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THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON DYSMENORRHEA AMONG ADOLESCENT GIRLS IN SELECTED HOSTELS MANGALURU

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ABSTRACT

Background: Dysmenorrhea, or painful menstruation, is a common gynaecological condition that affects a significant proportion of adolescent girls. Dysmenorrhea can be categorized into two types: primary and secondary. Primary dysmenorrhea occurs without an underlying pathology and is typically associated with the onset of ovulatory cycles. Secondary dysmenorrhea, on the other hand, is linked to identifiable medical conditions such as endometriosis or fibroids. Despite its widespread occurrence, the management of dysmenorrhea remains a challenge, with many adolescents relying on pharmacological treatments such as nonsteroidal anti-inflammatory drugs (NSAIDs) or hormonal contraceptives. **Aim of the study:** The aim of the study was to assess the effectiveness of foot reflexology on dysmenorrhea among adolescent's girls in selected hostels, Mangaluru. **Objectives of the study:** To assess the level of Dysmenorrhea among adolescent girls in the experimental and control group, To evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in experimental group and control group, To find the association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control group. **Methods:** An experimental approach with quasi experimental time series design was used. The study was conducted at different hostels of Mangaluru. The sample comprised of 80 students. The sample was selected using purposive sampling technique and randomly assigned to experimental and control group. Data collection was done from 01.03.2024 to 31.03.2024. Formal written permission was obtained from the hostel authorities. Data was collected by using standardized pain rating scale. Data was analysed using descriptive and inferential statistics. **Results:** The repeated measures ANOVA was conducted to evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in the experimental group compared to the control group. The F-value is 820.815 with degrees of freedom (d.f.) 15 and 585. The p-value is 0.000, which is highly significant (HS). indicate that the reduction in pain scores over time is statistically significant. A post hoc analysis of effectiveness over multiple days, comparing mean differences of pre- and post-measurements was done on control group. Several comparisons show no significant differences in mean values (Bonferroni $p > 0.05$), meaning there were no substantial changes from pre- to post-measurements for these cases. comparing to experimental group who received daily two cycles of foot reflexology the effects in control group is very poor. This shows that foot reflexology was very effective in reducing dysmenorrhea among the experimental group. **Interpretation and conclusion:** The findings of the study support that foot reflexology was effective method to reduce dysmenorrhea among adolescents. So, foot reflexology can be used as an effective alternative method in dysmenorrhea.

Keywords: Effectiveness, foot reflexology, dysmenorrhea, adolescents.

INTRODUCTION: The stage of life known as puberty is when the reproductive organs have a significant growth spurt and reach maturity. The period of development known as puberty is when a girl progressively develops from a close-bud into a fully blossoming flower of feminine beauty. Everything takes place during adolescence.

Menarche is one of the most significant physiological changes that occur in adolescent girls. [1.] For all women, the menstrual cycle is a normal and natural physiological function. After 28 days of puberty, it is monthly uterine bleeding lasting three to five days, till menopause. It is frequently linked to issues with irregular menstruation, heavy bleeding, and dysmenorrhea.[2] Adolescence is a stage between childhood and adulthood. Around age 11 or 12, secondary sexual characteristics start to gradually emerge throughout this time, and by the time it's 18 or 20 years old, bodily growth has stopped.[3.] With 253 million adolescents, India has the highest percentage of adolescents worldwide—between the ages of 10 and 19. If this enormous population of teenagers is secure, healthy, educated, and equipped with knowledge and life skills to support the nation's future development, India stands to gain socially, politically, and economically.[4] The crucial time for many biological, emotional, and social transformations occurs throughout adolescence. In order to reach physical maturity, young people go through a lot of physical changes during this time. One of these transitional periods in an adolescent's life is menarche. Menstruation is frequently accompanied by a number of unsettling mild to serious health problems, such as dysmenorrhea, irregular periods, nausea, vomiting, irritability, etc.[5.] A severe, painful cramping sensation in the lower abdomen that is frequently accompanied by additional symptoms including sweating, headaches, nausea, vomiting, diarrhoea, and tremulousness, all of which occur soon before or during the menses, is known as dysmenorrhea, or painful menstruation. Two varieties of dysmenorrhea exist: When a woman is 20 years of age or younger and her ovulatory cycles become established, she almost usually experiences her first episode of primary dysmenorrhea, which is defined as pain without any evident pathological pelvic disease. [6]Secondary dysmenorrhea is more common in women beyond the age of 20, and it is brought on by underlying pelvic problems or pathology. [6,7] In underdeveloped nations, dysmenorrhea is the most prevalent symptom of all menstrual complaints and has the highest disease burden of any gynaecological issue.[8] A new comprehensive analysis of global research on persistent pelvic pain indicates dysmenorrhea prevalence, which ranges from 17% to 80%.[9] A number of additional characteristics, including body mass index (BMI), smoking, early menarche, prolonged menstrual flow, and psychological disorders, have also been linked in prevalence studies to dysmenorrhea. [10] George and Bhaduri observed that the prevalence of dysmenorrhea among adolescent girls in India was 33.5%. With a prevalence of 87.7%, they discovered that dysmenorrhea was a prevalent issue in India. [11] Numerous teenagers claim that dysmenorrhea gets in the way of their regular activities, including going to school, playing sports, and hanging out with friends. But only 15% of women seek

medical attention for menstrual discomfort, indicating that some cases can be easily treated at home or are mild, but also emphasizing the need to screen all teenage girls for dysmenorrhea.[12]

The objectives of the study are:

1. To assess the level of Dysmenorrhea among adolescent girls in the experimental and control group.
2. To evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in experimental group and control group.
3. To find the association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control group.

Assumptions:

The study assumes that:

1. Dysmenorrhoea patients experience pain, and it will affect the student's day to day activities.
2. They need alternative therapy for relief of pain.
3. Foot Reflexology helps to reduce pain during menstruation.
4. After the practice of Foot Reflexology, they feel relief of pain.

Hypothesis

The Hypothesis will be tested at 0.05 level of significance.

H_1: There will be significant difference between pre test scores and post test scores of dysmenorrhoea among adolescent girls in experimental and control group.

