A Study to Assess the Effectiveness of Mentha Bar in Reduction of Dysmenorrhea among Adolescent Girls in Selected College, Hyderabad

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Abstract

Background: Dysmenorrhea is characterized by intense uterine discomfort that radiates to the back and legs and occurs during menstruation. In medical interviews, women frequently fail to mention that they suffer from dysmenorrhea. Herbal supplements have been shown to be an exceptionally effective treatment option for menstrual issues. One of the most significant benefits of using herbal remedies is that they provide results for a long time without having any side effects for the consumer. Mint is a soothing plant that can be used without worry despite its invasive nature and propensity to spread. Its most common use includes providing relief from the discomfort associated with indigestion, cramps, menstrual cramps, flatulence, upset stomach, nausea, and vomiting as well as child colic.

Method: Quantitative evaluative research approach and Quasi experimental research design were used. The study was conducted in the Swapna School of Nursing, Chaitanyapuri, Hyderabad, and Vijay Marie College of Nursing Begumpet, Hyderabad. Adolescent girls with dysmenorrhea who were studying in the Swapna School of Nursing, Chaitanyapuri, Hyderabad, and Vijay Marie College of Nursing Begumpet, Hyderabad, were selected as a sample size. Purposive sampling technique was used in this study.

Results: The calculated paired t-test calculated value for experimental group is 5.9 and table value is 2.04 at 0.05% level of significance and 29 degree of freedom; hence, the calculated "t" value is greater than table value, indicating that the null hypothesis (H_0) is rejected and research hypothesis (H_1) is accepted.

Conclusion: The study found that adolescents with dysmenorrhea who experienced major side effects responded favorably to the efficacy and pain reduction of the medication.

Keywords: Effectiveness, Mentha Bar, dysmenorrhea and adolescent girls.

Introduction

The commencement of menarche, which is frequently linked to issues with irregular menstruation, heavy bleeding, and dysmenorrhea of these, is one of the key physiological changes that occurs in adolescent girls. Dysmenorrhea is one of the typical difficulties experienced by many adolescent girls.[1]

The word "dysmenorrhea" originates from the Greek words "dys" meaning "difficulty," "meno" meaning "month," and "rrHeoe" meaning "flow." Integration of the hypothalamus pituitary ovarian axis, a functional uterus, a patent lower genital outflow canal, and a normal genetic karyotype of 46xx is all prerequisites for proper menstruation.

Mint is one of the herbs that can be found growing wild all over the place. It is completely risk-free to use, and it is a fantastic treatment for alleviating symptoms that are associated with

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digestion. It is well known for the medicinal characteristics that it possesses, including those that alleviate symptoms of indigestion, stomach cramps, menstrual cramps, flatulence, upset stomach, nausea, vomiting, and pain associated with colic in children.[2]

In the world, adolescent girls experience dysmenorrhea at rates of 67–90% or higher in those between the ages of 17 and 24. However, it is not reasonable to believe or affirm that dysmenorrhea occurs frequently or generally in Bharat. Moreover, because of dysmenorrhea, adolescent girls' normal lives are disturbed, as is their quality of life. The blood is cleaned and purified by the menthol in mint. It also has an anti-spasmodic impact on the smooth muscles and lessens the cramps and nausea associated with dysmenorrhea. It also has a calming and soothing impact on the uterus.[3]

A medical disease called dysmenorrhea is characterized by excruciating uterine pain during menstruation, which presents as pelvic lower abdomen discomfort radiating to back and legs. Dysmenorrhea, the most common gynecological ailment in females, is frequently underreported in interviews of medicals. It occurs in the general population somewhere between 16.8% and 81% of the time, with rates as high as 90%. Primary dysmenorrhea, in addition to gynecological problems, is a significant issue in terms of public health, occupational health, and family concerns since it negatively affects quality of life and the economy due to frequent absences from work and school.[4]

It has been discovered that using herbal supplements can be quite helpful in the treatment of menstruation difficulties. One of the primary advantages of adopting herbal treatments is that they have a more lasting effect on the patient without causing any side effects.

