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# THE EVALUTAION OF CHAMOMILE AND TURMERIC ETHANOL EXTARCT PILL INTERVENTION IN COMPARISION WITH MEFNAMIC ACID ON THE SEVERITY OF PRIMARY DYSMENORREHA IN 18-21 YEARS OLD SINGLE STUDENTS

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***Abstract***

*Chamomile and turmeric has been used to treat primary dysmenorrhea relief because of therapeutic properties effects.**Methods and materials.** A randomized, single-blind controlled experimental study were done with participation of 150 single female students aged 18 to 21 years who suffered from primary dysmenorrhea, who study at the Tehran Azad University in the time frame of December 28th, 2021 to October 26th, 2022. The extent of pain was evaluated using the cox menstrual symptom scale index. Each participant was randomly assigned to chamomile and turmeric pill or the mefenamic acid, ending with 50 participants in each group equally. The first and second trial groups received 15 mg of chamomile and turmeric ethanol extracted pills orally four times daily until the pain grade reached one or less. The control group received paracetamol four tablets orally four times a day. The participants were permitted to take another drug that they usually took for their pain relief, in addition to the allocated treatment in case of continued pain. **Results and discussion.** Result showed that the mean pain grade amongst oral chamomile and turmeric pills was decreased, in comparison with the in mefnamic acid groups.There was no statistically significant decrease in pain duration for the groups received mefenamic acid compared to those who used oral herbal pills. Also, there was no significant difference in pain grade between the groups at the second month of intervention. The pain duration at the second month of trial was similar between the both groups.*

***Conclusion**.In conclusion we could suggest that of chamomile and turmeric ethanol extracted pills intervention as a good natural pain killer represents an effective treatment for the menstrual pain with no important side effects.*

***Keywords:*** *chamomile, turmeric, mefnamic acid, primary dysmenorrhea, pain, Cox menstrual symptom scale.*

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### *Introduction*

Primary dysmenorrhea is characterized by pain during menstruation without any pelvic pathology. It is a common problem among females in their reproductive age which is caused by increased production of prostaglandin in the endometrium as one of leading causes *[Barbosa-Silva et al., 2024*]. Primary dysmenorrhea is one of the most common gynecologic disorders which occur in 50% to 90% of adolescent girls and women of reproductive age [ M*cKenna and Fogleman. 2021*] and its prevalence according to the different studies in Iran has been reported between 79 -90 percent [ M*ac Gregor et al. 2023*]. The pain may radiate to the back of the legs or the lower back and systemic symptoms of nausea, vomiting, diarrhea, fatigue, fever, headache or light headedness are fairly common [Kural et al., 2015]. It is a common cause of absenteeism from work, education, or physician, which may lead to decreased efficacy of occupation and education [Esan et al., 2024]. Although primary dysmenorrhea is not life threatening, it could have adverse effects on daily routine activity [*Almanasef et al. 2023*] and quality of life especially in adolescent[Roberts et al., 2012] if not properly managed [*Itani et al. 2022*]. The most common treatments for primary dysmenorrhea are oral contraceptive pills (OCPs) and nonsteroidal anti-inflammatory medications (NSAIDs). By preventing prostaglandin (PG) production and lowering vasopressin release, NSAIDs lower myometrial activity. The chronic side effects of NSAIDs include liver, renal, and digestive system issues. The OCPs reduce the volume of menstrual fluid and the amount of PG generated by suppressing ovulation and thinned endometrial lining, which lessens discomfort related to uterine contractions. OCPs can be a useful treatment for PD, but they can also have unfavorable side effects, such as nausea and water retention, and they may not be appropriate for all women, particularly those who are trying to conceive. Mefenamic acid is used to treat mild to moderate pain and dysmenorrhea and it help reduce pain, inflammation, and fever. Herbal medicine may be a suitable alternative. Herbal medicine has an important role in women health. There are a number of herbal remedies for treatment of primary dysmenorrhea [*Bolkar et al. 2023*]. In a study by Almanasef and Alqarni with the aim to examine the self-management practice for primary dysmenorrhea among a group of female undergraduate students, result indicated that around 62% of participants used analgesics for managing menstrual pain, which paracetamol 70.4% was the most commonly used analgesics [*Choo et al. 2022*]. Prescribing natural substances with therapeutic nature has been used since ancient times. recently women are intent to alternatives for the synthetic medicines since medical treatments for the dysmenorrhea has much risk rate with intolerable effects on the them [*Jiao et al. 2022*]. also these treatments would be used as alternatives to the NSAIDs and other hormonal treatments, with not only lower side effects, but also with higher patients' acceptance, besides Women can have access to herbal remedies more comfortably to decrease dysmenorrhea symptoms [*Zeraati et al. 2014*]. Recent reviews of some experimental evaluation the efficacy of herbal extracts in primary dysmenorrhea showed the effects of them on pain, inflammation, and dysmenorrhea which was significant compared mefenamic acid and acetaminophen [*Modaress Nejad et al. 2006*]. Nowadays there are many attempts for alternatives traditional or herbal treatments against primary dysmenorrhea. Many evidences have reported that use of natural herbs may play an important role in the case of menstrual disorders such as primary dysmenorrhea [*Utami, 2020*]. Chamomile, with the scientific name of Matricariachamomilla, is one of the most widely used medicinal plants[*Yazdani et al. 2004*]. It possesses anti-spasmodic properties, which can relieve the painful cramps associated with the menstrual periods [*Modarres et al. 2011*]. A compound named Apigenin found in chamomile tea helps reduce the impact of excitatory neurotransmitter and hormones on the mind and body, helping to soother the over-firing sympathetic nervous system. It is also helps modulate the actions of dopamine and serotonin, helping to offset or at least reduce