H_2: There will be significant difference between pre test scores and post test scores of dysmenorrhoea among adolescent girls between experimental and control group.

H_3: There will be a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables in experimental group.

H_4: There is a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables in control group.

RESEARCH METHODOLOGY

Research Approach: An evaluative research approach was adopted in this study to determine the effectiveness of foot reflexology on dysmenorrhea among adolescent girls in the selected hostels of Mangaluru.

Research design: A quasi-experimental time series with multiple institution of treatment which includes manipulation and control is adopted for this study. In this study the subjects were conveniently assigned to the treatment condition and the researcher manipulated the independent variable to see its effects on the dependent variable.

E= Experimental Group

C= Control Group

$O_{E1}, O_{E3}, O_{E5}, O_{E7}$, -------Assessment of pre-test level of dysmenorrhea among adolescent group in experimental group using Numerical Pain Rating Scale.

O_{C1}, O_{C3}, O_{C5} O_{C7}, -------- Assessment of pre-test level of dysmenorrhea among adolescent group in control group using Numerical Pain Rating Scale.

$X_{M, A}$ = Administration of foot reflexology in the morning and afternoon for 20 minutes in a day for four days.

O_{E2}, O_{E4}, O_{E6}, O_{E8} -------- Assessment of post-test level of dysmenorrhea among adolescent group in experimental group using same Numerical Pain Rating Scale.

O_{C2}, O_{C4}, O_{C6}, O_{E8}--------- Assessment of post-test level of dysmenorrhea among adolescent group in control group using same Numerical Pain Rating Scale.

Group	Day1	Day2	Day3	Day 4
E	O_{E1} $X_{M,A}$ O_{E2}	O_{E1} $X_{M,A}$ O_{E2}	O_{E1} $X_{M,A}$ O_{E2}	O_{E1} $X_{M,A}$ O_{E2}
C	O_{C1} O_{C2}	O_{C1} O_{C2}	O_{C1} O_{C2}	O_{C1} O_{C2}

Setting of the study: The study was conducted in selected hostels in Mangaluru. The selected hostels have the total student strength of 247.

Population and Sampling Technique

Population for the study was adolescent girls studying in selected hostels of Mangaluru who were experiencing dysmenorrhea.

Sample: In this study sample comprised of 80 adolescent girls in the age group 12-19 years with dysmenorrhea. 40 students in experimental group and 40 students in control group studying in selected hostels in Mangaluru those who met the inclusion criteria.

Sampling technique : The samples of the present study were selected by purposive sampling technique as per the inclusion criteria. With the help of baseline Proforma and standardized pain rating scale the adolescents who had moderate and severe dysmenorrhea were selected as the samples for the study. According to the convenience they were divided into experimental and control group.

Plan for data analysis

Analysis is a process whereby data is carefully edited, systematically classified, tabulated, scientifically analysed, intellectually interpreted and rationally concluded.

Data analysis was planned based on objectives and hypothesis stated in the study by using descriptive and inferential statistics.

The steps for analysis

It was decided to analyse the data by both descriptive and inferential statistics. To compute the data a master sheet was prepared by the investigator.

1. Descriptive statistics:

- Frequency and percentage distribution was used to analyse the baseline variables.
- Mean, median and standard deviation was used to analyse the level of dysmenorrhea in experimental and control group.

2. Inferential statistics:

- Repeated measure ANOVA test and ‘t’ test will be used to assess the effectiveness of foot reflexology on dysmenorrhea among experimental and control group.
- Chi-square test will be used to determine the association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control group.
- Analysed data will be interpreted by means of figures and graphs.

RESULTS:

ORGANIZATION OF THE FINDINGS:

The findings of the study were organised and presented under the following headings.

- **SECTION 1:** Distribution of samples based on demographic variables.
- **SECTION 2:** The level of Dysmenorrhea among adolescent girls in the experimental and control group.
- **SECTION 3:** To evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in experimental and control group.
- **SECTION 4:** To evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls between the experimental and control group.
- **SECTION 5:** To find the association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental control group.
- **SECTION 1**: **Distribution of samples based on demographic variables.**
- This section deals with data pertaining to the demographic profile of the adolescent girls in terms of frequency and percentage.
- **Table 1**: **Frequency and percentage distribution of demographic variables of samples in experimental and control group.**
- **N=40+40**

Demographic variables		Experimental		Control	
Age	14-15	21	52.5%	19	47.5%
	16-17	19	47.5%	21	52.5%
Age at menarche	10-11	17	42.5%	15	37.5%
	12-14	23	57.5%	25	62.5%
Duration of menstruation	4 to 5 days	10	25.0%	10	25.0%
	5 to 6 days	20	50.0%	15	37.5%
	6 to 7 days	10	25.0%	15	37.5%
Menstruation Regular?	Yes	40	100.0%	40	100.0%
Experience of pain	Yes	40	100.0%	40	100.0%
Taking medication	Never	28	70.0%	27	67.5%
	Sometimes	7	17.5%	9	22.5%
	Always	5	12.5%	4	10.0%
Frequency of Dysmenorrhea/months	2-4	4	10.0%	6	15.0%
	4-6	13	32.5%	12	30.0%
	6-8	12	30.0%	12	30.0%
	Above 8	11	27.5%	10	25.0%

The table presents data on various menstrual health parameters for two groups, Experimental and Control, each with 40 participants. In 14 - 15 years there are 52.5% in the Experimental group and 47.5% in the Control group and among 16 – 17 years 47.5% in the Experimental group and 52.5% in the Control group. There is equal distribution across both age groups ensuring age balance (50% each). The majority of the participants had menarche between 12 - 14 years, that is 57.5% in the Experimental group and 62.5% in the Control group. Days of menstruation- 4 to 5 days: 25.0% in both groups. 5 to 6 days: 50.0% in the Experimental group and 37.5% in the Control group. 6 to 7 days: 25.0% in the Experimental group and 37.5% in the Control group. More variation, with the most common duration being 5 to 6 days overall (43.8%). The participants reported regular menstruation that is 100% in both groups and all the participants experienced menstrual pain.