Mint is a harmless herb that grows such as an invasive plant and relieves stomach disorders. Indigestion, cramps in the stomach, cramps during menstruation, gas, digestive problems, vomiting, nausea, and child discomfort are its main uses.

Mehta Bar is the name given to the powdered form of mint leaves that are harvested from a low-growing plant, dried in the shade, and then ground into a powder. It is recommended that the mixture of 5 g of mint powder, peanuts, jiggery, and coconut powder be formed into a small ball or cube and taken orally twice daily for a total of 7 days (4 days before the onset of menstruation, and 3 days during menstruation).

Objective
The objectives of the study are as follows:
1. To assess the level of dysmenorrhea pain among adolescent girls both in experimental group and control group.
2. To assess the effectiveness of Mentha Bar on reduction of dysmenorrhea among adolescent girls in experimental group.
3. To find the association between the post-test levels of dysmenorrheic pain among adolescent girls with selected demographic variables both in experimental group and control group.

Hypothesis
- H_1: There will be a significant difference between the pretest and post-test level of dysmenorrhea among adolescent girls after administration of Mentha Bar in experimental group
- H_2: There will be a significant association between the pre-test level of dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control groups.

METHODOLOGY
Quantitative evaluative research approach was adopted for this study and quasi-experimental research design was used.

Setting
The study was conducted in the Swapna School of Nursing, Chaitanyapuri, Hyderabad, and Vijay Marie College of Nursing, Begumpet, Hyderabad.

Population
In this study, two populations were described.

Sample
The samples of this research were the adolescent girls with dysmenorrhea who were studying in the Swapna School of Nursing, Chaitanyapuri, Hyderabad, and Vijay Marie College of Nursing, Begumpet, Hyderabad.

Sample size
The sample size was 60 adolescent girls.

Sampling technique
Purposive sampling technique was used in this study.

Data collection procedure
The investigator collected the data at Swapna school of Nursing, Hyderabad, and Vijay Marie College of Nursing, Begumpet, Hyderabad. Prior permission from the authorities was obtained. Sixty undergraduate students are selected as per the mentioned criteria. Checklist was assessed before and after the administration of Mentha Bar. All girls were cooperative and investigator expressed her gratitude for their cooperation.

Preparation of Mentha Bar
Ingredients
1. 5 g of dried mint leaves powder
2. 5–10 g of peanuts
3. 5 g of jaggery
4. 5 g of coconut powder.

It refers to the mint leaves being removed from the plant, desiccated in the shade, and ground into a powder. Take 5 g of mint powder along with the same amount of jiggery, peanuts, and coconut powder, also in the form of small balls or cubes, and administer twice a day for 7 days (4 days before menstruation and continued for 3 days during menstruation).

Table 1: Frequency and percentage distribution of adolescent girls according to-heir age both in experimental and control group (n+n=60)