the impact of depressive symptoms [*Najafi Mollabashi et al. 2018*].Turmeric is derived from Curcuma longa and includes curcuminoids such as curcumin, demethoxycurcumin, and bisdemethoxycurcumin [*Hesami et al. 2021*]. Curcumin is a yellow polyphenol compound that is the main ingredient of turmeric from the Zingiberaceae family [*Zhang et al. 2013*]. Other study result of [*Agrawal et al .2023*] indicated a promising role of turmeric for menstrual pain relief compared to the placebo. Also [*Khayat et al .2015*] found that curcumin can alleviate symptoms experienced before menstruation without any adverse effects. Because of few studies have been published about chamomile and turmeric in comparision with mefnamic acid as an alternative therapy for treatment of primary dysmenorrhea, therefore, this study was carried out to determination effects of oral chamomile and turmeric ethanol extract pill intervention in comparison with paracetamol on the intensity of primary menstrual pain in young students.

## *Materials And Methods*

***Study Procedures:*** A randomized, single-blind controlled semi experimental trial was conducted amongst 150 single students aged 18 to 21 years who suffered from primary dysmenorrhea, at the Tehran Islamic Azad University, from December 28th, 2021 to October 26th, 2022. Participants had no underlying medical or psychological disorder. The eligible participants fulfilled the written informed consent form and the self-completed questionnaire and the scale form and were visited physically by a licensed gynecologist before intervention. The extent of pain was evaluated using the cox menstrual symptom scale [*Jahangirifar et al. 2018*]. Each student was randomly assigned to cinnamon and fennel pills or the mefnamic acid, ending with 50 participants in each group equally. The first and second trial group received 15 mg of chamomile and turmeric pill orally four times daily until the pain grade reached one or less. The control group received mefnamic acid and three tablets orally four times a day. The participants were permitted to take another drug that they usually took for their pain relief, in addition to the allocated treatment in case of continued pain. At the end of the trial, these participants were excluded in data analysis. The changes in the grade and the duration of the pain of participants were compared at the first and second months in both groups. A two sectioned questionnaire was used to collect the data. The first section included the demographic data, menstrual history, smoking, diet, exercise and past medical and reproductive history that was completed before the intervention of the trial. The second section was designed to cover the grade and duration of pain and the accompanying symptoms was completed during the two months follow up of the study. The primary outcome was the intensity of menstrual pain, which was determined using the verbal multidimensional scoring system described by [ *Andersch and Milsom,1982*] and it has four grade including grade 0: menstruation is not painful and daily activity is unaffected, grade 1: menstruation is painful but seldom inhibits normal activity, analgesics are seldom required; mild pain, grade 2: daily activity is affected, analgesics required and give sufficient relief so that absence from school is unusual; moderate pain and grade 3: activity clearly inhibited, poor effect of analgesics, vegetative symptoms such as headache, fatigue, vomiting, and diarrhea.

***Ethical Consideration:*** All females in the study were voluntary and the participants were free to withdraw from the study whenever they wished. An informed consent was obtained from all participants before enrolment into the study.

***Statical Analaysis:*** Sample size was computed using $\alpha$ =5% and absolute error equal to 0.25 for correlation between medication and pain with acceptable absolute precision formula. A p-value of 0.05 was considered statistically significant. Randomization was determined on a 1:1 basis using random number tables. The statistical comparisons were determined using the Mann-Whitney U test, unpaired t-test, and within-group comparisons were analyzed by paired t test or Wilcox on.

## *Result And Discussion*

As result reveled and presented in (table 1). The mean age was 18.1±1.4 and 17.4±1.5 years in chamomile and turmeric pills and mefnamic acid groups, respectively. No significant difference was observed for the matched characteristics studied between the treated groups.

The chemical medication was the most common method used by the participants in all groups as the pain relief procedure before interventions applied by the current clinical trial. The subjects were followed up at least for two sequential periodic cycles. The pain grades were similar in three groups before intervention. About three hours after the intervention at the first day of menstruation the mean pain grade amongst chamomile and turmeric group was decreased, while in mefnamic acid group, respectively, using the described given dose (table 2).

The comparison of the pain duration between the different groups at the first month of the intervention is shown in (table 3).