About 70.0% in the Experimental group and 67.5% in the Control group had never taken medication. 17.5% in the Experimental group and 22.5% in the Control group were taking the medicines sometimes and only 12.5% in the Experimental group and 10.0% in the Control group were taking medicines always. Frequency of Dysmenorrhea/months shows, 2 to 4 times: 10.0% in the Experimental group and 15.0% in the Control group. 4 to 6 times: 32.5% in the Experimental group and 30.0% in the Control group. 6 to 8 times: 30.0% in both groups. Above 8 times: 27.5% in the Experimental group and 25.0% in the Control group. Distribution is fairly even across frequencies, with slightly more reporting 4 to 6 times per month overall (31.3%).

Both the Experimental and Control groups have balanced distributions regarding age, age at menarche, menstruation regularity, pain experience, and medication usage. There are slight variations in the duration of menstruation and frequency of dysmenorrhea, but these differences are not substantial. This balance suggests that any differences in outcomes between the groups can likely be attributed to the experimental intervention rather than demographic discrepancies.

- **Section 2: The level of Dysmenorrhea among adolescent girls in the experimental and control group.**
- **Table 2: Mean, Median and Standard deviation in the Experimental group**

Group: Experimental						
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Median**
Day1_M_Pre	40	5	9	7.30	1.381	8.00
Day1_M_Post	40	5	9	7.15	1.350	7.00
Day1_E_Pre	40	4	10	7.58	1.517	8.00
Day1_E_Post	40	4	9	6.80	1.381	7.00
Day2_M_Pre	40	4	9	6.80	1.436	7.00
Day2_M_Post	40	3	8	5.98	1.405	6.00
Day2_E_Pre	40	3	8	5.88	1.362	6.00
Day2_E_Post	40	2	7	4.93	1.289	5.00
Day3_M_Pre	40	2	7	4.95	1.260	5.00
Day3_M_Post	40	2	6	4.18	1.259	4.00

Day3_E_Pre	40	2	6	4.13	1.285	4.00
Day3_E_Post	40	1	5	3.23	1.230	3.50
Day4_M_Pre	40	1	5	3.18	1.217	3.00
Day4_M_Post	40	1	4	2.48	1.037	3.00
Day4_E_Pre	40	0	4	2.03	1.165	2.00
Day4_E_Post	40	0	3	1.20	.992	1.00

Data in the table 2 provides a comprehensive set of descriptive statistics (mean, median, and standard deviation) for the experimental group over a period of four days, with measurements taken at multiple points (pre and post each day) for both morning (M) and evening (E) sessions.

- On the day one morning Pre -test mean and SD 7.30 ± 1.381. Post-test mean and SD 7.15± 1.350. On the day one evening Pre -test mean and SD 7.5 ± 1.517. On the day one evening Post-test mean and SD 6.80 ±1.381.
- On the day two morning Pre -test mean and SD 6.80 ± 1.436. Post-test mean and SD 5.98 ± 1.405. On the day two evening Pre -test mean and SD 5.88 ±. 1.362. On the day two evening Post-test mean and SD 4.93 ±. 1.289
- On the day three morning Pre -test mean and SD 4.95 ± 1.260. Post-test mean and SD 4.18 ± 1.259. On the day three evening Pre -test mean and SD 4.13 ±. 1.285. On the day three evening Post-test mean and SD 3.23 ±. 1.230.
- On the day four morning Pre -test mean and SD 3.18 ± 1.217. Post-test mean and SD 2.48 ± 1.037. On the day four evening Pre -test mean and SD 2.03 ±. 1.165. On the day four evening Post-test mean and SD 1.20 ±. .992.
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Table 3: Mean, Median and Standard deviation in the Control group

Group: Control						
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Median**
Day1_M_Pre	40	5	9	7.48	1.320	8.00
Day1_M_Post	40	5	9	7.48	1.320	8.00
Day1_E_Pre	40	5	9	7.80	1.224	8.00
Day1_E_Post	40	5	9	7.78	1.230	8.00
Day2_M_Pre	40	5	10	7.68	1.289	8.00
Day2_M_Post	40	5	10	7.68	1.289	8.00
Day2_E_Pre	40	5	9	7.30	1.159	8.00
Day2_E_Post	40	5	9	7.30	1.159	8.00
Day3_M_Pre	40	4	8	6.68	1.095	7.00
Day3_M_Post	40	4	8	6.68	1.095	7.00
Day3_E_Pre	40	4	7	5.83	.958	6.00

Day3_E_Post	40	4	7	5.80	.966	6.00
Day4_M_Pre	40	3	7	5.08	.971	5.00
Day4_M_Post	40	3	7	5.08	.971	5.00
Day4_E_Pre	40	2	6	4.15	.975	4.00
Day4_E_Post	40	2	6	4.15	.975	4.00

The data presented in table provides statistical measures for a control group across different days and times. These measures include the mean, median, and standard deviation for pre- and post-intervention assessments. For each day and time (morning and evening), the mean, median, and standard deviation values are identical for both pre- and post-measures. This suggests that there was no change observed between the pre- and post-intervention measurements within the control group. On day 1 Mean and median values start relatively high (around 7.48 to 7.80). On day 2 Mean and median values are still relatively high but show slight variations (7.30 to 7.68). On day 3 there is a noticeable decrease in mean and median values (6.68 to 5.83). Finally on day 4 the lowest values are observed on this day (5.08 to 4.15). The standard deviation values are relatively consistent for each set of measurements, indicating that the variability of the scores around the mean is stable. The standard deviations are also quite similar between pre- and post-measures. The lack of difference between pre- and post-measurements in the control group suggests that there was no effect from any intervention or external factor over the days. The scores either remained stable or decreased over time, particularly from Day 3 onward. The gradual decline in mean and median scores from Day 1 to Day 4 might indicate a time-based or situational decline in whatever is being measured, which could be due to factors such as fatigue, diminishing interest, or a learning curve if this is related to a task.

