ORIGINAL RESEARCH

The Effect of Acupressure Applied to Sanyinjiao (SP6) on Primary Dysmenorrhea

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ABSTRACT

Context • With the technological developments and advancement of scientific knowledge in the field of health, healthcare professionals are now expected to identify strategies for the use of complementary therapies and to guide healthy and ill individuals in their correct and effective use. Acupressure—a simple, effective, safe, and economical therapy—may reduce the pain caused by dysmenorrhea.

Objective • The aim of the study was to determine the benefits of acupressure applied to the Sanyinjiao (SP6) acupressure point for treatment of primary dysmenorrhea.

Design • The research team designed a randomized controlled trial.

Setting • The study took place at the Health Services Vocational School at Duzce University in Duzce, Turkey.

Participants • Participants were 67 students with dysmenorrhea, who were studying business administration at the university between October 2016 and January 2018.

Intervention • Participants were randomly assigned to one of two groups, in compliance with the study's criteria. The acupressure group pressed the SP6 acupressure point on each leg once a day for 10 minutes, for the first three days of each menstrual period for three months. The students in the acupressure and placebo group have been followed up for a total of four cycles. The participants in the acupressure group have been advised to press to the SP6 acupressure point for ten minutes every day on each leg for the first three days of each menstruation period for three months; the participants in the placebo group have been recommended to scrub the sham-acupressure point for ten minutes every day on each leg for the first three days of each menstruation period for three months. Within the last month(Month 4), evaluation forms have been applied without any further practices.

The control group rubbed a false acupressure point on each leg once a day for ten minutes, for the same period.

Outcome Measures • A diagnostic form was used to collect the study's data and to determine participants' demographic characteristics. A visual analogue scale (VAS) and the Brief Pain Inventory (BPI) were used to evaluate dysmenorrhea pain. A satisfaction form was used to evaluate participants' satisfaction.

Results • On the VAS, the severity of pain was lower in the acupressure group than in the control group. On the BPI, the scores were lower and the pain caused less discomfort in the acupressure group than in the control group. Moreover, both groups were satisfied with the practices.

Conclusions • Acupressure can be used as an effective and reliable method for the management of primary dysmenorrhea. (*Altern Ther Health Med.* [E-pub ahead of print.])

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The word dysmenorrhea, briefly defined as painful menstruation, is derived from Greek, and the condition is a common gynecological problem, as revealed by the high rate of painful menstruation in families.[1-9] It's a complaint that has health, social, and economic effects on many women, and some studies on dysmenorrhea have reported high rates of painkiller use. Often women prefer nonpharmacological methods instead of seeing a doctor.[6,10-12]

Factors such as age of menarche, frequency of menstrual periods, amount of bleeding, body mass index (BMI), diet, physical activity, incidence of chronic disease, stress,

smoking, family history of dysmenorrhea, educational level, economic status, infertility, presence of a polycystic ovary, and hirsutism are known to affect the prevalence of dysmenorrhea to some extent.[1,8,13]

It's also well known that dysmenorrhea usually starts one day before menstruation; lasts for 2-3 days; and is localized in the lower abdomen, waist, back, and legs. Up to 90% of women in Turkey and 40-93% of women worldwide experience this problem.[2-7,14]

Dysmenorrhea is divided into two types: primary and secondary.[1,6] No underlying pathological conditions exist in primary dysmenorrhea, and young women who are years of age are the patients.[1,3,6] Dysmenorrhea affects quality of life to a great extent and can prevent a student's attendance at classes and achievement of educational objectives.[1,3,7,14] It is a well-known fact that dysmenorrhea usually starts one day before menstruation, lasts for 2-3 days, is localized in the lower abdomen, waist, back and legs, and that it is seen up to 90% in our country, 40-93% in the world.[2-5,7,14] It is stated that the rate of dysmenorrhea is 50-100% in adolescents, which constitute mostly primary dysmenorrhea cases in the world.[11-13]

Acupressure can help women deal with dysmenorrhea, in addition to the use of pain medications, the application of heat, rest, exercise, massage, and distraction.[2,3,6,15] Acupressure originated as traditional Chinese medicine and is based on the same principles as acupuncture. In acupressure, acupuncture points are pressed, and the pressure can be applied with the hands or fingers or with objects such as a comb, ice bag, or tennis ball.[16-18] Acupressure is a simple, effective, safe, and economical method for reducing pain in dysmenorrhea.[19-28]

Healthcare professionals focus on providing hope and pain relief in case of illness, and they base care practices on close relationships, sensitivity, and academic knowledge to support the beneficial effects and integrity of care.[29,30] They might be able to play an effective role in eliminating dysmenorrhea by applying acupressure.

