

# Effects of Acupressure on Menstrual Distress and Low Back Pain in Dysmenorrheic Young Adult Women: An Experimental Study

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## ■ ABSTRACT:

The purpose of this study was to examine the effects of acupressure on menstrual distress and low back pain (LBP) in dysmenorrheic young adult women. In all, 129 female students, who had been experiencing dysmenorrhea with LBP during menstruation and who scored more than 4 points on the visual analog scale for pain, were randomly assigned to an experimental group and a control group. The experimental group (n = 65) received acupressure massage three times a week for 30 minutes on the *sanyinjiao* (SP6), *ciliao* (BL32), and *taichong* (Liver 3) acupoints. The control group (n = 64) received only a manual of menstrual health education without acupressure intervention. Data were collected at five time points: at baseline, 30 minutes, and 4, 8, and 12 months after the intervention. During the 12-month follow-up, the experimental group had significantly lower menstrual distress and LBP scores than the control group. Among 65 participants in the experimental group, 53 (82%) reported a moderate to high levels of menstrual distress, 51 (78%) reported moderate to high levels of LBP relief, and 49 (75%) reported moderate to high levels of satisfaction with acupressure. Our findings may serve as a reference for health care professionals and young women to improve self-care during menstruation and help further understand the therapeutic effects of acupressure on menstrual distress and LBP.

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## BACKGROUND

Primary dysmenorrhea is most common among teenage girls and women under the age of 25 years who have not borne children (Chiou, Wang, & Yang, 2007; Omidvar & Begum, 2011). Studies conducted in Asia and New Zealand

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showed that approximately 75% to 95% of women experience menstrual distress symptoms (Proctor & Farquhar, 2006; Wong & Khoo, 2009) and that moderate to severe dysmenorrhea constitutes from 42% to 73% of the cases (Omidvar & Begum, 2011; Pembe & Ndolele, 2011; Rahma & Anbarin, 2011). When experiencing menstrual distress, between 58% and 90% of young adult women choose bed rest rather than proactive methods and treatments (Rahma & Anbarin, 2011; Wong & Khoo, 2009).

Menstrual distress caused by primary dysmenorrhea involves emotional and physical symptoms that occur before and during menstruation, including back and waist pain, autonomic responses, and water retention (Moos, 2010; Omidvar & Begum, 2011; Wong & Khoo, 2009). The five most common symptoms are lower abdominal pain, fatigue, low back pain (LBP) during menstruation, abdominal bloating, and swelling of the breasts (Chen & Chen, 2005; Omidvar & Begum, 2011). LBP during menstruation is reported by 33% to 56% of the women (Chen & Chen, 2005; Omidvar & Begum, 2011; Pembe & Ndolele, 2011) and is the third most common menstrual distress symptom. Menstrual distress negatively affects women's daily lives. Studies have shown that during menstruation, between 25% and 53% of young adult women experience limited social and other activities (Pembe & Ndolele, 2011; Wong & Khoo, 2009), between 75% and 76.6% have impaired concentration in class (Omidvar & Begum, 2011; Rahma & Anbarin, 2011), and 81% report limitations in physical exercise (Pembe & Ndolele, 2011; Rahma & Anbarin, 2011). Furthermore, menstrual distress results in social and economic effects. In the United States, an annual loss of 600 million hours and \$2 billion is attributed to dysmenorrhea (Gharloghi, Torkzahrani, & Akbarzadeh, 2012).

### Acupressure Interventions

Current treatments for menstrual distress include nonsteroidal anti-inflammatory drugs, low-dose contraceptives, exercise, aromatherapy (Pembe & Ndolele, 2011), transcutaneous electrical nerve stimulation, acupuncture (Proctor & Farquhar, 2006), and acupressure (Chen & Wang, 2013; Wong, Lai, & Tse, 2010). All of the nonpharmacologic treatments have been shown to alleviate menstrual symptoms. Acupressure is a general word for the stimulation of acupoints by means of pressure, usually using the hands, fingers, and thumbs, applied to cause redistribution of energy resources and restore body harmony and health, thus achieving balance within the body (Tang, 2009). Acupressure is also a convenient, cost-effective, and

easy-to-perform method that improves self-care among this population of women.