There was no statistically significant decrease in pain duration for the participants who received mefnamic acid compared to those who used oral chamomile and turmeric pills. Also, there was no significant difference in pain grade between the groups at the second month of intervention. Pain duration at the second month of trial was similar between the all groups. Furthermore, the duration of menstrual flow was similar between the two groups before intervention, while mefnamic acid reduced the duration of menstruation compared to the herbal pills at the first and the second month of the intervention. The present results suggested that the both oral chamomile and turmeric pills and mefnamic acid group had equivalently reduced the grade and the duration of menstrual pain. The effects of chamomile and turmeric pills as herbal pain killer can be attributed to their action as antispasmodic and anti-prostaglandin synthesis. In this line [*Bokaie and Enjezab,2024*] indicated that there was no significant statistical difference between the amount and the intensity of menstrual bleeding in the fennel intervention group before and after the intervention *[Bokaie and Enjezab, 2017*]. Iaghmaii et al. compared the effect of mefenamic acid and vitamin E with that of mefenamic acid alone on pain and their results were consistent with those of our findings [*Yaghmaei et al., 2005*]. Also [*Momenzadeh et al.2017*] showed that the significant reduction in dysmenorrhea severity groups of fennel and mefenamic acid one month after the intervention, but no significant difference was found between two groups of fennel and mefenamic acid in terms of dysmenorrhea severity [ *Momenzadeh et al. 2017*]. Additionally [*Khayat et al .2015*] reported that curcumin administered for one week

***TABLE 1.***

Comparison of characteristics between experimental groups

| Characteristic | Group | n | Mean ± SD |
|---|---|---|---|
| Age | ChP | 65 | 18.1±1.4 |
| | TuP | 65 | 17.8±1.4 |
| | MA | 42 | 17.4±1.5 |
| Age incidence of dysmenorrhea | ChP | 65 | 15.6±1.7 |
| | TuP | 65 | 15.2±1.4 |
| | MA | 42 | 15.1±1.8 |
| Duration of cycle | ChP | 65 | 28.2±1.6 |
| | TuP | 65 | 28.1±1.4 |
| | MA | 42 | 27.1±1.6 |
| Duration of menstrual flow | ChP | 65 | 5.1±1.7 |
| | TuP | 65 | 5.0±1.4 |
| | MA | 42 | 4.9±1.5 |
| Pain duration period | ChP | 65 | 3.5±0.9 |
| | TuP | 65 | 3.4±0.2 |
| | MA | 42 | 32±0.6 |

***NOTES***: *SD = Standard deviations; ChP - Chamomile pill, TuP - Turmeric pill, MA - Mefnamic acid

***TABLE2.***

Comparison of pain relief between different groups before intervention

| Treatments | Chamomile pill | | Turmeric pill | | Mefnamic acid | | P-Value |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | |
| Chemical medicine | 40 | 40.1 | 40 | 40.2 | 40 | 37.6 | 0.842 |
| Herbal medicine | 16 | 12.4 | 16 | 12.4 | 16 | 14.4 | |
| Others treatments | 16 | 10.3 | 16 | 11.2 | 16 | 9.8 | |
| Total | 72 | 62.8 | 72 | 63.9 | 72 | 59.8 | |

***TABLE 3.***

Comparison of pain duration between different groups at various time points following intervention

| Treatments | Chamomile pill | Turmeric pill | Mefnamic acid | Total (%) |
|---|---|---|---|---|
| Less than 30 min n (%) | 15 (14) | 14 (12) | 10 (11) | 39 (37) |
| 30 min to 1 hour n (%) | 16 (15) | 17 (13) | 18 (14) | 17 (42) |
| Several hours n (%) | 17 (20) | 18 (18) | 14 (16) | 45 (54) |
| Total n (%) | 48 (100) | 49 (100) | 37 (100) | 90 (100) |

before and 3 days after the onset of menstrual bleeding for three consecutive menstrual cycles could improve the mood and behavioral symptoms of premenstrual syndrome by modulating neurotransmitters and attenuate the physical symptoms of menstruation cycle by inhibiting COX-2 enzyme. Also [*Sharifipour et al .2024*] showed that curcumin consumption immediately before or during menstruation could alleviate the severity of dysmenorrhea. In addition [*Bahrami et al ,2021*] showed that the anti-inflammatory and antioxidant properties of curcumin make it a potential candidate for alleviating physical symptoms of primary dysmenorrhea. In confirmation of the results of the present study [*Karimian et al .2013*] showed that the chamomile like mefenamic acid was effective and pain in the second cycle was more pronounced than in the first cycle. In the line of the currents study [*Dadmehr et al .2023*] opical application of chamomile oil and dry cupping significantly reduced the severity of pain during menstruation and it could be considered as a low-cost modality without side effects for dysmenorrhea.

### *Conclusion*

The results of current study may conclude that chamomile and turmeric pill intervention in comparision with mefnamic acid represent an effective treatment for the menstrual pain with no side effects. The current study showed that chamomile and turmeric intervention has good efficiency for relieving the severity of pain also. Therefore, health care providers should consider of useage of them as treatment for young single students with primary dysmenorrhea. The future studies are recommended to test the feasibility and effectiveness of differ dosage therapy in large segments of population for more explanation.

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