The aim of the current study was to determine the benefits of acupressure applied to the Sanyinjiao (SP6) acupressure point for treatment of primary dysmenorrhea.

METHODS

Participants

The study was a randomized controlled trial. The study took place at the Health Services Vocational School at Duzce University in Duzce, Turkey. Participants were students with dysmenorrhea who were studying business administration at the university between October 2016 and January 2018. The reasons for choosing Düzce University Faculty of Business as the field of application of the research; It was listed as easy accessibility for the researcher, taking an initiative and thinking that monitoring could be done relatively easily, and the study was carried out with all female students studying at school. The Faculty of Business was preferred for the study, as it represents a group of students studying outside of health education and the density of female students is high.

The training was given by meeting face to face with the participants, detailed information was given in the study about the training process.

Potential participants were included in the study if they: (1) had dysmenorrhea, (2) had a regular menstrual period lasting 3-8 days with a menstrual interval of 21-35 days, (3) were 18 years of age or above, (4) had a score of four and above for dysmenorrhea pain on a visual analogue scale (VAS), and (5) were willing to participate in the study.

Potential participants were excluded from the study if they: (1) had a pelvic disease, had had a pelvic operation, or had an infection, (2) had another physical illness or were mentally ill, (3) were using oral contraceptives, or (4) were allergic to NSAIDs.

Participants received detailed explanations about the research team's identities, the study's purpose, the reasons for their inclusion in the study, where and how the study would use their information, their right not to answer the questions. Participants gave their verbal and written consents using the Informed Volunteer Consent Form. In order to conduct the study, written permission was obtained from Düzce University Clinical Research Ethics Committee by indicating the faculty where the study will be conducted.

The students have been explained in detail about the identity of the researcher, the purpose of the study, why they have been chosen, where and how the information could be used, the right not to answer the questions, and their verbal and written consent have been taken with the Informed Volunteer Consent Form.

Procedures

Sample size. For the study's power analysis, the mean of dysmenorrhea pain according to the VAS was defined as 6.45 ± 1.81, based on Chen and Chen's[21] study on the effects of acupressure applied to the SP6 point. Accordingly, the research team determined that the minimum number of participants required for each group was 23, with a 95% confidence interval and a 30% effect.

Data collection. For collection of data, the research team developed forms to determine the students' general demographic and menstruation characteristics, including a diagnostic form, the VAS, the Brief Pain Inventory (BPI), and a satisfaction form.

Randomization. The included participants were given a number in an ordered sequence and then were randomly assigned to the acupressure or control group. Before starting to practice, a training about dysmenorrhea has been given to the students, and after giving pre-application forms to the female students participating in education and determining the eligible ones by getting 4 and above on the VAS, the volunteers have been taken to the acupressure training. Firstly, the students have been given a number in order, and then, they have been randomly assigned to the acupressure and placebo groups and provided with appropriate training. Students were randomized using the random.org program.

Intervention. Students in the acupressure and control groups were followed for a total of four period cycles. For three months, the acupressure group applied acupressure at the Sp6 point, and the control group applied it to a sham-acupressure point. At the end of the fourth month, one month postintervention, all participants completed the forms for pain assessment. The students in the acupressure and placebo group have been followed up for a total of four cycles. Students in the acupressure group have applied pressure to the Sp6 point and the students in the placebo group have applied pressure to the sham-acupressure point for three months.

No application was made in the 4th cycle, only the effect of the previous applications was observed.

During the training given to the students, the practices were explained with the demonstration method and it was explained how the application forms should be filled. During the study, consultancy was provided by telephone and face to face when necessary.

The acupressure group received training about pain management for dysmenorrhea and acupressure training at baseline. The control group received sham-acupuncture training at baseline and were educated about pain management for dysmenorrhea and the use of acupressure after the study ended.

The member of the research team who performed the acupressure training had documented basic training on acupressure. Also, the research team received practical training from a consulting acupuncturist.