Table 4: Pretest score of level of dysmenorrhea among Experimental group and control group

		Group			
		Experimental		Control	
		Count	Column N %	Count	Column N %
Day1_M_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	0	0.0%	0	0.0%
	Moderate (4 - 6)	12	30.0%	9	22.5%
	Severe (7-10)	28	70.0%	31	77.5%
Day1_E_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	0	0.0%	0	0.0%
	Moderate (4 - 6)	11	27.5%	7	17.5%
	Severe (7-10)	29	72.5%	33	82.5%
Day2_M_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	0	0.0%	0	0.0%
	Moderate (4 - 6)	13	32.5%	9	22.5%
	Severe (7-10)	27	67.5%	31	77.5%
Day2_E_Pre	None	0	0.0%	0	0.0%

	Mild (1-3)	2	5.0%	0	0.0%
	Moderate (4 - 6)	21	52.5%	11	27.5%
	Severe (7-10)	17	42.5%	29	72.5%
Day3_M_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	7	17.5%	0	0.0%
	Moderate (4 - 6)	31	77.5%	13	32.5%
	Severe (7-10)	2	5.0%	27	67.5%
Day3_E_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	11	27.5%	0	0.0%
	Moderate (4 - 6)	29	72.5%	30	75.0%
	Severe (7-10)	0	0.0%	10	25.0%
Day4_M_Pre	None	0	0.0%	0	0.0%
	Mild (1-3)	22	55.0%	3	7.5%
	Moderate (4 - 6)	18	45.0%	36	90.0%
	Severe (7-10)	0	0.0%	1	2.5%
Day4_E_Pre	None	5	12.5%	0	0.0%
	Mild (1-3)	31	77.5%	10	25.0%
	Moderate (4 - 6)	4	10.0%	30	75.0%
	Severe (7-10)	0	0.0%	0	0.0%

The pretest scores for the level of dysmenorrhea among the experimental and control groups are presented for multiple days. On day 1 morning in experimental group 30.0% had moderate pain and 70.0% had severe pain. In control group 22.5% had moderate pain and 77.5% had severe pain. Both groups have a high percentage of participants with severe dysmenorrhea, with the control group having a slightly higher percentage. On second day in experimental group 32.5% moderate pain and 67.5% had severe pain. In control group 22.5% had moderate pain and 77.5% had severe pain. Both groups continue to exhibit high levels of severe dysmenorrhea, with the control group showing a higher percentage. On second day evening the experimental group shows a higher percentage of moderate cases, while the control group shows a higher percentage of severe cases. On day three morning in experimental group 17.5% had mild pain 77.5% had moderate pain and only 5.0% had severe pain. In control group 32.5% had moderate pain and 67.5% had severe pain.The experimental group has a higher percentage of moderate cases, while the control group has more severe cases. 0n day three evening both groups have high percentages of moderate cases, but the control group still has a notable percentage of severe cases. On day four morning in experimental group 55.0% had mild pain 45.0% had moderate pain. In control group 7.5% had mild pain 90.0% had moderate pain and still 2.5% had severe pain.The experimental group shows a higher percentage of mild and moderate cases, while the control group has a high percentage of moderate cases. On day four evening the experimental group shows a significant reduction in severe cases, with most participants reporting mild dysmenorrhea. The control group has higher percentages of moderate cases. Overall, both groups experience a high level of dysmenorrhea severity initially, with some variation in the levels of severity across days. The experimental group shows a more significant reduction in severe dysmenorrhea, especially towards the end of the pretest period. This suggests that the intervention in the experimental group might be effective in reducing the severity of dysmenorrhea over time.

Table 5: Post-test score of level of dysmenorrhea among experimental and control group.

		Group			
		Experimental		Control	
		f	N %	f	N %
Day1_M_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	0	0.0%	0	0.0%
	Moderate (4 - 6)	13	32.5%	9	22.5%
	Severe (7-10)	27	67.5%	31	77.5%
Day1_E_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	0	0.0%	0	0.0%
	Moderate (4 - 6)	13	32.5%	7	17.5%
	Severe (7-10)	27	67.5%	33	82.5%
Day2_M_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	2	5.0%	0	0.0%
	Moderate (4 - 6)	20	50.0%	9	22.5%
	Severe (7-10)	18	45.0%	31	77.5%
Day2_E_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	8	20.0%	0	0.0%
	Moderate (4 - 6)	30	75.0%	11	27.5%
	Severe (7-10)	2	5.0%	29	72.5%
Day3_M_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	11	27.5%	0	0.0%
	Moderate (4 - 6)	29	72.5%	13	32.5%
	Severe (7-10)	0	0.0%	27	67.5%
Day3_E_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	20	50.0%	0	0.0%
	Moderate (4 - 6)	20	50.0%	30	75.0%
	Severe (7-10)	0	0.0%	10	25.0%
Day4_M_Post	None	0	0.0%	0	0.0%
	Mild (1-3)	33	82.5%	3	7.5%
	Moderate (4 - 6)	7	17.5%	36	90.0%
	Severe (7-10)	0	0.0%	1	2.5%
Day4_E_Post	None	12	30.0%	0	0.0%
	Mild (1-3)	28	70.0%	10	25.0%
	Moderate (4 - 6)	0	0.0%	30	75.0%
	Severe (7-10)	0	0.0%	0	0.0%

The provided data shows the post-test scores of dysmenorrhea levels among experimental and control groups over four days, measured twice a day (morning and evening). Here is the interpretation: On day one morning experimental group had 32.5% moderate pain and 67.5% had moderate pain. In control group 22.5% had moderate pain and 77.5% had severe pain. Both groups had a high percentage of severe dysmenorrhea, with the control group slightly higher. In the evening the severity remains high in both groups, with the control group showing a higher percentage of severe cases. On day two morning in experimental group 5.0% had mild, 50.0%

moderate and 45.0% had severe pain. In control group 22.5% moderate and 77.5% had severe pain. On day two morning there is a noticeable shift in the experimental group with 5% reporting mild dysmenorrhea and a significant portion reporting moderate pain. The control group still has a high percentage of severe dysmenorrhea. On day two evening the experimental group shows a significant improvement, with the majority reporting moderate pain and a small percentage with severe pain. The control group still reports a high percentage of severe dysmenorrhea. On day three morning experimental group had 27.5% mild pain 72.5% moderate pain and in control group 32.5% moderate pain and 67.5% severe pain. The experimental group shows further improvement with a notable percentage experiencing mild dysmenorrhea. The control group still reports a high percentage of severe cases. On day three evening the experimental group shows significant improvement, with half of the participants reporting mild pain and the other half reporting moderate pain. The control group has a high percentage reporting moderate pain but still has severe cases. On day four morning the experimental group shows significant improvement, with the majority experiencing mild dysmenorrhea. The control group still has a high percentage of moderate and some severe cases. In the evening of fourth day in experimental group 30.0% had no pain 70.0% had mild pain in control pain still 75.0% had moderate pain and 25.0% had mild pain. The experimental group shows remarkable improvement with no severe cases and 30% experiencing no pain. The control group shows some improvement but still has a higher percentage of moderate cases.

