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Perimenstrual Distress and Coping Responses among College Women

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Abstract

The purpose of this study was to investigate the prevalence of menstrual distress and coping responses in college women and to provide basic data for nursing management of women with menstrual distress. In a descriptive cross-sectional study, 233 female college students who study at S university were included. They completed an online structured survey containing the menstrual distress questionnaire and menstrual coping responses. The mean of menstrual distress experienced by participants was 2.51 in a scale of 1 to 5. The mean score of subcategories of menstrual distress was 2.61 for pain, 2.14 for impaired concentration, 2.52 for behavior change, 2.31 for autonomic reactions, 2.69 for water retention, and 2.82 for negative affect. The subjects used an average of 9.38 coping responses out of a possible 24 items to cope with their menstrual distress, and also that the ones they used were less effective. Also, the study found a negative affect of menstrual distress was correlated with avoidant coping of menstrual coping responses.

Therefore, it is necessary to educate female college students to recognize the period properly and manage their menses symptoms in a positive and effective manner.

Keywords: *Perimenstrual distress, Premenstrual distress, Dysmenorrhea, Coping, College*

1. Introduction

A large number of menstruating women suffer from one or more menstrual symptoms. Among these symptoms, premenstrual syndrome(PMS) and dysmenorrhea are the two most prevalent [1]. Premenstrual syndrome is the monthly recurrence of several physiological and psychological symptoms in the luteal phase of the menstrual cycle, which are serious enough to interfere with everyday interpersonal, social and work functions [2]. Dysmenorrhea is characterised by a particularly intense pain that is localised in the abdominal inferior quadrants and radiates through the inner thighs. This symptom begins several hours before menstruation or contemporaneously with the beginning of the period. The discomfort is intense in the first day; but it rarely continues beyond this [3].

One of the most striking characteristics of menstruation related symptoms is its' variability, reflected both in the variety of symptoms women experience and in the large variation in the prevalence of these symptoms from one population to another [4]. Epidemiological surveys have estimated that the frequency of PMS symptoms is quite

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high (about 80-90%), and about 5% of women experience symptoms so severe that they interfere with her daily activities [5, 6]. However, despite extensive research on the etiology and treatment of menstrual related symptoms, the mechanisms producing them remain unclear. Therefore, it is necessary to have a correct understanding and analysis of menstrual symptoms. A better understanding of these disorders will allow us to have a more precise diagnosis and provide more direction for targeted therapeutic interventions.

Most women rarely receive professional treatment to manage their menstrual discomfort. They do not know about concrete menstrual symptoms or their treatments and instead practice individualized folk remedies. If a woman reacts to aspects of the menstrual cycle (i.e. she experiences discomfort) with the implementation of maladaptive coping strategies, she may experience a more negative mood and perceive changes in her physical status as more severe[7]. Therefore, it is important to minimize menstrual discomfort by educating effective coping skills to manage it self-sufficiently.

The purpose of this study was to investigate the prevalence of menstrual distress and coping responses in college women and to provide basic data for nursing management of women with menstrual distress.

2. Methods

2.1. Setting and Sample

This study was conducted by female nursing students who attend a college located in J city. Before conducting the study, the cooperation of the student representative of the department was sought, and the purpose and online survey procedures of the study were explained to each grade. Subsequently, email addresses of students hoping to participate in the study were collected[8].

The survey questionnaire consisted of an online NAVER Form and was sent to 300 participants by email messenger; 233 subjects from the original survey pool agreed to participate in the study and completed the questionnaire. Data were collected between 15 July and 30 July, 2014.

2.2. Survey Instruments

2.2.1. Perimenstrual Distress Questionnaire

The term ‘perimenstrual distress’ is used to refer to symptoms of distress associated with menstruation, which may be experienced immediately before, during, or immediately after the menstrual process [9]. In this study, perimenstrual distress was measured by 30 items that were modified by Park [10] from Moos Menstrual Distress Questionnaire(MDQ) [11].

This perimenstrual distress questionnaire consists of 30 items grouped into six scales: pain (5 items), impaired concentration (3 items), behavior change (5 items), autonomic reactions (9 items), water retention (2 items), and negative affect (6 items).

Participants were asked to respond on a 5-point Likert-type scale, where 1 represented "not present" and 5 represented "extreme." This indicates that as the point values increase, subjects display more menstrual symptoms. Cronbach's alpha for the present study was 0.95.

2.2.2. Menstrual Coping Questionnaire

The measurement of menstrual coping was taken using the instrument Chung[12] modified and supplemented following her translation of Billings and Moos’tool [13].

This menstrual coping questionnaire consists of 24 items grouped into four scales: general symptomatic therapy coping (8 items), active behavioral coping (5 items), active cognitive coping (4 items), and avoidant coping (7 items). This instrument was designed

to examine the strategies participants use to cope with menstrual discomforts. Respondents were asked to answer 24 items about how they dealt with it using a yes/no response format.

This instrument allocates 1 point to “yes” and 0 points to “no” in accordance with whether they dealt with it or not. This indicates that the subjects exhibiting higher scores cope with it better. Cronbach's alpha for the present study was 0.76.

2.3. Statistical Analysis

SPSS program 19.0 (SPSS Inc., Chicago, IL, USA) was used to analyze the data.