Intervention

Acupressure group. Participants in the acupressure group were given general training on the mechanism of action and areas of use of acupressure. The determination of the location of the SP6 point was explained through practice, and the training's effectiveness was evaluated by having each participant demonstrate the ability to determine the application point correctly and to perform the application effectively.

Once a day for three days when a painful menstrual period began, participants applied pressure on the SP6 point on each leg for 6 seconds, then rested for 2 seconds, for 10 minutes in total on each leg and 20 minutes in total. Participants' training had instructed them that they should press only with a thumb and should make the transition time between the two legs be no more than 5 minutes.

Control Group: During the first 3 days of menstruation, participants were instructed once a day to scrub the left side of each leg across the SP6 point for 10 minutes, for a total of 20 minutes. Application Steps for the Acupressure Group: The participants in the acupressure group have been given a general training on acupressure, the determination of SP6 point has been explained in practice and the effectiveness of the training has been evaluated by demonstration during the training. Participants in the acupressure group have been requested to apply pressure on SP6 point once a day for every three days lasting 10 minutes for each leg (6 seconds for pressure, 2 seconds for resting), 20 minutes in total when the painful period begins in the first days of each menstrual. They have been informed that the press has to be made only with a thumb and the transition time for two legs should not be more than 5 minutes (with a cycling application on each leg for 5 minutes, 20 minutes in total). Each participant has been asked to perform these applications and pain assessments in 3 menstrual cycles. In addition, the acupressure group has been asked that they should apply the VAS scale on the first day of each menstrual cycle before starting acupressure, apply the VAS scale after acupressure on the 2nd and 3rd days of the menstruation, apply VAS and BPI scales before practising acupressure on the 4th day of menstruation, apply the scales before practising the acupressure on the 4th cycle after 3 cycle of acupressure application in total.

Application Steps for the Placebo Group: Participants in the placebo group have been trained on sham-acupressure, and when the first 3 days of the menstruation begin, the left side of the leg across the SP6 point has been asked to scrub a total of 20 minutes once a day for every three days. Additionally, the placebo group has been asked that they should apply the VAS scale on the first day of each menstrual cycle before starting sham acupressure, apply the VAS scale after sham acupressure on the 2nd and 3rd days of the menstruation, apply VAS and BPI scales before practising sham-acupressure on the 4th day of menstruation, apply the scales before practising the sham acupressure on the 4th cycle after 3 cycle of sham acupressure application in total.

Participants in the placebo group have been educated about pain management of dysmenorrhea and the use of acupressure after completion of the application-related processes.

Outcome Measures

VAS. The VAS measured dysmenorrhea pain. It is a straight line showing the continuity of pain, used to measure the variability of pain for about 60 years. 0 indicates the lowest pain level, 10 the highest pain level.

This stud,; the mean of dysmenorrhea pain according to the VAS scale based on the studies on the effect of acupressure applied to the SP6 point of Chen et al.[21] have been defined as 6.45 ± 1.81 and accordingly, Based on the dysmenorrhea study applied using VAS, those with a minimum pain level of 4 and above after pre-application were included in the study.

BPI. The questionnaire assesses the severity of pain and its impact on functioning. It has two subdimensions, deprivation and severity, and provides a total score. The deprivation subdimension investigates the negative effects of pain on daily life activities, such as general activity, mood, walking ability, ability to work normally, effects on relationships with other people, sleep quality, and enjoyment of life. The questionnaire is a scale that determines the presence of pain, severity, character, treatments, responses to this treatment and social-emotional effects in patients, especially based on the last 1 weeks, and grades the severity between 0 and 10 in the relevant items. The questionnaire includes numerical rating

Table 1. Demographic and Menstrual Cycle Characteristics of Participants (N = 67)