Demographic variable	Experimental group		Control group	
	F	%	F	%
Age in years				
A) 17–18 years	8	26.7	9	30
B) 19–20 years	8	26.7	9	30
C) 21–22 years	14	46.6	12	40
Educational status				
A) Undergraduates year	8	26.7	8	26.7
B) Undergraduates II year	10	33.3	13	43.3
C) Under graduates III year	12	40	9	30
Religion				
A) Hindu	7	23.3	20	66.6
B) Muslim	0	0	5	16.7
C) Christian	23	76.7	5	16.7
D) Others	0	0	0	0
Dietary habits				
A) Vegetarian	0	0	10	33.3
B) Non-vegetarians	13	43.3	3	10
C) Lacto-ova vegetarians	0	0	3	10
D) Mixed	17	56.7	14	46.7
Family income				
A) 5000/monthly	4	13.3	14	46.7
B) 5000–10,000/monthly	12	40	8	26.6
C) 10,000 20,000/monthly	5	16.7	6	20
D) >20,000/monthly	9	30	2	6.7
Type of family				
A) Single parent family	8	26.7	6	20
B) Nuclear family	19	63.3	13	43.3
C) Joint family	3	10	9	30
D) Extended family	0	0	2	6.7
Area of residence				
A) Urban	21	70	9	30
B) Rural	6	20	16	53.3
C) Semi-urban	3	10	5	16.7
Family history of dysmenorrhea				
A) Yes	20	66.7	13	43.3
B) No	10	33.3	17	56.7
Weight in Kilograms				
A) Below 40 kg	4	13.3	12	40
A) 4 1–5 0 kg	10	33.3	7	23.3
C) Above 50 kg	16	53.4	11	36.7
Type of BMI				
A) Underweight (<18.5)	6	20	14	46.7
B) Average (18.5–24.9)	19	63.3	11	36.6
C) Over weight (>25.00)	5	16.7	2	6.7
D) Obesity (>40)	0	0	3	10
The average cycle of menstruation				
A) 21–25 days	5	16.7	4	13.3
B) 28 days	15	50	12	40
C) 30 days	6	20	11	36.7
D) >35 days	4	13.3	3	10
Number of sanitary Pads/day				
A) 1 pad/day	2	6.7	1	3.3
B) 2 pads/day	12	40	11	36.7
C) 3 pads/day	10	33.3	7	23.3
D) >3 pads/day	6	20	11	36.7
Duration of Bleeding in days				
A) 1–2 days	0	0	4	13.3
B) 3–4 days	19	63.3	16	53.4
C) 5–6 days	11	36.7	9	30
D) >7 days	0	0	1	3.3
Nature of Bleeding				
A) Scanty	0	0	0	0
b) Low	5	16.7	5	16.7
c) Moderate	20	66.7	13	43.3
D) Heavy	5	16.6	12	40

(Contd...)

Table 1: *(Continued)*

Demographic variable	Experimental group		Control group	
	F	%	F	%
Characteristics of bleeding				
A) Only blood	15	50	17	56.7
B) Blood with clots	15	50	13	43.3
Regularity of cycle				
A) Yes, often monthly	24	80	25	83.3
B) Alternative months	6	20	03	10
C) Quarterly	0	0	0	0
D) Irregular 4–6 times a year	0	0	2	6.7
Pain during menstrual cycle started at				
A) From the first menstrual cycle	16	53.3	8	26.7
B) After a half year of the menstrual cycle	3	10	4	13.3
C) After a year of menstrual cycle	5	16.7	10	33.3
D) Recently	6	20	8	26.7
Pain characteristics				
A) Twisting	11	36.7	11	36.7
B) Stinging	1	3.3	7	23.3
C) Sharp	3	10	5	16.7
D) Combination of above any two or more characteristics	15	50	7	23.3
Initiation of pain				
A) One day before menstruation to end	6	20	8	26.7
B) Onset of menstruation (i.e.) on day one	8	26.7	14	46.6
C) 12–72 h	7	23.3	6	20
D) Throughout the menstruation	9	30	2	6.7
Measures taken to relieve pain				
A) Home measures such as hot milk and ginger tea.	3	10	10	33.3
B) Hot application and massages	6	20	8	26.7
C) No measures and only bed rest	19	63.3	8	26.7
D) Drug intervention	2	6.7	4	13.3

BMI: Body mass index

Results

Table 1 explains the frequency and percentage distribution of adolescent girls according to-heir age both in experimental and control group.

Table 2 explains that in pre-test, 53.3% (16) of the samples had above average pain, 46.7 % (14) of the samples had average, and followed by none of the samples had below average pain levels.

Similarly, in post-test, 56.7 %(17) of the samples belongs to average, followed by 33.3% (10) of the samples were in below average and only 3% (10) of the samples had above average pain levels.