Various clinical studies have examined the effect of acupressure on menstrual distress. Two Taiwanese studies reported that acupressure on the *sanyinjiao* point significantly decreased menstrual pain and distress in teenage girls with dysmenorrhea during a 3- to 6-month follow-up (Chen & Chen, 2004; Wong et al., 2010). Another Taiwanese study of 134 teenage girls with dysmenorrhea found that after a 6-month follow-up, participants who received acupressure on the *begu* and *sanyinjiao* points had significantly reduced menstrual pain, menstrual distress, and anxiety during menstruation (Chen & Chen, 2010). Chi, Hsu, Chiu, and Shaw (2004) recruited 60 university students with dysmenorrhea. The experimental group received both massage on the *sanyinjiao* and *xuebai* points and heat compression for 30 minutes, whereas the control group received only heat compression for 30 minutes. Both groups demonstrated decreased menstrual pain and physiologic indicators after the intervention. Among the various clinical studies on menstrual distress and LBP, Lee (2005) applied acupoint pasting on the *zhongji*, *sanyinjiao*, *diji*, and *tai-chong* points using cowherb seeds in 40 participants with primary dysmenorrhea associated with *qi* stagnation and blood stasis type. The seeds of a cowherb, a known Chinese herb, were used to treat dysmenorrhea and other gynecologic diseases owing to their beneficial effects on blood circulation. Cowherb seeds with acupoint pasting may be applied to some acupuncture points in the body as an alternative to acupuncture. Each acupressure point was pressed five or six times for 30 to 60 seconds daily. The results showed that the total effective rate reached 92.5% after one to two treatment sessions. Chung (2009) recruited 68 women with severe LBP associated with primary dysmenorrhea. The experimental group received 2 minutes of acupuncture massage on the *begu*, *sanyinjiao*, *ciliao*, and *zusanli* points for 30 minutes altogether with oral administration of vitamin B<sub>6</sub>. The control group received conventional analgesics. In the experimental group, LBP was significantly reduced. A quasi-experimental study by Tang (2009) showed that the application of acupressure on the *sanyinjiao* and *ciliao* points enhanced circulation in the lower body and effectively relieved lower abdominal, low back, and waist pain during menstruation. Acupressure to the *zhishi* point also effectively alleviated low back and waist pain. Moreover, acupressure to the *qibai* point improved menstruation-related discomfort or distress and restored *qi* and blood balance in the body. Finally, Taylor, Miaskowski, and Kohn (2002) conducted a study on 61 participants

with moderate to severe dysmenorrhea. After a 2-month follow-up, the group that wore Lycra massage panty briefs during menstruation had significantly reduced symptoms of menstrual distress and back pain.

Most studies on reducing menstrual distress by acupressure have focused mainly on the abdominal area (Chen & Chen, 2010; Wong et al., 2010) and less on LBP experienced by young women during menstruation. However, those studies usually had a short duration of follow-up, few examined the effects of acupressure on menstrual distress and LBP in dysmenorrheic young adult women. Therefore, the aims of the present study were to explore the effects of acupressure points, including the *sanyinjiao* (SP6), *ciliao* (BL32), and *taichong* (Liver 3) on menstrual distress and LBP in dysmenorrheic young women and (b) assess the effects of acupressure at 30 minutes and at 4, 8, and 12 months.

## METHODS

### Ethical Considerations

The protocol was approved by the institutional review boards from two universities in southern Taiwan where young adult women were recruited. All participants received a written description of the research purpose and gave written consent to participate in the study after the procedures had been fully explained to them.