	Acupressure (n=34)	Placebo (n=33)	Statistics	
Variables	**N (%)**	**N (%)**	**χ^2**	***P* value[a]**
Age				
≤20	18 (52.9)	12 (36.4)	1.861	0.172
≥21	16 (47.1)	21 (63.6)		
			t	***P* value**
Educational Grade				
1. Grade	10 (29.4)	10 (30.3)	6.186	0.103
2. Grade	10 (29.4)	5 (15.2)		
3. Grade	8 (23.5)	4 (12.1)		
4. Grade	6 (17.6)	14 (42.4)		
Income Level				
Less than / equal to the expenditure	28 (82.4)	28 (84.8)	0.076	0.783
More than the expenditure	6 (17.6)	5 (15.2)		
Age of Menarche				
≤13	24 (70.6)	19 (57.6)	1.233	0.267
≥14	10 (29.4)	14 (42.4)		
Mean of Age	20.65 ± 1.95	20.88 ± 1.60	0.531	0.597
Department				
Health management	21 ± 55.3	26 ± 65.0	2.318	0.128
Business, international trade, insurance, and social security	13 ± 44.7	7 ± 35.0		
Body mass index average	21.20 ± 2.49	21.46 ± 2.95	0.400	0.691
Frequency of Menstrual Bleeding	28.09 ± 2.73	27.45 ± 3.20	0.872	0.386
Bleeding Duration	6.24 ± 1.02	6.23 ± 1.07	0.802	0.425
Number Pads Used Daily	3.65 ± 1.67	4.06 ± 1.66	1.018	0.312

[a]$P < .05$

scales from 0 to 10, 1-4 is defined as mild, 5-6 is moderate, and 7-10 is defined as severe pain.

It was observed that the scale, developed by Cleeland and Ryan in 1994, has been tested in many different cultures and in various patient groups. In our country, the validity and reliability study of the scale was conducted by Dicle et al. In 2007 and the Cronbach Alpha coefficient was found to be 0.79 for the violence dimension and 0.80 for the frustration dimension, respectively. In this study, Cronbach's alpha reliability coefficients for the pain intensity and pain prevention sub-dimensions of the Brief Pain Inventory were found as 0.775 and 0.919, using Cronbach alpha analysis, one of the internal consistency analysis methods, which is one of the reliability analyzes for Likert-type scales.

Satisfaction form. The survey measured participants' satisfaction with the treatments, evaluating its effectiveness in decreasing pain, discomfort from the treatment, possible benefits for other people, and willingness to apply the treatment of their own.

Statistical Analysis

The data was evaluated using SPSS 21 (SPSS Inc., Chicago, IL, USA.) The results obtained from the analyses were considered statistically significant at the level of $P < .05$ at a 95% confidence interval.

RESULTS

Participants

Of the 67 participants, 34 were assigned to the acupressure group and 33 to the control group. The diagnostic form at baseline revealed that no statistically significant differences existed between the acupressure and control groups ($P > .05$) in terms of their sociodemographic characteristics, such as age, educational department and class level, and income status (Table 1). Moreover, their menstrual-period characteristics, such as menarche age, menstrual frequency, bleeding duration, and numbers of pads used daily, were not statistically different ($P > .05$).

Pain Levels

Both groups experienced pain during their menstrual periods. Half of the participants in the acupressure group and the majority in the control group used painkillers to decrease menstrual pain. Their choices of pain medication included different drugs, and they chose which ones. When the participants' characteristics related to menstrual pain were compared, a statistically significant difference existed only in the painkiller retrieval variable ($\chi^2 = 6.037$, $P < .014$), and the control group used more painkillers (Table 2).

Both groups mostly used a pain-relief method other than medication, preferring rest as a method of pain relief, and both groups had family members who suffered from menstrual pain. When their characteristics related to menstrual pain were compared, a statistically significant difference was found in the use of hot showers for pain relief ($\mu^2 = 4.695$, $P < .030$); the control group use this method more frequently (Table 2).

VAS Scores

The VAS evaluations were performed on each of the first four days of participants' periods (Table 3).

In the comparisons between groups, the mean score on the VAS for pain for the control group was statistically higher than that for the acupressure group on day 3 in period 3 ($P < .05$).

Moreover, the acupressure group showed a statistically significant, decrease from baseline in pain from baseline for periods 1, 2, and 4 , with $P < .01$, $P < .001$, and $P < .05$, respectively.

In period 1, the decreases in the group's scores between day 1 and day 3 and between day 1 and day 4 were statistically significant. In period 2, the decreases in the scores between day 1 and day 2 and between day 2 and day 3, were statistically significant. Furthermore, the decrease in the scores between day 2 and day 4 in period 2 were statistically significant. A statistically significant decrease was observed between the scores on day 1 and day 4 in period 4.

The control group showed a statistically significant decrease in pain from baseline in periods 1 and 2 ($P < .001$).