The experimental group shows a consistent and significant reduction in the severity of dysmenorrhea over the four days, particularly by the fourth day, where the majority report mild pain or none at all by the evening. In contrast, the control group continues to report higher levels of moderate and severe pain throughout the four days, with only slight improvement. This suggests that the foot reflexology applied to the experimental group was effective in reducing the severity of dysmenorrhea.

SECTION 3: To evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in experimental group and control group.

This section deals with the significance of difference between pre test scores and post test scores of dysmenorrhoea among adolescent girls in experimental and control group.

H_0: There will be no significant difference between pre test scores and post test scores of dysmenorrhoea among adolescent girls in experimental and control group.

To find the significant difference between pre test scores and post test scores of dysmenorrhoea among adolescent girls in experimental and control group repeated ANOVA test was computed.

Table 6: Effectiveness of foot reflexology on Experimental group mean and standard deviation

				Effectiveness - Repeated measures ANOVA			
Group		Mean	Std. Deviation	F value	d.f	p value	
Experimental	Day1_M_Pre	7.30	1.381	820.815	15 and 585	0.000	HS
	Day1_M_Post	7.15	1.350				
	Day1_E_Pre	7.58	1.517				
	Day1_E_Post	6.80	1.381				
	Day2_M_Pre	6.80	1.436				
	Day2_M_Post	5.98	1.405				
	Day2_E_Pre	5.88	1.362				

	Day2_E_Post	4.93	1.289				
	Day3_M_Pre	4.95	1.260				
	Day3_M_Post	4.18	1.259				
	Day3_E_Pre	4.13	1.285				
	Day3_E_Post	3.23	1.230				
	Day4_M_Pre	3.18	1.217				
	Day4_M_Post	2.48	1.037				
	Day4_E_Pre	2.03	1.165				
	Day4_E_Post	1.20	0.992				

The repeated measures ANOVA was conducted to evaluate the effectiveness of foot reflexology on dysmenorrhoea among adolescent girls in the experimental group compared to the control group. The mean pain scores and standard deviations at different time points (Day 1 to Day 4) before and after the intervention (foot reflexology) are provided for the experimental group. The F-value is 820.815 with degrees of freedom (d.f.) 15 and 585. The p-value is 0.000, which is highly significant (HS). On Day 1, before the intervention the mean pain score was 7.30 with a standard deviation of 1. 381.The mean pain score slightly decreased after the morning session of reflexology (Day1_M_Post) to 7.15 with a standard deviation of 1.350. A noticeable decrease in pain scores is observed from Day 1 to Day 4. On Day 1 evening (Day1_E_Post), the mean pain score decreased from 7.58 (Day1_E_Pre) to 6.80. By Day 4 evening (Day4_E_Post), the mean pain score significantly decreased to 1.20 from 2.03 in the pre-session (Day4_E_Pre).

The very high F-value (820.815) and a p-value of 0.000 indicate that the reduction in pain scores over time is statistically significant. This means that the observed differences in pain scores are unlikely to have occurred by chance and can be attributed to the foot reflexology intervention. There is a consistent and significant decrease in pain scores from Day 1 to Day 4, both in the morning and evening sessions. This suggests that foot reflexology has a cumulative effect, providing increasing relief from dysmenorrhoea over the course of the treatment.

The results demonstrate that foot reflexology is an effective intervention for reducing dysmenorrhoea among adolescent girls. The significant reduction in pain scores from Day 1 to Day 4 indicates that reflexology can provide substantial relief from menstrual pain when administered consistently. The statistical analysis supports the effectiveness of the treatment, showing a highly significant improvement in pain levels over time.

Table 6 shows there is a significant difference between pretest scores and post test scores of dysmenorrhoea among adolescent girls in experimental group. P value is less than 0.05 and is considered statistically significant.

Foot reflexology was effective in experimental group so the null hypothesis H_0 was rejected and the research hypothesis H_1 was accepted.

Table 7: Effectiveness of foot reflexology on Experimental group - Post hoc analysis

Effectiveness - Post hoc analysis

		Mean difference	Std. Deviation of difference	Bonferroni p value	
Experimental	Day1_M_Pre - Day1_M_Post	0.150	0.362	0.012	Sig
	Day1_E_Pre - Day1_E_Post	0.775	0.423	0.000	HS
	Day1_M_Pre - Day1_E_Post	0.500	0.847	0.001	HS
	Day2_M_Pre - Day2_M_Post	0.825	0.385	0.000	HS
	Day2_E_Pre - Day2_E_Post	0.950	0.221	0.000	HS
	Day1_M_Pre - Day2_E_Post	2.375	0.838	0.000	HS
	Day3_M_Pre - Day3_M_Post	0.775	0.423	0.000	HS
	Day3_E_Pre - Day3_E_Post	0.900	0.304	0.000	HS
	Day1_M_Pre - Day3_E_Post	4.075	0.797	0.000	HS
	Day4_M_Pre - Day4_M_Post	0.700	0.464	0.000	HS
	Day4_E_Pre - Day4_E_Post	0.825	0.385	0.000	HS
	Day1_M_Pre - Day4_E_Post	6.100	1.008	0.000	HS
	Day1_E_Post - Day2_E_Post	1.875	0.335	0.000	HS
	Day1_E_Post - Day3_E_Post	3.575	0.594	0.000	HS
	Day1_E_Post - Day4_E_Post	5.600	0.871	0.000	HS
	Day2_E_Post - Day3_E_Post	1.700	0.464	0.000	HS
	Day2_E_Post - Day4_E_Post	3.725	0.784	0.000	HS
	Day3_E_Post - Day4_E_Post	2.025	0.660	0.000	HS