### Design and Sample

This was an experimental study involving pre- and post-testing interventions (i.e., each participant received an unmarked, sealed envelope containing a randomly generated allocation number). The study included female student volunteers recruited from two private universities in southern Taiwan. Data were collected between March 2011 and August 2012. All participants suffered from primary dysmenorrhea and had a history of LBP during menstruation in the previous 3 months. The inclusion criteria were as follows: age less than 25 years; dysmenorrhea with LBP during menstruation scoring more than 4 points on the visual analog scale for pain (VASP); no prior history of gynecologic disease or secondary dysmenorrhea; and consent to participate in the study at least for 8 months. Women who had taken pain medication 4 hours before the intervention and those with a history of LBP or a surgery for LBP were excluded from the study.

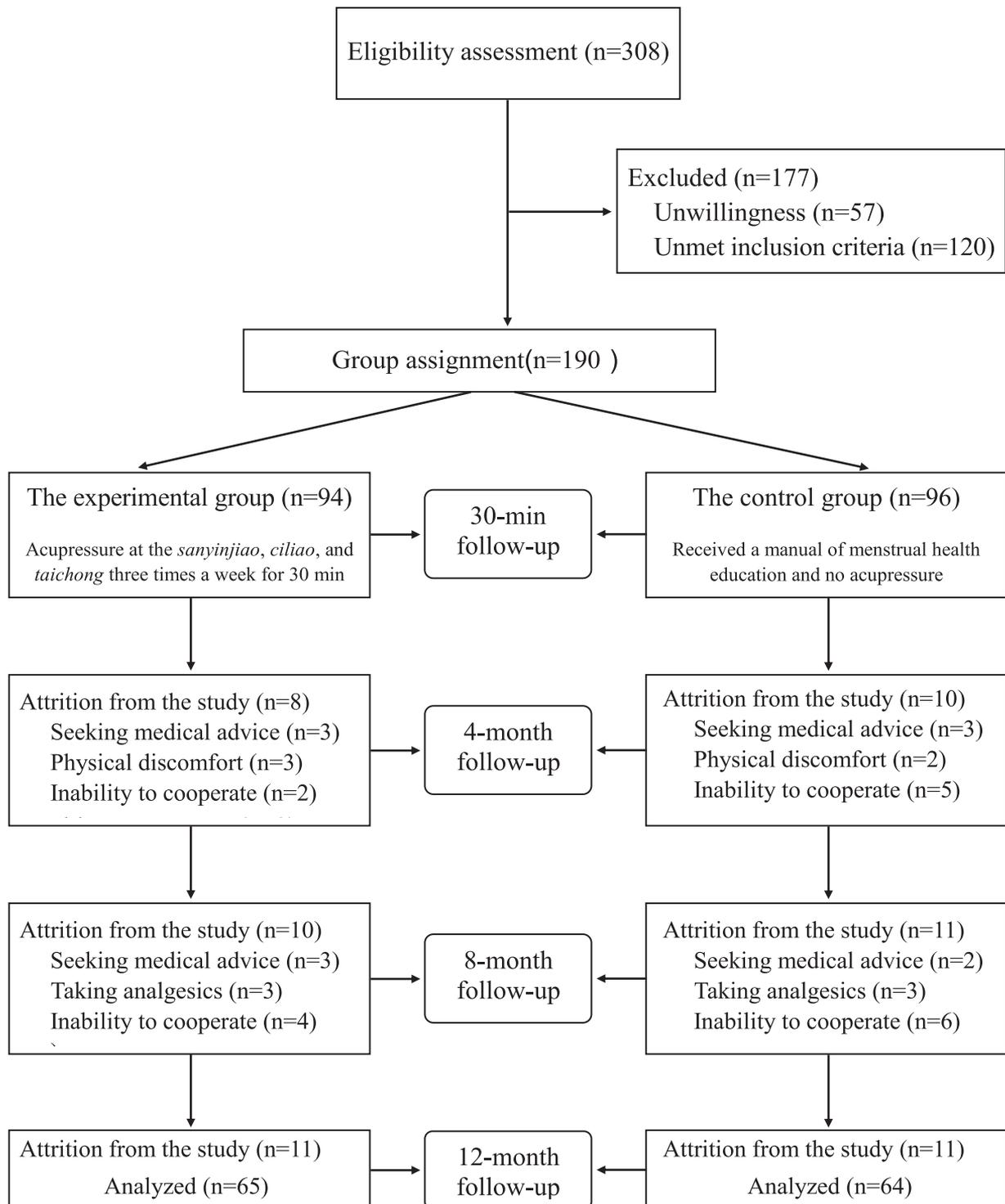
Participants were randomly assigned either to a control group that did not receive acupressure or an experimental group that received acupressure. The

