



Conventional Ginger Candy on Premenstrual Syndrome among Adolescent Girls

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Authors' contributions

This work was carried out in collaboration among all authors. Author GB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors SG and MJ managed the analyses of the study. Author SGD managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Premenstrual condition is one of the most well-known issues in ladies at their regenerative age. Premenstrual disorder is a condition that influences the feelings, wellbeing, and conduct during specific days of the feminine cycle before her menses. Almost 80% of ladies report at least one manifestation that doesn't generously influence every day functioning, as per the American Family Doctor. In this aspect the current examination was led with the expectation to decide the impact of regular ginger candy on premenstrual disorder among young ladies.

Methods: Quasi experimental research design was adopted with 60 samples who met the inclusion criteria. Samples were selected by e purposive sampling technique. Pre-test was conducted by using Numerical pain rating scale and HRQoL scale Questionnaire data was collected. Conventional ginger candy was administered to adolescent girls with routine daily diet. Posttest was conducted after 8 weeks with the same tool. Data were analyzed using SPSS. The

Results: The study findings revealed that the severity of Premenstrual pain was reduced compared to before the intervention. HRQoL also improve routine Conventional ginger candy

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supplementation was effective in reducing the Premenstrual syndrome at the level of $p > 0.001$ in the after the post test.

Conclusion: Conventional ginger candy supplementation is cost effective and easily available, thereby finding can relieve premenstrual pain and associated symptoms, and improve the quality of life among adolescent girls.

Keywords: Conventional; ginger candy; premenstrual syndrome adolescent girls.

1. INTRODUCTION

Premenstrual condition is one of the most well-known issues in ladies at their regenerative age. Premenstrual disorder is a condition that influences the feelings, wellbeing, and conduct during specific days of the feminine cycle before her menses [1]. PMS is characterized as the repetitive state of mind and actual indications which is normally in the luteal stage, and it ends in the follicular period of the feminine cycle. There is a high predominance of PMS; about 80% of ladies announced gentle premenstrual side effects, 20%-half detailed moderate indications, and about 5% of the ladies had serious effects [2].

PMS symptoms start five to 11 days before menstruation and typically go away once menstruation begins. PMS is a very common condition. Its symptoms affect more than 90 percent of menstruating women. The cause of PMS is unknown. However, many researchers believe that it's related to a change in both sex hormone and serotonin levels at the beginning of the menstrual cycle. Levels of estrogen and progesterone increase during certain times of the month. An increase in these hormones can cause mood swings, anxiety, and irritability. Ovarian steroids also modulate activity in parts of the brain associated with premenstrual symptoms. Serotonin levels affect mood. Serotonin is a chemical in the brain and gut that affects mood, emotions, and thoughts [3].

The symptoms of PMS are usually mild or moderate. Nearly 80 percent of women report one or more symptom that does not substantially affect daily functioning, according to the journal American Family Physician. 20 to 32 percent of women report moderate to severe symptoms that affect some aspect of life [4]. Three to 8 percent report PMDD. The severity of symptoms can vary by individual and by month. Treatments and lifestyle adjustments can help to reduce or manage the signs and symptoms of premenstrual syndrome. For many women, lifestyle changes like modification of diet, regular

exercise, relaxation, etc. can help relieve PMS symptoms. But depending on the severity of symptoms, doctor may prescribe one or more medications for premenstrual syndrome. The success of medications in relieving symptoms varies among women. Commonly prescribed medications for premenstrual syndrome include: Antidepressants, No steroidal anti-inflammatory drugs (NSAIDs), Diuretics, Hormonal contraceptives. Complementary remedies used to soothe the symptoms of premenstrual syndrome are Vitamin supplements, Calcium, magnesium, vitamin E and vitamin B-6 have all been reported to so the symptoms, but evidence is limited or lacking. New research has confirmed other finding ginger root (*Zingiber officinale*) can relieve premenstrual pain and associated symptoms, without some of the side effects associated with NSAIDs [5].

Traditionally in India, a variety of folk medicines have been used to treat day today minor disorders such as dysmenorrhea, indigestion, nausea. Today ginger remains a component of more than 50% of the traditional herbal remedies and has been used to treat nausea, indigestion, fever and infection [6]. Of the 115 different chemical components found in ginger root, the therapeutic benefits come from gingerols, the oily resin from the root that acts as a potent antioxidant and anti-inflammatory agent [7]. Chewing on a piece of ginger candy can curb pain caused by inflammation, GI distresses, nausea, loss of appetite, motion sickness and other forms of pain. Also, ginger has been used for the treatment of dysmenorrhoeal as a spasmodic, anti-inflammatory and circulatory stimulant [8].

Ginger is commonly used in the herbal medicine and traditionally it used to treat dysmenorrhea. *Zingiber officinale* is the scientific name of the plant. Ginger rhizome is used in traditional medicine. Studies have shown beneficial effects of ginger on vomiting, nausea, motion sickness, arthritis, migraine, headache, and so forth [9]. In addition, studies have shown that the ginger can modulate prostaglandins system. With regard to

the role of prostaglandins in PMS and effect of ginger on modulation of prostaglandins system, the aim of this study was evaluating the effects of ginger on the severity of the PMS symptoms [10].

