dry. , damp, and fire. Cupping can reduce pain, by doing cupping it will release pain-causing substances, including substances formed due to death or tissue inflammation, such as bradykinin and histamine. Cupping histamine release can also release lactic acid in muscles which can cause cramps and muscle pain (Asmarani and Dewi, 2019).

Cupping therapy by performing small and thin wounds on the skin surface followed by suction under vacuum causes the excretion of substances through the skin artificially (Sayed,

et al 2013). The incision of the skin during cupping causes the release of CRF (Corticotropin-Releasing Factor) from the hypothalamus and will stimulate the release of ACTH (Adrenocorticotropic Hormone) from the anterior pituitary. Furthermore, ACTH is synthesized to release other substances, namely POMC (Proopiomelanocortin) in which the product of this substance is endorphins which is one of the endogenous opioids. (Asmarani and Dewi, 2019). Cupping therapy can decrease the serum concentration of substance P (pain-relatedpathway), which is confirmed as an anti-nociceptive effect. The tactile effect of cupping can stimulate large Aβ-type fibers originating from receptors in the periphery. Stimulation of thesereceptors will suppress the sending of pain signals from the same area of the body. This occurs due to local lateral inhibition in the spinal cord (Ansar, & Zulkifle, 2016). Wet cupping also make increases microvascular oxygenation so that blood flow in the affected area improves (Asmarani and Dewi, 2019).

Table 3. Differences in Dysmenorrhea Pain After Dry Cupping and Wet Cupping Therapy Against Dysmenorrhea Pain Reduction among Teenagers at Wedomartai,Ngemplak, Sleman, Yogyakarta (N=30)

Group	N	Δ Mean	α
Dry Cupping	15	1.74	0.704
Wet Cupping	15	2.40	

The results of the analysis in table 3 show a decrease in the pain scale in the wet Cuppinggroup was 1.74 and the wet cupping group was 2.40. Table 3 shows that there is no differencein the effectiveness of dry and wet cupping therapy in reducing dysmenorrhea pain in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta. After performing statistical tests, there was no significant difference in the effectiveness of the dysmenorrhea pain scale after being given dry and wet cupping therapy (p-value = 0.704). It was concluded that there was nodifference between wet cupping and dry cupping therapy in reducing the pain scale of dysmenorrhea. The reduction of Wet cupping therapy group was higher than dry cupping therapy group. But, when viewed from the results of the independent sample t-test, wet cupping therapy and dry cupping therapy were both effective in reducing the dysmenorrheal pain scale in respondents.

In this study, it was known from the results of the independent sample t-test that there wasno difference between dry cupping and wet cupping therapy in reducing the pain scale of dysmenorrhea. Judging from the risk factors for the incidence of dysmenorrhea related to the severity of symptoms, including younger age at the time of menarche, a longer menstrual period, a lot of blood that comes out during menstruation, a family history of dysmenorrhea, depression, anxiety and obesity. (Salamah, 2019).

Although statistically there was no difference between dry and wet cupping, the decreasein pain scale indicated that wet cupping was higher. Dry cupping therapy is cupping on the skin, while wet cupping therapy before skin cupping is given an injury so that blood comes out during cupping. Wet cupping therapy is more effective than a dry cupping therapy (Risniati, et.all, 2019). There was a significant difference in reaction time between dry and wet cupping therapy pain thresholds (16.93 ± 3.63 and 22.82 ± 6.34; p= 0.039). In the dry cupping therapypathway, there was an effect between HSP 70 and TLR4 (= 0.656; p=0.006), NFkB-p65 and - endorphins (= 0.643; p= 0.007), -endorphins and mu opioid receptors (= 0.923; p= 0.000) ; there was no effect between integrin 2 1 and HSP 70 (= 0.477; p= 0.062), TLR4 and NFkB- p65 (= 0.364; p= 0.166), mu opioid receptors and glutamate (= 0.352; p= 0.182), glutamate andtime pain threshold reaction (= 0.253; p = 0.344). In the wet cupping

therapy pathway, there was an effect between integrin 2 1 and HSP 70 (= 0.763; p= 0.01), HSP 70 and TLR4 (= 0.691;p=0.003), TLR4 and NFkB-p65 (= 0.521; p= 0.038), NFkB-p65 and -endorphins (= 0.699; p= 0.003), -endorphins and mu opioid receptors (= 0.893; p= 0.000); there was no effect betweenmu opioid receptors and glutamate (= 0.162; p= 0.548), glutamate and pain threshold reactiontime (= 0.108; p= 0.691). (Subadi, 2014)

Conclusion and Suggestion

In conclusion we can say that dry and wet cupping therapy is equally effective in reducing dysmenorrhea pain in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta dan Wet cupping is more effective than dry cupping. The recommendation is for teenagers can do wet cupping as an alternative dysmenorrhea treatment. But, teenagers can also choose wet cupping to reduce the intensity of dysmenorrhea pain. For further researchers, it is recommended to investigate the factors that influence the effectiveness of dry cupping and wet cupping therapyon the intensity of dysmenorrhea pain in teenagers.

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