sample size was predetermined in a pilot study using the power analysis based on a medium effect size, an  $\alpha$  of 0.05, and a power of 0.80 (Polit & Beck, 2008). Each of the groups required 63 participants. We invited 308 eligible persons to participate in the study. Of these, 177 participants (57.5%) were unwilling to participate or did not meet inclusion criteria. In all, 129 participants (65 in the experimental group and 64 in the control group) completed a 12-month follow-up. All participants in the experimental group provided data at 30 minutes, whereas 91.4% provided data at 4 months, 80.8% at 8 months, and 69.1% at 12 months. All participants in the control group provided data at 30 minutes, whereas 89.6% provided data at 4 months, 78.1% at 8 months, and 66.7% at 12 months. During the 12-month follow-up, 29 participants in the experimental group and 32 in the control group were lost for one of the following reasons: medical advice, use of analgesics, physical discomfort, or inability to cooperate (Fig. 1).

### Research Settings

In Chinese medicine, the menstrual cycle is a physiologic phenomenon that develops from the combined effect of the *zangfu* (organs), *tiangui*, meridians, and *qi* and blood in the uterus (Tang, 2009). Dysmenorrhea is caused primarily by weak or deficient kidney *qi*, which results in insufficiency and obstruction of *qi* and blood and leads to pain (Chen, 2008). Pain in the lower abdomen is associated with blood stasis; pain on both sides of the lower abdomen is related to liver *qi* stagnation; and pain in the lumbar region is typically associated with kidney deficiency and injury (Caroline, Caroline, Oswald, Justin, & Hannah, 2011; Kuo & Hsiu, 2010; Tang, 2009). The acupressure points for relieving dysmenorrhea or menstrual distress include *sanyinjiao*, *ciliao*, *begu*, and *neiguan* (Chen & Chen, 2010; Wong et al., 2010). Among these, the combination of *sanyinjiao* and *taichong* as well as that of *ciliao*, *zhishi*, and *shenshu* are effective in alleviating back and waist pain during menstruation (Caroline et al., 2011; Tang, 2009). The force applied in acupressure interventions should be maintained between 3 and 5 kg, and each therapy session should last for 20 to 30 minutes (Chen & Chen, 2010; Gharloghi et al., 2012).

On the basis of empirical studies conducted in Taiwan and other countries (Caroline et al., 2011; Chen & Chen, 2010; Chung, 2009) and suggestions from physicians of Chinese medicine, *sanyinjiao* (SP6), *ciliao* (BL32), and *taichong* (Liver 3) points were selected as the acupressure points for menstruation treatment in the experimental group. The duration of the acupuncture intervention was



**FIGURE 1.** ■ Flow diagram of subject progress through the phases of randomized trial.

30 minutes. The acupressure point was pressed and rubbed for 4 seconds with the thumb, and then the pressure was relieved for 2 seconds. This was repeated 10 times per minute. Alternate acupressure

between the two sides of the body was performed every 5 minutes for a total of 30 minutes. Sensations including soreness, numbness, heaviness, swelling, and warmth during acupressure were considered as

indicating accurate acupuncture points (Chung, 2009; Lee, 2006).

The recruitment location was an infirmary or health center at which students could rest in bed. To ensure the accuracy of the acupressure point, the researcher located and marked the acupuncture points of all participants in the experimental group during their menstruation. The researcher (who has received 10 credits from training programs in Chinese medicine nursing and has published numerous empirical studies on acupressure points) also personally applied acupressure on the points until the sensations of soreness, numbness, heaviness, and swelling occurred. Women received acupressure at the *sanyinjiao*, *ciliao*, and *taichong* points twice a day for 30 minutes per session during menstruation over the period of 12 months (Fig. 2). The control group received menstrual health education (they were instructed on the use of vitamin supplements and avoidance of cold or greasy foods) and no intervention of acupressure.