Based on the post hoc analysis the effectiveness of foot reflexology on experimental group on different days as follows:

There is a significant improvement from Day 1 morning pre-test to Day 1 morning post-test with a mean difference of 0.150 (p = 0.012). There is a highly significant improvement from Day 1 evening pre-test to Day 1 evening post-test with a mean difference of 0.775 (p = 0.000). There is a highly significant improvement from Day 1 morning pre-test to Day 1 evening post-test with a mean difference of 0.500 (p = 0.001). There is a highly significant improvement from Day 2 morning pre-test to Day 2 morning post-test with a mean difference of 0.825 (p = 0.000). There is a highly significant improvement from Day 2 evening pre-test to Day 2 evening post-test with a mean difference of 0.950 (p = 0.000). There is a highly significant improvement from Day 1 morning pre-test to Day 2 evening post-test with a mean difference of 2.375 (p = 0.000). There is a highly significant improvement from Day 3 morning pre-test to Day 3 morning post-test with a mean difference of 0.775 (p = 0.000). There is a highly significant improvement from Day 3 evening pre-test to Day 3 evening post-test with a mean difference of 0.900 (p = 0.000). There is a highly significant improvement from Day 1 morning pre-test to Day 3 evening post-test with a mean difference of 4.075 (p = 0.000). There is a highly significant improvement from Day 4 morning pre-test to Day 4 morning post-test with a mean difference of 0.700 (p = 0.000). There is a highly significant improvement from Day 4 evening pre-test to Day 4 evening post-test with a mean difference of 0.825 (p = 0.000). There is a highly significant improvement from Day 1 morning pre-test to Day 4 evening post-test with a mean difference of 6.100 (p = 0.000). There is a highly significant improvement from Day 1 evening post-test to Day 2 evening post-test with a mean difference of 1.875 (p = 0.000). There is a highly significant improvement from Day 1 evening post-test to Day 3 evening post-test with a mean difference of 3.575 (p = 0.000). There is a highly significant improvement from Day 1 evening post-test to Day 4 evening post-test with a mean difference of 5.600 (p = 0.000). There is a highly significant improvement from Day 2 evening post-test to Day 3 evening post-test with a mean difference of 1.700 (p = 0.000). There is a highly significant improvement from Day 2 evening post-test to Day 4 evening post-test with a mean difference of 3.725 (p = 0.000). There is a highly significant improvement from Day 3 evening post-test to Day 4 evening post-test with a mean difference of 2.025 (p = 0.000).

There are significant improvements observed from pre-test to post-test on each day, indicating the effectiveness of the foot reflexology.

The improvement tends to be highly significant (p = 0.000) for most comparisons, especially as the intervention progresses over multiple days. The largest improvements are observed when comparing Day 1 morning pre-test to later days' evening post-tests, suggesting a cumulative effect of the foot reflexology over time.

Table 7 shows there is a significant difference between pretest scores and post test scores of dysmenorrhoea among adolescent girls in experimental group. P value is less than 0.05 and is considered statistically significant. Foot reflexology was effective in experimental group so null hypothesis is rejected and research hypothesis is accepted.

Table 8: Post test Level of dysmenorrhea in Control group mean and standard deviation

				Effectiveness - Repeated measures ANOVA			
Group		**Mean**	**Std. Deviation**	**F value**	**d.f**	**p value**	
Control	Day1_M_Pre	7.48	1.320	240.890	15 and 585	0.000	HS
	Day1_M_Post	7.48	1.320				
	Day1_E_Pre	7.80	1.224				
	Day1_E_Post	7.78	1.230				

	Day2_M_Pre	7.68	1.289				
	Day2_M_Post	7.68	1.289				
	Day2_E_Pre	7.30	1.159				
	Day2_E_Post	7.30	1.159				
	Day3_M_Pre	6.68	1.095				
	Day3_M_Post	6.68	1.095				
	Day3_E_Pre	5.83	0.958				
	Day3_E_Post	5.80	0.966				
	Day4_M_Pre	5.08	0.971				
	Day4_M_Post	5.08	0.971				
	Day4_E_Pre	4.15	0.975				
	Day4_E_Post	4.15	0.975				

The results provided from the Repeated Measures ANOVA analysis

The repeated measures ANOVA was conducted to evaluate level of dysmenorrhoea among adolescent girls in the control group without foot reflexology. The mean pain scores and standard deviations at different time points (Day 1 to Day 4) without the intervention (foot reflexology) were checked. . The F-value is of 240.815 with degrees of freedom (d.f.) 15 and 58590 in control group in comparing to the F-value 820.815 with degrees of freedom (d.f.) 15 and 585.

On Day one the means for morning (M) and evening (E) pre- and post-intervention measurements are quite similar, indicating that there might not have been a significant change from morning to evening. On day two the trend of similar pre- and post-intervention means continues, with slight variations, but the overall means do not change drastically, indicating without reflexology the there is no much reduction of pain. On day three there is slight reduction of pain particularly in the evening. On day four there is further reduction in pain which is due to time factor.

Table 8 Shows there is a no significant reduction in dysmenorrhea in the control group. But there was gradual decrease in the pain over 4 days. P value is less than 0.05 and is considered statistically significant.