Table 2. Menstrual pain characteristics of the students participating in the study (n = 67)

Variables	Groups	Acupressure (n = 34)		Placebo (n = 33)		Statistics	
		n	%	n	%	χ^2	*P* value
Painkiller	Yes	17	50.0	26	78.8		
	No	17	50.0	7	21.2	6.037	.014[a]
Methods used outside painkillers	Walking	7	20.6	7	21.2	0.004	.950
	Resting	21	61.8	20	60.6	0.009	.922
	Exercise	3	8.8	5	15.2	0.638	.425
	Hot shower	7	20.6	15	45.5	4.695	.030[a]
	Attention to nutrition	2	5.9	1	3.0	0.318	.573
	Other activities	8	23.5	4	12.1	1.482	.223
	Massage	11	32.4	11	33.3	0.007	.932
	Relaxation	3	8.8	5	15.2	0.638	.425
	Herbal treatment	7	20.6	3	9.1	1.743	.987

[a]*P* < .05

Table 3. Comparison of Participants' VAS Scores for Pain by Days During 4 Menstrual Periods (N = 67)

Menstrual Period	Day	Acupressure Group (n=34)	Control Group (n=33)	Comparison Between Groups		Changes for Acupressure Group		Changes for Control Group	
		Mean ± SD	Mean ± SD	Z_{MWU}	*P* value	F	*P* value	F	*P* value
1	1	6.18 ± 2.43	6.91 ± 2.20	0.971	0.172	• VAS1: F = 4.603 • Significance, periods-days: 1-1>1-3, 1-4 • e>f>c>d>a>b>g	<.01[a]	• VAS1: F = 6.616 • Periods-days: 1-1>1-4	<.001[b]
	2	4.38 ± 2.55	4.88 ± 2.20	1.367	0.332				
	3	2.79 ± 2.68	3.06 ± 1.95	10.876	0.272				
	4	2.12 ± 2.20	1.82 ± 1.40	1.099	0.943				
2	1	6.24 ± 2.06	6.12 ± 2.01	0.071	0.975	• VAS2: F=10.004 • Significance, periods-days: 2-1>2-2>2-3; 2-2>2-4 • e>f>c>d>a>b>g	<.001[b]	• VAS2: F=13.991 • Periods-days: 2>2-2.3-2.4-2	<.001[b]
	2	4.29 ± 2.32	4.52 ± 1.86	0.032	0.472				
	3	2.71± 2.17	2.94 ± 1.75	0.718	0.414				
	4	1.85 ± 2.00	1.81 ± 1.66	0.817	0.561				
3	1	5.88 ± 1.82	6.00 ± 1.50	0.581	0.534	• VAS3: F=2.445 • e>f>c>d>a>b>g	.068	• VAS3: F=0.536	.638
	2	4.00 ± 1.94	4.76 ± 1.85	1.823	0.068				
	3	2.26 ± 1.94	3.00 ±1.39	2.256	0.024*				
	4	1.53 ± 1.67	1.85 ± 1.33	1.448	0.148				
4	1	5.29 ± 1.97	5.58 ± 1.26	0.611	0.541	• VAS4: F=3.333 • Significance, periods-days: 4-1>4-4 • e>f>c>d>a>b>g	<.050[b]	• VAS4: F=0.872	.459
	2	3.47 ± 2.03	4.30 ± 2.07	1.711	0.087				
	3	2.18 ± 2.01	2.79 ± 1.80	1.642	0.101				
	4	1.41 ± 1.40	1.73 ± 1.23	1.352	0.176				

[a]*P* < .01
[b]*P* < .001

In period 1, the score on day 4 was significantly lower than the score on day 1, and in period 2, the scores on days 2, 3, and 4 were significantly lower that on day 1.

BPI Scores

The mean scores of the acupressure group were lower than those of the control group for the two subdimensions and the total (Table 4). In the deprivation subdimension, a statistically significant difference existed between the groups in the mean scores for periods 2 and 4 (*P* < .05). For the total score, a statistically significant difference existed between the groups in period 4 (*P* < .05).

In the acupressure group, a statistically significant difference existed between baseline and period 4 in the total mean score (*P* < .05), and the measurement for period 4 was lower than that for period 1.

For both groups, pain was mostly felt in the inguinal region. When the responses using adjectives to categorize the pain were examined, the acupressure group for period 1 used the adjectives manageable and knife-like pain (58.8%), and the control group used the adjective manageable (69.7%). The features given here are an evaluation area of the BPI Scale.