To investigate whether continuous acupressure resolved menstrual distress, the experimental group was encouraged to perform acupressure three times a week for 30 minutes on the *sanyinjiao*, *ciliao*, and *taichong* acupoints during the 12-month follow-up. The control group received only a manual about menstrual health education without acupressure intervention. After the study, the control group received group or individual instruction on acupressure massage applied to accurate acupuncture points. Both groups completed the VASP, the short-form Menstrual Distress Questionnaire (MDQ-SF), and the Oswestry Low Back Pain Disability Questionnaire (ODI) at baseline and at 30 minutes and 4, 8, and 12 months after the intervention. Two research assistants made follow-up phone calls and provided instructions during home visits to increase the questionnaire recovery rate. All participants received acupressure tools as gifts, which were sent to their home addresses after the study.

## Measures

The characteristics of the participants, including age, age at menarche, menstrual duration, and degree of menstrual LBP, were investigated using a demographic data questionnaire.

**Visual Analog Scale for pain.** The VASP consisted of a 10-cm horizontal scale with the descriptor of *no pain* on the left and *worst possible pain* on the right. Participants were asked to place a mark on the line at a point that corresponded to the level of pain intensity felt. The distance in centimeters from the lower end of the VASP to the participant's mark was used as a numerical index of the severity of pain. The VASP score

highly correlates with pain measured on the verbal and numeric rating scales (Chen & Chen, 2005, 2010). **Short-form Menstrual Distress Questionnaire.** The Chinese version of the MDQ-SF consists of 16 items adopted from the full scale (Wang, 1991). Participants rated their experience on a 4-point scale, where 1 represented no experience of the symptom and 4 represented severe experience of the symptom. Sixteen symptoms were grouped into three categories (pain, autonomic reactions, and water retention). The scale was tested in the study population and was found to have a reliability coefficient of 0.83 to 0.84 (Chen & Chen, 2005, 2010). In our study, the MDQ-SF had satisfactory internal consistency with a Cronbach's  $\alpha$  coefficient of 0.83.

**Oswestry Low Back Pain Disability Questionnaire.** The ODI was developed by Fairbanks, Couper, Davies, and O'Brien (1980), and was translated into Chinese by Tseng (2004). The scale contains 10 items, including pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, traveling, and employment/homemaking. Each item is scored from 0 to 5, with 0 indicating no effect on the particular function and 5 indicating significant limitation on the function. The total score ranges from 0 to 50, with higher scores indicating greater limitations on daily functions. Fairbanks et al. (1980) reported a test-retest reliability in a 24-hour interval of  $r = 0.99$ , whereas Tseng (2004) reported a test-retest reliability of  $r = 0.96$  in a study involving 10 patients with LBP.

## Data Analysis

Data analyses were conducted using the Statistical Software Package for the Social Sciences (SPSS), Version 17.0. The mean value, SDs,  $t$  tests, and  $\chi^2$  tests were used to analyze the homogeneity between the two groups. Repeated measures of the analysis of variance (ANOVA) were used to test the VASP, MDQ-SF, and ODI. The accepted level of significance for all analyses was  $p < .05$ .

## RESULTS

### Demographic Characteristics

The mean age of the experimental and control groups was 18.75 years (SD = 1.74 years) and 18.73 years (SD = 0.63 years), respectively. Most participants were in the moderate category of LBP (4.94 [1.67]; range, 4-9). There were no significant differences in the demographic and menstrual characteristics or in the baseline parameters between the groups (Table 1).