Table 3 shows that it explains that in control group pre-test, 50 % (15) of the samples belongs to average, 40 % (12) of the samples belongs to above average, followed by 10% (3) of the samples were in below average pain level category.

Similarly, it states that in post-test, 60% (18) of the samples had average, 26.7% (08) of the samples had above average and only 13.3% (4) of the samples had below average pain levels, respectively, it indicates that in control group, there is more pain variation.

Table 4 gives data that in experimental group pre-test, the mean value was 8.16 and standard deviation was 1.98, where as in post-test, mean was 5.56 and calculated SD was 1.53.

Table 2: Frequency and percentage distribution of adolescent girls according to pre-test and post-test pain scores in experimental group (n+n=60)

Experimental group	Pre test		Post test	
	F	%	F	%
Below average	0	0	10	33.3
Average	14	46.7	17	56.7
Above average	16	53.3	3	10
Total	30	100	30	100

Table 3: Frequency and percentage distribution of adolescent girls according to pre-test and post-test pain values in control group (n+n=60)

Control group	Pre-test		Post-test	
	F	%	F	%
Below average	3	10	4	13.3
Average	15	50	18	60
Above average	12	40	8	26.7
Total	30	100	30	100

Table also depicts that in control group, the pre-test mean was 7.26 and SD was 2.27 and where as in post-test, mean was 6.56 and SD calculated was 2.01.

Table 5 shows that the calculated paired t test calculated value for experimental group is 5.9 and the table value is 2.04 at 0.05% level of significance and 29 degree of freedom;

hence, the calculated "t" test value is greater than table value, indicating that the null hypothesis (H_0) is rejected and research hypothesis (H_1) is accepted.

Table 6 shows that the calculated paired t test calculated value for control group is 1.27 and the table value is 2.04 at 0.05% level of significance and 29 degree of freedom; hence, the calculated "t" test value is less than table value, indicating that the null hypothesis (H_0) is accepted and research hypothesis (H_1) is rejected.

Table 7 shows that the calculated unpaired t test (post-test scores) calculated value for both the groups is 2.27 and the table value is 1.67 at 0.05% level of significance and 58 degree of freedom; hence, the calculated unpaired "t" test value is greater than table value, indicating that the null hypothesis (H_0) is rejected and research hypothesis (H_1) is accepted.

Table 8 explains that in experimental group, the calculated Chi-square values for age (7.73), education (4.97), religion (2.99), family income (13.69), type of family (2.87), area of living (10.14), and H/O dysmenorrhea was (2.44). It indicates that in all demographic variables, Chi-square values are more than table value 2.45, 2.26, at degree of freedom 6, 9. Hence, there is a significance between any variables except for H/O dysmenorrhea (2.44) and dietary habits (1.48), there is no significance between these variables, the Chi-square calculated values are less than tabular values at degree of freedom (3.18) at degree of freedom 3, and (2.26) at 9 degree of freedom under significance level of 0.05, respectively.

Table 4: Mean and standard deviation of adolescent girls in experimental and control group according to the pre-test and post-test scores (n+n=60)

Test	N	Mean	Standard deviation
Experimental group			
Pre-testt	30	8.16	1.98
Post-test	30	5.56	1.53
Control group			
Pre-test	30	7.26	2.27
Post-test	30	6.56	2.01

Table 5: "t" value showing significant difference between pre-test and post-test scores of undergraduate students in experimental group

Experimental group	Sample	Mean	SD	Paired t test (calculated value)	df	paired t test (table value)
Pre-test	30	8.16	1.98	5.9 S*	29	2.04
Post-test	30	5.56	1.53			

*S: Significant, SD: Standard deviation, df: Degree of freedom

Table 6: "t" value showing significant difference between pre-test and post-test scores of undergraduate students in control group

Experimental group	Sample	Mean	S. D	Paired t test (calculated value)	Df	paired t test (table value)
Pre-test	30	7.26	2.27	1.27 NS*	29	2.04
Post-test	30	6.56	2.01			