Table 9: Effectiveness of foot reflexology on Control group -Post hoc analysis

Effectiveness - Post hoc analysis					
		Mean difference	**Std. Deviation of difference**	**Bonferroni p value**	
Control	Day1_M_Pre - Day1_M_Post	0.00	0.00	1.00	NS
	Day1_E_Pre - Day1_E_Post	0.025	0.158	0.323	NS
	Day1_M_Pre - Day1_E_Post	-0.300	0.516	0.053	NS
	Day2_M_Pre - Day2_M_Post	0.00	0.00	1.00	NS

	Day2_E_Pre - Day2_E_Post	0.00	0.00	1.00	NS
	Day1_M_Pre - Day2_E_Post	0.175	1.083	0.313	NS
	Day3_M_Pre - Day3_M_Post	0.00	0.00	1.00	NS
	Day3_E_Pre - Day3_E_Post	0.025	0.158	0.323	NS
	Day1_M_Pre - Day3_E_Post	1.675	1.095	0.000	HS
	Day4_M_Pre - Day4_M_Post	0.00	0.00	1.00	NS
	Day4_E_Pre - Day4_E_Post	0.00	0.00	1.00	NS
	Day1_M_Pre - Day4_E_Post	3.325	1.023	0.000	HS
	Day1_E_Post - Day2_E_Post	0.475	0.960	0.003	HS
	Day1_E_Post - Day3_E_Post	1.975	0.974	0.000	HS
	Day1_E_Post - Day4_E_Post	3.625	0.952	0.000	HS
	Day2_E_Post - Day3_E_Post	1.500	0.506	0.000	HS
	Day2_E_Post - Day4_E_Post	3.150	0.700	0.000	HS
	Day3_E_Post - Day4_E_Post	1.650	0.483	0.000	HS

In Table 9 presents a post hoc analysis of effectiveness over multiple days, comparing mean differences of pre- and post-measurements. Several comparisons show no significant differences in mean values (Bonferroni $p > 0.05$), meaning there were no substantial changes from pre- to post-measurements for these cases. These include: - Day1_M_Pre vs. Day1_M_Post, - Day1_E_Pre vs. Day1_E_Post, - Day1_M_Pre vs. Day1_E_Post, - Day2_M_Pre vs. Day2_M_Post, - Day2_E_Pre vs. Day2_E_Post, - Day1_M_Pre vs. Day2_E_Post, - Day3_M_Pre vs. Day3_M_Post, - Day3_E_Pre vs. Day3_E_Post, - Day4_M_Pre vs. Day4_M_Post, - Day4_E_Pre vs. Day4_E_Post,

Few comparisons show highly significant differences (Bonferroni $p < 0.05$), indicating substantial changes in mean values from pre- to post-measurements for these cases. These include: day 1 morning pretest to day 3 and day 4 post-test. Significant increases were observed from the pre-measurement of Day 1 morning (Day1_M_Pre) to the post-measurements of Day 3 evening (Day3_E_Post) and Day 4 evening (Day4_E_Post). Though foot reflexology was not given to the samples from control group on third and fourth day the pain was reducing due to time factor. But comparing to experimental group who received daily two cycles of foot reflexology the effects in control group is very poor. This shows that foot reflexology was very effective in reducing dysmenorrhea among the experimental group. So, research hypothesis is partially accepted.

Table 10: Effectiveness of foot reflexology on dysmenorrhoea among adolescent girls between the experimental group and control group.

		Effectiveness between the groups					
		Mean difference	Std. Deviation of difference	t value	d.f	p value	
Day1_M_Pre - Day1_M_Post	Experimental	0.150	0.362	2.62	78	0.010	sig
	Control	0.00	0.00				
Day1_E_Pre - Day1_E_Post	Experimental	0.775	0.423	10.51	78	0.000	HS
	Control	0.025	0.158				
Day1_M_Pre - Day1_E_Post	Experimental	0.500	0.847	5.10	78	0.000	HS
	Control	-0.300	0.516				
Day2_M_Pre - Day2_M_Post	Experimental	0.825	0.385	13.56	78	0.000	HS
	Control	0.00	0.00				
Day2_E_Pre - Day2_E_Post	Experimental	0.950	0.221	27.22	78	0.000	HS
	Control	0.00	0.00				
Day1_M_Pre - Day2_E_Post	Experimental	2.375	0.838	10.16	78	0.000	HS
	Control	0.175	1.083				
Day3_M_Pre - Day3_M_Post	Experimental	0.775	0.423	11.59	78	0.000	HS
	Control	0.00	0.00				
Day3_E_Pre - Day3_E_Post	Experimental	0.900	0.304	16.16	78	0.000	HS
	Control	0.025	0.158				
Day1_M_Pre - Day3_E_Post	Experimental	4.075	0.797	11.21	78	0.000	HS
	Control	1.675	1.095				
Day4_M_Pre - Day4_M_Post	Experimental	0.700	0.464	9.54	78	0.000	HS
	Control	0.00	0.00				
Day4_E_Pre - Day4_E_Post	Experimental	0.825	0.385	13.56	78	0.000	HS
	Control	0.00	0.00				
Day1_M_Pre - Day4_E_Post	Experimental	6.100	1.008	12.23	78	0.000	HS
	Control	3.325	1.023				
Day1_E_Post - Day2_E_Post	Experimental	1.875	0.335	8.70	78	0.000	HS
	Control	0.475	0.960				
Day1_E_Post - Day3_E_Post	Experimental	3.575	0.594	8.87	78	0.000	HS
	Control	1.975	0.974				
Day1_E_Post - Day4_E_Post	Experimental	5.600	0.871	9.68	78	0.000	HS
	Control	3.625	0.952				
Day2_E_Post - Day3_E_Post	Experimental	1.700	0.464	1.84	78	0.069	NS
	Control	1.500	0.506				
Day2_E_Post - Day4_E_Post	Experimental	3.725	0.784	3.46	78	0.001	HS
	Control	3.150	0.700				
Day3_E_Post - Day4_E_Post	Experimental	2.025	0.660	2.90	78	0.005	HS
	Control	1.650	0.483				

The provided data includes the mean differences, standard deviations, t values, degrees of freedom, and p values for comparisons between different groups and time points. Day1_M_Pre - Day1_M_Post - Experimental group shows a significant improvement (mean difference = 0.150, t (78) = 2.62, p = 0.010). - Control group shows no change (mean difference = 0.00). Day1_E_Pre - Day1_E_Post - Experimental group shows a highly significant improvement (mean difference = 0.775, t(78) = 10.51, p < 0.001). - Control group shows a minor, non-significant change (mean difference = 0.025). Day1_M_Pre - Day1_E_Post - Experimental group shows a

highly significant improvement (mean difference = 0.500, t (78) = 5.10, p < 0.001). Day1_M_Pre - Day2_E_Post - Experimental group shows a highly significant improvement (mean difference = 2.375, t (78) = 10.16, p < 0.001). - Control group shows a minor change (mean difference = 0.175).