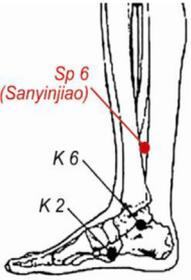
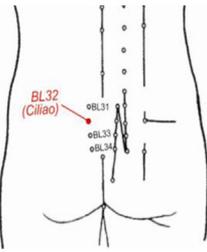
Acupressure point	Location	Indications
Sanyinjiao ( SP6 ) 	On the medial lower leg, 3 cun above the prominence of the medial malleolus (ankle bone), in a depression close to the medial crest of the tibia.	Painful menstruation, abdominal pain, diarrhea, irregular menstruation, uterine bleeding, morbid leucorrhoea, uterine prolapse, sterility, delayed labour, nocturnal emission, impotence, enuresis (bed wetting), edema, hernia, pain in external genitalia, headache, dizziness, insomnia.
Ciliao ( BL32 ) 	In the region of the sacrum, medial and inferior to the posterior superior iliac spine, in the 2nd sacral foramen.	Low back pain, irregular menses, vaginal discharge, hernia, dysmenorrhea, sciatica, orchitis, constipation, delayed labor, borborygmus and diarrhea, epigastric fullness, vomiting, peritonitis, enuresis, impotence, nocturnal emission, endometritis, ovaritis, pain due to excess of energy, sensation of cold in the back.
Taichong ( Liver 3 ) 	On the foot about two finger widths above the place where the skin of your big toe and the next toe join.	Low back pain, menstrual cramps, limb pain, stress, high blood pressure, insomnia and anxiety.

FIGURE 2. ■ Menstrual back pain intervention acupressure point.

### Effectiveness of Acupressure

To test the effects of acupressure on the outcome measures, a repeated-measure two-way ANOVA was used to analyze the VASP, MDQ-SF, and ODI scores. Table 2 presents a summary of the 5 (time)  $\times$  2 (group) two-way ANOVA. The VASP, MDQ-SF, and ODI scores continually decreased during the study. Compared with the control group, the experimental group had significantly lower VASP scores ( $F_{1,127} = 6.09$ ,  $p = .015$  at

30 minutes;  $F_{1,127} = 6.09$ ,  $p = .001$  at 4 months;  $F_{1,127} = 9.96$ ,  $p = .002$  at 8 months;  $F_{1,127} = 1.09$ ,  $p = .031$ , at 12 months]; significantly lower MDQ-SF scores ( $F_{1,127} = 11.16$ ,  $p = .001$  at 30 minutes;  $F_{1,127} = 3.44$ ,  $p = .030$  at 4 months;  $F_{1,127} = 0.74$ ,  $p = .023$ , at 8 months; and  $F_{1,127} = 4.40$ ,  $p = .012$  at 12 months); and significantly lower ODI scores ( $F_{1,127} = 4.98$ ,  $p = .064$  at 30 minutes;  $F_{1,127} = 2.31$ ,  $p = .042$  at 4 months;  $F_{1,127} = 0.61$ ,  $p = .014$  at

**TABLE 1.**  
**Comparison Between Experimental (n = 65) and Control (n = 64) Groups of Demographic Characteristics**

Variable	Experimental Group n (%)	Mean ± SD	Control Group n (%)	Mean ± SD	t or $\chi^2$	p
Age (y)		18.75 (1.74)		18.73 (0.63)	-0.13	.89
Age at menarche (y)		12.55 (0.99)		12.25 (1.25)	1.75	.08
Menstrual duration (d)		6.40 (2.48)		6.44 (2.01)	0.10	.92
Menstrual low back pain		4.91 (1.46)		4.98 (1.36)	-0.43	.67
Limited daily activity					2.36	.67
None	8 (12)		5 (8)			
Mild	30 (46)		30 (47)			
Moderate	18 (28)		20 (31)			
Severe	9 (14)		9 (14)		2.49	.17
Absent from class						
No	52 (80)		45 (70)			
Sometimes	12 (18)		15 (23)			
Usually	1 (2)		4 (6)			
Self-care*					0.53	.47
No treatment	23 (23)		13 (13)		0.22	.64
Bed rest	41 (41)		42 (42)		1.61	.20
Self-medication	14 (14)		19 (19)		1.83	.12
Heating pad	20 (20)		19 (19)		1.61	.21
Chinese herbal medicine	3 (3)		6 (6)		0.53	.47

\*Multiple choices.