*NS: Not significant, SD: Standard deviation

Table 7: Unpaired "t" value showing significant difference between post-test scores of undergraduate students in experimental and control group

Groups	Sample	Mean	SD	Unpaired t test (calculated value)	df	Unpaired t test (table value)
Experimental group	30	5.56	1.53	2.27 S*	58	1.67
Control group	30	6.56	2.01			

*S: Significant, SD: Standard deviation, df: Degree of freedom

Table 8: The association between the post-test scores in both experimental group and control group with their selected demographic variables

	Experimental group					Control group				
S. No.	Demographic variables	Chi square	df	Table value	Significance	Demographic variables	Chi square	df	Table value	Significance
1	Age	7.73	6	2.45	S*	Age	2.37	6	2.45	NS
2	Education	4.97	6	2.45	S*	Education	1.58	6	2.45	NS
3	Religion	2.99	9	2.26	S*	Religion	16.49	9	2.26	S*
4	Dietary habits	1.48	9	2.26	Ns	Dietary habits	10.76	9	2.26	S*
5	Family income	13.69	9	2.26	S*	Family income	7.86	9	2.26	S*
6	Type of family	2.87	9	2.26	S*	Type of family	6.73	9	2.26	S*
7	Area of living	10.14	6	2.45	S*	Area of living	6.37	6	2.45	S*
8	H/o dysmenorrhea	2.44	3	3.18	Ns	H/o dysmenorrhea	0.66	3	3.18	NS

*S: Significant, df: Degree of freedom, NS: Not significant

In control group, the calculated Chi-square values for age (2.37), education (1.58), religion (16.49), dietary habits (10.76), family income (7.86), type of family (6.73), area of living (6.37), and H/O dysmenorrhea was (0.66). It indicates that in all demographic variables, Chi-square values are greater than table value 2.45, 2.26 at degree of freedom 6, 9, and 3. Hence, there is a significance between religion, dietary habits, family income, type of family, area of living except in age, education, and H/O dysmenorrhea, there is no significance because the calculated values are less than tabular values, that is, 2.24,3, at degree of freedom 6 and 3.

Table 9 shows that it explains that adolescent girls of experimental group in pre- test (53.3%) 16 of the samples belongs to Grade-3 severe (8–12) and followed by 46.7 %(14) of the samples belongs to Grade-2 moderate and none of the samples belong to Grade-1 (1–4).

It also explains that adolescent girls of experimental group in post- test 56.7% (17) of the samples belongs to Grade-2 moderate (5–7) followed by 33.3% (10) of the samples were under Grade 1 mild (1–4) and followed by (10%) 3 of the samples belongs to Grade-3 severe (8–12), respectively.

Table 10 explains that in adolescent girls of control group in pre-test, 50% (15) of the samples were Grade-2 moderate (5–7), followed by and 40% (12) of the samples belongs to Grade-3 severe (8–12), 10% (3) of the samples were Grade 1 mild (1–4).

It also explains that in post-test, 60% (18) of the samples were Grade-2 moderate (5–7), followed by 26.7% (8) of the samples belongs to Grade-3 severe (8–12), 13.3% (4) of the samples were Grade 1 mild (1–4), respectively.

Table 9: Frequency and percentage distribution of adolescent girls according to the pain level/grades of dysmenorrhea in experimental group (n+n=60)

Level of pain/grades dysmenorrhea	Pre-test scores frequency	%	Post-test scores frequency	%
Grade-1 mild (1–4)	0	0	10	33.3
Grade-2 moderate (5–7)	14	46.7	17	56.7
Grade-3 severe (8–12)	16	53.3	3	10
Total	30	100	30	100

Table 10: Frequency and percentage distribution of adolescent girls according to the pain level/grades of dysmenorrhea in control group (n+n=60)