Hence the investigator felt the need to conduct the study aimed to assess the quality of life and determine the effectiveness of ginger candy on premenstrual syndrome among adolescent girls. The finding of this study would prevent the occurrence of fatigue and poor academic performance with cost effective and improve the quality of life among adolescent girls with premenstrual syndrome.

2. MATERIALS AND METHODS

Quasi experimental one group pretest and post-test design was adopted to conduct the study among adolescent girls with premenstrual syndrome. It was conducted at Kondanchery Village, after obtaining formal permission from the village leader. The samples who included in the study were patients with age group between 12 to 19 years. Sixty adolescent girls with premenstrual syndrome were selected for the study by using a purposive sampling. Demographic variables and clinical variables were collected by using a structured interview questionnaire. Pretest was conducted by using numerical pain rating scale and quality of life is assessed by PMS QOL Scale consists of 20 items on a 5-point Likert scale (from 1 = "strongly agree" to 5 = "strongly disagree") it includes four dimensions like general health, mental health, emotional health, social functioning. The overall PMS on HRQoL score is calculated by taking the mean of the six subscale scores. Higher PMS ON HRQoL scores indicate a higher health related quality of life. Followed by Ginger candy was administered for selected samples one week before menstruation and on the first day of menstruation for each time (morning, afternoon and evening). Post test was conducted for the samples after two consecutive months by using the same scale. Data were analyzed by descriptive and inferential statistics using SPSS statistical package.

3. RESULTS AND DISCUSSION

The present study findings observed that (43.33%) were in the age group of 16-17 years, 31 samples (51.67%) were menarche at the age of 12-13 years, 24 samples (40%) were 25-27 days of menstrual cycle, 27 samples (45%) were

4-6 day softmen strual flow, 12 samples (20%) were >6 days of men strual flow, 46 samples (76.67%) were consuming coffee, 14 (13.33%) were under weight (<18), 51 samples (85%) were normal BMI of (18-24.9), 54 samples (90%) were non-vegetarian, 41 samples (68.33%) were lives in nuclear family.

According to the results of the pre test level of the severity of PMS problems scale, the severity of PMS in most of the participants (71.67%) had severe pain, 9 samples (15%) having moderate pain, in 8 samples (13.33%) having mild pain.

Current findings were supported by a similar study conducted by Bhuvaneshwari K. The study findings revealed that Regarding 10 samples (16.7%), having mild pain, 11 samples (18.33%), 39 samples (65%).

Among 60 samples out of 4 samples (6.67%) have mild pain, 9 samples (15%) have moderate pain and 47 samples (78.33%) have severe pain in pre- test. Among 60 samples out of 45 (75%) have no pain, 11 (18.33%) have mild pain, 4 samples (6.67%) have moderate pain and none of them had severe pain in post-test. Among 60 sample shows the mean score of pain in mild (1.5), moderate (4.89) and severe (8.234) and standard deviation score for mild (0.577), moderate (0.781) and for severe (1.067) in pre test. Among 60 sample shows the mean score of pain for mild (1.363), moderate (4.5) and standard deviation score for mild (0.504), moderate (0.577) in the post test. Comparison of mean score and standard deviation, and paired t value of pre-test and post-test level of pain among adolescent girls with premenstrual syndrome, pre-test score of the mean is 7.28 and standard deviation score is 2.20. The post test score of the mean is 0.55 and standard deviation score is 1.21. The post-test mean score is 0.55 was lower than pre test mean score is 7.28. The mean difference was 6.73 and the paired 't' value was 23.3509, p value is <0.05. The result was extremely significant (S). Table 4 revealing that the intervention is beneficial in reducing the premenstrual pain and improve the quality of life among the adolescent girls. These findings were supported by a similar study conducted by the C. L. Domoney, 2003 study findings revealed that regarding that the pre test mean is 6.28 and standard deviation score is 3.20. The post test mean score is 0.67 was lower than the pre test mean score is 6.28. The mean difference was 5.61 and the paired 't' value was 22.564, p value is <0.05. The result was extremely significant (s).

Table 1. Frequency and percentage distribution to assess the pre-test and post-test pain among adolescent girls

| Severity of PMS pain | No Pain | | Mild | | Moderate | | Severe | |
|----------------------|---------|-----|------|--------|----------|-------|--------|--------|
| | No | % | No | % | No | % | No | % |
| Pre-Test | 0 | 0 | 4 | 6.67% | 9 | 15% | 47 | 78.33% |
| Post-Test | 45 | 75% | 11 | 18.33% | 4 | 6.67% | 0 | 0 |

Table 2. Effectiveness of ginger candy on pre and post test level of pain on premenstrual syndrome among adolescent girls

| Severity of PMS pain | Pre-test | | Post-test | |
|----------------------|----------|--------------------|-----------|--------------------|
| | Mean | Standard deviation | Mean | Standard deviation |
| No Pain | 0 | 0 | 0 | 0 |
| Mild Pain | 1.5 | 0.577 | 1.363 | 0.504 |
| Moderate Pain | 4.89 | 0.781 | 4.5 | 0.577 |
| Severe Pain | 8.234 | 1.067 | 0 | 0 |