8 months; and  $F_{1,127} = 1.28$ ,  $p = .040$  at 12 months). The results are presented in Table 2. Among the 65 participants in the experimental group, after the 12-month follow-up, 53 (82%) reported moderate to high levels of menstrual distress relief, 51 (78%) reported moderate to high levels of LBP relief, and 49 (75%) reported moderate to high levels of satisfaction with acupressure. In response to the open questions, participants who received acupressure reported a reduction in menstrual distress and LBP, as well as convenience, comfort, and relaxation.

## DISCUSSION

According to the Bureau of National Health Insurance (National Health Insurance Administration Ministry of Health and Welfare, 2013), expenditures of Chinese medicine account for approximately 4% of annual health insurance costs. The utilization rate of Chinese medicine clinics increased from 22% in 1998 to 61.36% in 2002, indicating that the population recognizes the significance of Chinese medical treatment. Treatment applied to acupressure points regulates bodily functions by stimulating the secretion of neurotransmitters such as endorphins, which allows the patient achieve therapeutic effects including pain relief, relaxation, and comfort (Tang, 2009). The results of this study are comparable with the findings of the previous studies on the use of acupressure for

dysmenorrhea (Chen & Chen, 2010; Gharloghi et al., 2012; Wong et al., 2010).

Regarding the therapeutic effect of acupressure on menstrual distress, our findings are in line with those of the previous studies (Cho & Hwang, 2010; Smith, Zhu, He, & Song, 2011; Wong et al., 2010). An intervention review conducted in Australia (Smith et al., 2011) and a systematic review conducted in South Korea (Cho & Hwang, 2010) reported that both acupuncture and acupressure were effective in alleviating primary dysmenorrhea. The previous studies (Chen & Chen, 2004; Wong et al., 2010) recruited participants between the ages of 17 and 25 years, and focused primarily on treating a single acupuncture point—*sanyinjiao*. The duration of intervention ranged from 20 to 30 minutes per session. The follow-up period ranged from 30 minutes to 6 months, and all participants showed satisfactory outcomes (Chen & Chen, 2004; Gharloghi et al., 2012; Wong et al., 2010). Among these, Chen and Chen (2004) and Wong et al. (2010) applied intervention only to the *sanyinjiao* point, and the follow-up periods ranged from 1 to 3 months. In our study, we adopted a combination of points (i.e., *sanyinjiao*, *ciliao*, and *taichong*), and extended the follow-up period to 12 months. Chen and Chen (2004) and Wong et al. (2010) examined short- and mid-term benefits (i.e., 30 minutes to 3 months), whereas we observed long-term (i.e., 12-month) effects. Gharloghi et al. (2012)

**TABLE 2.**  
**Comparisons of Outcomes Measures Between Experimental (n = 65) and Control (n = 64) Groups**

Scales	Experimental Group Mean (SD)	Control Group Mean (SD)	Interaction	
			F	p
VASP				
Time 0	4.95 (1.46)	4.98 (1.36)	0.49	.482
Time 1	3.58 (1.56)	4.24 (1.51)	6.09	.015
Time 2	3.20 (1.70)	4.31 (2.15)	10.59	.001
Time 3	3.32 (1.38)	4.69 (2.06)	9.96	.002
Time 4	3.50 (1.64)	3.91 (1.40)	1.09	.031
MDQ-SF				
Time 0	31.17 (5.03)	30.49 (4.91)	2.09	.136
Time 1	25.49 (5.41)	28.51 (4.74)	11.46	.001
Time 2	25.39 (5.36)	27.74 (4.51)	3.44	.030
Time 3	25.29 (4.98)	26.20 (4.53)	0.74	.023
Time 4	24.04 (3.93)	26.83 (5.79)	4.40	.012
ODI				
Time 0	23.40 (1.17)	22.81 (5.94)	5.38	.121
Time 1	17.12 (1.70)	18.31 (2.15)	4.98	.064
Time 2	16.36 (3.85)	17.98 (5.64)	2.31	.042
Time 3	15.55 (3.91)	17.71 (6.20)	4.61	.014
Time 4	15.12 (4.55)	18.09 (4.26)	1.28	.040