BPI consists of four items related to pain severity (severity dimension) and seven items related to pain

Table 4. Comparison of Participants' Mean Scores on the BPI (N=67)

Menstrual Period		Acupressure Group (n=34)		Control Group (n=33)		Comparison Between Groups	
		Mean ± SD		Mean ± SD		Z_{MWU}	*P* value
1	Deprivation	3.89 ± 2.30		4.72 ± 1.74		1.922	.055
	Severity	3.86 ± 1.56		3.88 ± 1.48		0.170	.865
	Total	3.88 ±1.42		4.30 ± 1.30		1.392	.164
2	Deprivation	3.50 ± 2.08		4.50 ± 1.98		2.429	.015[a]
	Severity	3.96 ± 1.40		4.03 ± 1.35		0.245	.806
	Total	3.73 ± 1.42		4.27 ± 1.55		1.649	.099
3	Deprivation	3.46 ± 2.06		4.18 ± 1.85		1.851	.064
	Severity	3.52 ± 1.33		3.73 ± 0.87		1.278	.201
	Total	3.49 ± 1.35		3.96 ± 1.23		1.624	.104
4	Deprivation	3.39 ± 2.03		4.14 ± 1.51		2.216	.027[a]
	Severity	3.37 ± 1.31		3.64 ± 1.38		0.914	.361
	Total	3.38 ± 1.35		3.89 ± 1.20		1.994	.046[a]
1-2-3-4 Means		F	*P* value	F	*P* value		
	Deprivation	1.918	>.05	2.262	>.05		
	Severity	2.517	>.05	1.038	>.05		
	Total	6.754	<.05[a,b]	2.238	>.05		

[a]$P < .05$

[b]When the mean scores of the participants in the acupressure and placebo group taken from the BPI and sub-dimensions are compared, it has been noticed that, in the inhibition sub-dimension between the acupressure and placebo group, there is a statistically significant difference between the total mean scores of 2nd and 4th cycles and 4th cycle item mean scores in total scale($P < .05$), and the mean scores of the acupressure group are lower in all three measurements. In intra-group comparisons, it has been learned that there is a statistically significant difference($P < .05$) in the acupressure group and only the total scale item mean scores, and the 4th measurement is lower than the 1st measurement(: al> dl.).

Table 5. Participants' Satisfaction Status (N=67)

Variables	Response	Acupressure Group (n=34)	Control Group (n=33)	Statistics	
		N (%)	N (%)	χ^2	*P* value
The application has been effective in decreasing pain during the menstrual period	Yes	30 (88.3)	27 (81.8)	0.51	.35
	No	4 (11.7)	6 (18.2)		
I am satisfied with the application and the information provided	Yes	31 (91.2)	31 (93.3)	1.00	.51
	No	3 (8.8)	2 (6.1)		
I have not felt discomfort during the application	Yes	30 (88.2)	31 (94)	0.67	.35
	No	4 (11.8)	2 (6.0)		
I recommend that other people could benefit from this application	Yes	28 (82.4)	16 (78.8)	0.14	.71
	No	6 (17.6)	7 (21.2)		
I would like to apply this practice on my own during the menstrual period	Yes	26 (76.5)	24 (72.7)	0.12	.73
	No	8 (23.5)	9 (27.3)		

inhibition of activities of daily living (ADL) (inhibition dimension). It consists of 32 questions in total. The first 9 questions question the demographic characteristics of the patient, the presence of a previous operation and the pain before the illness. 10th question; It consists of 3 sub-questions including whether there is a pain in the last 1 week, whether he has used painkillers, and whether there is a daily pain that requires treatment, and if the patient answered yes to any of the 3 sub-questions, the test continues, and in the following 22 questions, the severity of the pain, clinical The answers are sought for its characteristics, drug use, coping methods, etiology.

Both the acupressure and the control group also used the adjective manageable in periods 2, 3, and 4; 64.7% and 78.8%, respectively, in period 2; 64.7% and 81.8%, respectively, in period 3; and 70.6% and 78.8%, respectively, in period 4 ($P < .05$). In the comparisons made for period 3, participants in the control group described the pain as disturbing ($P < .05$).