Table 3. Comparison pre-test and post-test level of pain among adolescent girls with premenstrual syndrome

| Severity of PMS pain | Mean | Standard deviation | Mean difference | paired 't' test |
|----------------------|------|--------------------|-----------------|-----------------|
| Pre-Test | 7.28 | 2.20 | 6.73 | t=23.3509 |
| Post-Test | 0.55 | 1.21 | | df=59 |
| | | | | P=0.0001 |
| | | | | (S) |

Table 4. Associate between the selected demographic variables with post test level of pain among adolescent girls with pre menstrual syndrome

| S. no | Demographic variables | No pain | | Mild | | Moderate | | Severe | | Chi square |
|-----------|----------------------------------|---------|-------|------|-------|----------|------|--------|---|------------|
| | | No | % | No | % | No | % | No | % | |
| 1. | Age at menarche in years | | | | | | | | | |
| | < 12years | 2 | 3.33 | 0 | 0 | 2 | 3.33 | 0 | 0 | X2=13.832 |
| | 12-13years | 25 | 41.6 | 5 | 8.33 | 1 | 1.67 | 0 | 0 | DF=6 |
| | > 14years | 18 | 30 | 6 | 10 | 1 | 1.67 | 0 | 0 | P=0.0315 |
| | | | | | | | | | | S |
| 2. | Length of menstrual cycle | | | | | | | | | |
| | < 25days | 4 | 6.67 | 0 | 0 | 3 | 5 | 0 | 0 | X2=18.396 |
| | 25-27days | 18 | 30 | 6 | 10 | 0 | 0 | 0 | 0 | DF=9 |
| | 28-30days | 14 | 23.33 | 3 | 5 | 1 | 1.67 | 0 | 0 | P=0.0308 |
| | > 30days | 9 | 15 | 2 | 3.33 | 0 | 0 | 0 | 0 | S |
| 3. | Coffee consumption | | | | | | | | | |
| | Yes | 41 | 68.33 | 4 | 6.67 | 1 | 1.67 | 0 | 0 | X2=21.206 |
| | No | 4 | 6.67 | 7 | 11.67 | 3 | 5 | 0 | 0 | DF=3 |
| | | | | | | | | | | P=0.00009 |
| | | | | | | | | | | S |
| 4. | BMI | | | | | | | | | |
| | Underweight(<18) | 0 | 0 | 7 | 11.67 | 1 | 1.67 | 0 | 0 | X2=46.113 |
| | Normal(18-24.9) | 45 | 75 | 4 | 6.67 | 2 | 3.33 | 0 | 0 | DF=6 |
| | Over weight (30>) | 0 | 0 | 0 | 0 | 1 | 1.67 | 0 | 0 | P=0.0001 |
| | | | | | | | | | | S |

Associate between the selected demographic variables with post test level of pain among adolescent girls with premenstrual syndrome. There was statistically significant age at menarche, length of menstrual cycle, coffee consumption and BMI at ($P < 0.05$) level.

3.1 Discussion

The investigation findings indicated that ginger could altogether lessen the overall score of PMS, seriousness of temperament, and physical and social side effects of the 1st month intercession. As indicated by the accessibility and the wellbeing of ginger, the ginger can be a fitting treatment in diminishing manifestations of premenstrual condition. One of the proposed instruments that lead to premenstrual condition is change in prostaglandin system. Ginger through the restraint of the digestion of cyclooxygenase and lipoxygenase forestalls the creation of prostaglandins. As far as anyone is concerned, this examination is the main report about the impact of ginger on premenstrual disorder.

Rahnama et al. [11] Indicated that the utilization of ginger is powerful in decreasing manifestations of the dysmenorrhea. Primary dysmenorrhea is brought about by over the top creation of prostaglandins from the endometrial tissue, and 80% of instances of dysmenorrhea with prostaglandin inhibitors can be improved. Since some ginger mixes are prostaglandin inhibitors and are successful on dysmenorrhea, so maybe through this system they could be powerful on different issues of the period cycle. A portion of the manifestations of PMS like torment are basic with dysmenorrhea, (for example, spinal pain and stomach pain). In our current examination, ginger was powerful in calming the seriousness of these indications of PMS.

4. CONCLUSION

The discoveries of the current investigation exhibited the probability of the utility of ginger in treating PMS while no particular results have been seen, and utilization of it is related with medical advantages. Ginger is promptly accessible due to its ease and, in this way, can be broadly utilized in the treatment of premenstrual condition. As per expanded tendency in the utilization of regular and natural medication, particularly for individuals who want to utilize substance drugs, with more results, utilization of ginger, with extremely low results, is valuable.

CONSENT AND ETHICAL APPROVAL

The Study was ethically cleared with reference to the 62/04/2019/IEC/SIMATS dated 12h April 2019. The investigators explained about the study and obtained the informed consent from the study participants.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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