VASP = visual analog scale pain; MDQ = Menstrual Distress Questionnaire; ODI = Oswestry Disability Index Time 0: pre-test; Time 1: 30-min post-test; Time 2: 4-month post-test; Time 3: 8-month post-test; Time 4: 12-month post-test.

compared the effects of a single-point intervention between *sanyinjiao* and *diji*. The results showed that acupressure at these points effectively reduced menstrual distress symptoms, except for nausea and vomiting, whereas intervention at the *sanyinjiao* point was more effective than that at *diji* in relieving menstrual fatigue. Similar to our study, [Chi et al. \(2004\)](#) and [Chen and Chen \(2010\)](#) adopted a combination of points for intervention. Although the selected acupressure points and intervention duration varied between the studies, all showed relief of menstrual distress. In the study by [Chi et al. \(2004\)](#), acupressure was applied to *sanyinjiao* and *xuehai* for 10 minutes, and in the study by [Chen and Chen \(2010\)](#), it was applied to *begu*, *sanyinjiao*, and *zusanli* for 20 minutes. In this study, acupressure was applied to *sanyinjiao*, *ciliao*, and *taichong* three times a week for 30 minutes.

According to Chinese medicine, pain in the back and waist area during menstruation is typically related to kidney deficiency and injury ([Caroline et al., 2011](#); [Kuo & Hsiu, 2010](#)). Our results showing the therapeutic effects of acupressure on LBP during menstruation are comparable with those of the previous clinical and empirical studies conducted by Chinese medicine physicians ([Chung, 2009](#); [Lee, 2005](#); [Tang, 2009](#)). Similar to our study, they applied a combination of points to alleviate menstrual LBP. However, in contrast to the present study, they used shorter observation periods that ranged from 1 to

2 weeks. Furthermore, [Lee \(2005\)](#) and [Tang \(2009\)](#) only compared the baseline and follow-up scores of the experimental group, whereas we employed a more stringent research design by including a control group for comparison. The 12-month follow-up period also allowed us to observe the long-term effects of acupressure. [Taylor et al. \(2002\)](#) used simple Lycra massage panty briefs. Similar to our study, they implemented the combination of points and used an experimental study design with a follow-up. Nevertheless, although simple acupressure panty briefs developed by [Taylor et al. \(2002\)](#) were convenient, they did not accurately apply pressure to the acupressure points because of anatomical differences between participants. Additionally, the tights caused poor circulation in certain areas, leading to reduced compliance among participants. On the other hand, the acupressure points applied in our study were easy to manipulate. The duration and pressure could be determined based on individual needs, thus providing customized and comfortable treatment options.

### Conclusions and Implications for Nursing

In our study, the follow-up examinations at 30 minutes and at 4, 8, and 12 months revealed that acupressure significantly decreased menstrual distress and LBP in young adult women. Thus, the study demonstrated the short-, mid-, and long-term effects of acupressure on alleviating menstrual distress, and confirmed that

acupressure can be used as a safe and easy nonpharmacologic treatment for menstrual distress and LBP. The acupressure points applied in our study can be easily identified, and the intervention does not require specialized location or equipment. Applying acupressure on these points provides instant pain relief, thus improving quality of life during menstruation. Regarding education, we suggest that the acupressure model developed in this study should be incorporated as a reference into vocational or in-service training of clinical personnel to provide an alternative treatment option for patients with different menstrual distress symptoms. Medical professionals in health care

facilities are encouraged to promote this intervention among young adult women to improve their self-care during menstruation. We suggest that future research should explore acupressure interventions for other menstrual distress symptoms, including menstrual fatigue, headache, and bloating, to provide more comprehensive care for patients with menstrual distress.

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