Participant Satisfaction

Last but not least, according to the findings of the satisfaction of the groups, it has been seen that the participants in the acupressure group use the expression "I am satisfied with the application and the given information" at most and the expression "I would like to apply this practice on my own during the menstruation period" at least; in the placebo group, they use the expressions "I am satisfied with the application and the given information", "I haven't felt any discomfort during the application" at most and the expression "I recommend that other people should take advantage of this application" at least; however, as a result, it has been clearly seen that both groups are satisfied with the general practices and it has been found that there is no statistically significant difference between the two groups in terms of satisfaction.

DISCUSSION

The fact that the groups were similar in terms of demographic and familial features, with no significant differences between them, is important in terms of showing that the current study's results are accurate and reliable.

When the characteristics of the menstrual pain in the two groups were compared, the current study found that the control group used more painkillers ($\chi^2 = 6.037$, $P < .05$), and the lack of differences between the groups for the other menstrual pain characteristics strengthens the current study's results. However, the acupressure and control groups in the current study both preferred to use rest over most pharmacological methods. Although that preference is in parallel with other studies on the treatment of menstrual pain, preferences may vary from person to person.[6,11,31,32]

It was common for participants in the current study to have other women in their families who also suffered from menstruation pain; most mothers or sisters in the control and acupressure groups stated that other female relatives such as aunts or cousins suffered from menstrual pain. A family history of dysmenorrhea has also been found in other studies.[8,10] The fact that the results of the current study are similar to those of other studies of menstrual pain emphasizes the fact that dysmenorrhea has negative effects in daily life.

When the mean VAS scores for period 4 were evaluated for the acupressure and control groups, the mean score of the acupressure group was found to be lower at day 3 of period 3 ($P < .05$). Jiang et al[33] in a systematic review evaluated studies on primary dysmenorrhea and found that acupressure provides a reduction in pain—1.41 for VAS, although the study contains methodological defects.

In the current study for the acupressure group, the within-group measurements for periods 1, 2, 3, and 4 showed that the VAS pain value decreased significantly every day for all measurements except those of period 3. For the control group, they decreased each day during the 4 days of periods 1 and 2. VAS value did not decrease in the 3rd cycle, and it did not decrease every day in the 4th cycle. Therefore, the prominent difference in other cycles was mentioned.

Wong et al[34] emphasized that acupressure applied for three months, using a study design similar to the current study's, provided both a reduction in suffering and a decrease in pain and that it increased its effectiveness over time. Moreover, those researchers point out that this difference may not have been significant in the study's first months because participants might have affected each other. That study determined that the methods applied during a three-month followup period with both the acupressure and the control groups provided a decrease in menstrual pain to a certain extent. This effect's cause was considered to occur: (1) because the results may have been affected by the groups' studying in the same program; (2) because sham-acupressure education was given to the control group, and that technique may have contributed to pain relief by creating a placebo effect; or (3) that the effective communication of the researchers with participants in both groups may have positively affected dysmenorrhea management.

Liu et al[35] indicated that the sham acupressure in their study may have had analgesic effects similar to those of acupressure on the SP6 point and that the sham-acupressure points (GB39) are in the same nerve segment as the actual acupressure's. In the current study, the use of the GB39 point may have created a similar effect for the control group, because it was close to the application area of the acupressure group. The current study's findings parallel the results of studies showing that acupressure is an effective method for decreasing dysmenorrhea.[36-39]

The results of the current study revealed that the students who participated were satisfied with the practices in general. While the acupressure group expressed its satisfaction, that same satisfaction was achieved in the control group. The current research team thinks that this satisfaction may have stemmed from the fact that the control group thought that the practices could be beneficial and that the training was based on individual close relationships.

In the current study, the fact that the control group experienced less discomfort during the therapy may have been a natural result of the short-term discomfort of the pressure used during sham application. At the same time, the discomfort of the acupressure group confirms that they practiced the technique correctly.

The questions about satisfaction haven't been used in other studies. In future studies, the evaluation of satisfaction may contribute to the evaluation of the effectiveness of the therapy.

This study has limitations because a study conducted on students studying at a university in Turkey can't be generalized to the entire society.

CONCLUSION

Acupressure can be used as an effective and reliable method for the management of primary dysmenorrhea. This therapy has been examined in many systematic reviews and was evaluated to be a promising and effective treatment; however, more high-quality evidence is needed.

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