Day3_E_Pre - Day3_E_Post - Experimental group shows a highly significant improvement (mean difference = 0.900, t(78) = 16.16, p < 0.001). - Control group shows a minor, non-significant change (mean difference = 0.025). Day1_M_Pre - Day3_E_ - Experimental group shows a highly significant improvement (mean difference = 4.075, t(78) = 11.21, p < 0.001). - Control group shows a significant improvement (mean difference = 1.675). Both groups improved, but the experimental group showed a much larger improvement. Day1_M_Pre - Day4_E_Post - Experimental group shows a highly significant improvement (mean difference = 6.100, t (78) = 12.23, p < 0.001). - Control group shows a significant improvement (mean difference = 3.325). Both groups improved, with a larger effect in the experimental group. Day1_E_Post - Day3_E_Post -Experimental group shows a highly significant improvement (mean difference = 3.575, t(78) = 8.87, p < 0.001). - Control group shows a significant improvement (mean difference = 1.975). Both groups improved, with a larger effect in the experimental group. Day3_E_Post - Day4_E_Post - Experimental group shows a highly significant improvement (mean difference = 2.025, t(78) = 2.90, p = 0.005).- Control group shows a significant improvement (mean difference = 1.650). Both groups improved, with a larger effect in the experimental group. Overall, foot reflexology appears to be highly effective in reducing dysmenorrhea among adolescent girls in the experimental group, with most comparisons showing highly significant reductions in pain levels. The control group shows little to no significant changes, reinforcing the effectiveness of the intervention.

There is significant difference between pre-test scores and post test scores of dysmenorrhoea among adolescent girls between experimental and control group. Thus, the null hypothesis is rejected and research hypothesis is accepted.

SECTION 5: To find the association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control group.

H_3: There will be a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables in experimental group.

H_4: There will be a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables in control group.

Table 11: The association between Dysmenorrhea among adolescent girls and their selected demographic variables in experimental and control group based on the chi-square test.

	Experimental			Control			Total			
	chi square value	d.f	p	chi square value	d.f	p	chi square value	d.f	p	Significance
Age	0.382	1	0.536	0.351	1	0.554	0.000	1	1.000	NS
Age at menarche	0.002	1	0.962	2.462	1	0.117	1.212	1	0.271	NS
Duration of menstruation	1.103	2	0.576	0.171	2	0.918	0.277	2	0.871	NS
Taking medication	0.243	2	0.885	0.140	2	0.932	0.016	2	0.992	NS
Frequency of Dysmenorrhea/months	2.751	3	0.432	3.444	3	0.328	3.532	3	0.317	NS

The chi-square tests are used to examine the association between categorical variables. The results given in the table provide chi-square values, degrees of freedom (d.f.), and p-values for various variables comparing Experimental and Control group.

Age - Experimental: $\chi^2 = 0.382$, d.f. = 1, p = 0.536, - Control: $\chi^2 = 0.351$, d.f. = 1, p = 0.554. There is no significant association between age and the groups. since all p-values are greater than 0.05.

Age at Menarche - Experimental: $\chi^2 = 0.002$, d.f. = 1, p = 0.962, - Control: $\chi^2 = 2.462$, d.f. = 1, p = 0.117. There is no significant association between age at menarche and the groups. since all p-values are greater than 0.05.

Duration of Menstruation - Experimental: $\chi^2 = 1.103$, d.f. = 2, p = 0.576, - Control: $\chi^2 = 0.171$, d.f. = 2, p = 0.918. There is no significant association between the duration of menstruation and the groups since all p-values are greater than 0.05.

Taking Medication - Experimental: $\chi^2 = 0.243$, d.f. = 2, p = 0.885, - Control: $\chi^2 = 0.140$, d.f. = 2, p = 0.932. There is no significant association between taking medication and the groups since all p-values are greater than 0.05.

Frequency of Dysmenorrhea/Months - Experimental: $\chi^2 = 2.751$, d.f. = 3, p = 0.432

- Control: $\chi^2 = 3.444$, d.f. = 3, p = 0.328. There is no significant association between the frequency of dysmenorrhea and the groups since all p-values are greater than 0.05.

P value>0.05, No association

HS=highly significant…. p<0.01

NS=Not significant>0.05

Sig=significant…p<0.05

NS=Not significant>0.05

Nursing Analysis

Descriptive: frequency, percentage, mean, s.d

Inferential: Repeated measures ANOVA with Bonferroni post hoc analysis, t test and chi square test SPSS 23 software was used to analyse the data. Level of significance was 5%

DISCUSSION: A study involving 52.5% experimental and 47.5% control participants found that foot reflexology significantly reduced pain levels in adolescent girls. The majority had menarche between 12-14 years, with menstruation duration ranging from 4 to 6 days. The study found that 70% of the experimental group experienced severe pain during the pre-test, while 70% had mild pain post-test. The overall prevalence of dysmenorrhea was 65.02%, with 68.4% in urban and 61.2% in rural areas. The study concluded that foot reflexology may be a potential treatment option for dysmenorrhea, with no significant association found between age, menarche duration, medication use, or frequency of dysmenorrhea/months. The results suggest that foot reflexology is an effective method for reducing dysmenorrhea among adolescent girls, and similar research should be encouraged to promote alternative methods like foot reflexology.

CONCLUSION : The study evaluated the effectiveness of foot reflexology on dysmenorrhea among adolescent girls in selected hostels in Mangaluru. The results showed a significant difference in dysmenorrhea scores between the experimental and control groups after four days of foot reflexology sessions. The study highlights the need for foot reflexology in nursing practice, education, administration, and research. Nurses play a vital role in healthcare delivery systems and should be aware of various methods to reduce menstrual discomfort and prevent dysmenorrhea. Foot reflexology can be used as an independent intervention for nurses to help clients and families relieve their discomfort. Nursing research should explore the efficacy of foot reflexology in clinical practice and other settings. Administrative nursing can provide training for staff nurses, student nurses, and other allied professions to effectively use foot reflexology in clinical practice, community, and home health care. The study's limitations include the selection of four hostels and the difficulty in obtaining sufficient data. Further research is needed to explore similar therapies and increase self-confidence and self-worth among participants.

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