Level of pain/grades dysmenorrhea	Pre-test scores frequency	%	Post-test scores frequency	%
Grade-1 mild (1–4)	3	10	4	13.3
Grade-2 moderate (5–7)	15	50	18	60
Grade-3 severe (8–12)	12	40	8	26.7
Total	30	100	30	100

DISCUSSION

A cross-sectional study on Ethiopian university students' dysmenorrhea and academic performance. A cross-sectional institution-based study was conducted April 1–28, 2019. Semi-structured and pretested self-administered questionnaires collected data. Binary logistic regression and one-way analysis of variance simulated dysmenorrhea and academic achievement. Ethiopia (2019: 647 female university students) hosts. The study's main outcome is dysmenorrhea and unpleasant menstruation that requires medication. Students' self-reported cumulative grade point average, a proxy for academic accomplishment, was the secondary outcome.[5]

About 79% of women reported having dysmenorrhea, of which 3% had severe, 18% moderate, and 58% mild symptoms. Out of 79/100 individuals with dysmenorrhea, 63.29% missed specific classes or had their studies impaired, 31.64% had to take time off work, and 51.89% experienced social withdrawal when having their periods as a result of the condition. About 7.59% of people use painkillers. Girls frequently experience dysmenorrhea, which has an impact on both their quality of life and their productivity at work. To prevent unnecessary suffering that results in absenteeism from work and school, it is crucial to raise knowledge about the causes and treatments of dysmenorrhea.[6]

In the middle ages, doctors prescribed mint to treat a wide range of ailments and aches. Dedeçay claimed that mint has energizing effects on the neurological and cardiovascular systems. Different outcomes were observed in other research looking into the analgesic qualities of mint, and it was discovered that a variety of mints were efficient in relieving muscle pains. Given that a significant, if modest, decrease was observed in both the mint and placebo conditions compared to the control, the outcomes of the present study regarding muscle discomfort are unclear.[7]

Mint's main active constituent, menthol, has many hypothesized mechanisms, most of which underline its analgesic effects due to a group of transitory protein receptors. This trial compares peppermint tablet, mefenamic acid, and placebo for primary dysmenorrhea. Mefenamic acid and mint reduced pain severity and duration ($P = 0.05$). Mefenamic acid tablet users bled significantly less than peppermint extract users ($P = 0.05$). Mint caused less nausea and diarrhea than mefenamic acid. Mefenamic acid used fewer analgesics than peppermint ($P = 0.05$). Peppermint extract increased pain and other clinical signs and symptoms, but not bleeding. Mint is recommended for dysmenorrhea since natural remedies have fewer negative effects than pharmaceuticals.[8].

Most childbearing women have primary dysmenorrhea. Treatment is important because it influences quality of life and social interaction. Non-drug therapy for primary dysmenorrhea is vital to women's lives. Primary dysmenorrhea patients donot need painkillers. First, English databases were searched for

all studies ($n = 5462$) using the keywords "treatment, therapy, painful menstruation, and primary dysmenorrhea" from 2010 to April 2019. 2101 non-drug primary dysmenorrhea publications followed. Twelve non-drug primary dysmenorrhea studies met the inclusion/exclusion criteria. Acupuncture, heat, psychotherapy, massage, hypnosis, physiotherapy, and transcutaneous electrical nerve stimulation were employed. Non-drug primary dysmenorrhea therapy needed English articles. All text must be original and free followed PRISMA. The study's goals, non-drug therapy, incidence, and primary dysmenorrhea causes were recorded. Women's health requires non-drug primary dysmenorrhea therapies. Primary dysmenorrhea patients should prefer non-drug therapy. All strategies reduced primary dysmenorrhea symptoms in this trial.[9]

CONCLUSION

According to the study's findings, adolescent females who had significant side effects from dysmenorrhea responded favorably to the treatment's effectiveness and pain relief.

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CONFLICTS OF INTEREST

Nothing Such.

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