Descriptive statistics were used to quantify the demographic characteristics and levels of menstrual distress. Coping responses used by participants to deal with menstrual distress were analyzed using the frequencies and percentages outlined above. Pearson's correlation, the independent t test, and one-way analysis of variance were used to identify the differences or the relationships in the menstrual distress and coping responses used menstrual distress according to the participants' demographic characteristics. Duncan's test was used for post hoc contrast analysis. Pearson's correlation analysis was used to analyze the relationship between the menstrual distress and the coping responses used to address menstrual discomforts. A value of $p < 0.05$ was considered statistically significant.

3. Results

3.1. General Characteristics and Menstruation Related Characteristics of Subjects

Women who participated in the study ranged in age from 19 to 26, with a mean age of 21.12 years. The mean menarche age was 12.85 year old, and it varied from 8 years old to 18 years old. 59.7% of participants (139 subjects) reported that their period is regular and the mean of cycle length is 28.87 days (range of 21 ~ 40 days). 24% of participants indicated that they have heavy bleeding, 58.4% stated that they experience regular bleeding, and 17.6% participants reported that they have light bleeding. 57.7% of participants indicated that they feel menstrual distress 3~4 days before the period, 20.1% reported having discomfort when menstruation starts, 9.4% during the period, and 7.7% of participants indicated that they do not have any menstrual distress. According to the analysis on how the participants feel about the period, they have expressed various feelings such as experiencing discomforts (78.1%), feeling sick (53.6%), feeling dirty (10.3%), etc. (Table 1).

Table 1. General Characteristics of Study Participants (N=233)

Variables	n (%)	Mean±SD (Range)
Age (years)		21.12±1.20 (19~26)
Health Status		1.69±0.93 (1~5)
Very healthy	136 (58.4)	
Healthy	44 (18.9)	
Healthy but fatigued	46 (19.7)	
Unhealthy	7 (3.0)	
Stress level		2.90±0.61 (1~4)
Very high	4 (1.7)	
High	45 (19.3)	
Moderate	155 (66.5)	
Mild	29 (12.5)	
Age at Menarche		12.85±1.52 (8~18)

Regularity of menstruation		
Regular	139 (59.7)	
Irregular	94 (40.3)	
Length of menstrual cycle		28.87±2.05 (21~40)
Volume of menstrual flow		
Heavy	56 (24.0)	
Moderate	136 (58.4)	
Light	41 (17.6)	
Occurrence of Menstrual distress		
3~4 days before menstruation	133 (57.1)	
Onset at menstruation	47 (20.2)	
During the menstruation period	22 (9.4)	
None	18 (7.7)	
Others	13 (5.6)	
Feeling about menstruation (What menstruation feels like)*		
Ashamed	5 (2.1)	
Fear	5 (2.1)	
Discomfort	182 (78.1)	
Pain	125 (53.6)	
Feeling of dirty	24 (10.3)	
Mature sense	7 (3.0)	
Pride	2 (0.9)	
No sense	36 (15.5)	

* Multiple choices

3.2. Menstrual Distress of Subjects

The mean of menstrual distress experienced by participants was 2.51 in a scale of 1 to 5. 'Negative affect' showed the highest score with a mean of 2.82, followed by 'pain' at 2.61, 'impaired concentration' at 2.14, 'behavior change' with 2.52, 'autonomic reactions' at 2.31, and 'water retention' with 2.69. The most commonly experienced symptoms of menstrual distress items are feeling 'sensitive' (mean: 3.45), 'abdominal pain and discomfort' (mean: 3.33), 'lower back pain' (mean: 3.33), and 'nervousness' (mean: 3.33) (Table 2).

Table 2. Menstrual Distress of Participants (N=233)

Categories	Menstrual distress	Frequency§ n (%)	Mean±SD	Mean±SD of category
Pain	Abdominal pain and discomfort	32 (13.7)	3.33±1.28	2.61±0.91
	Lower back pain	39 (16.7)	3.33±1.30	
	Headache	3 (1.3)	1.97±1.13	
	Muscle stiffness	4 (1.7)	1.98±1.07	
	General body discomfort	8 (3.4)	2.46±1.21	
Impaired concentration	Concentration difficulty	12 (5.2)	2.66±1.26	2.14±0.91
	Pain-related insomnia	12 (5.2)	2.23±1.30	
	Getting in a little problem	0 (0.0)	1.55±0.77	
Behavior change	Desire to be alone	11 (4.7)	2.49±1.27	2.52±0.97
	Disinterest in life	36 (15.5)	3.26±1.26	
	Class disturbance due to menstrual pain	12 (5.2)	2.44±1.28	

	Exercise difficulty due to menstrual pain	16 (6.9)	2.64±1.29	
	Absence from class due to menstrual pain	4 (1.7)	1.78±1.07	
Autonomic reactions	Nausea or vomiting	0 (0.0)	1.48±0.85	2.31±0.78
	Cold sweating	3 (1.3)	1.86±1.13	
	Fainting, Vertigo	3 (1.3)	1.61±1.02	
	Decreased appetite	5 (2.1)	2.12±1.19	
	Constipation, Diarrhea	16 (6.9)	2.55±1.36	
	Frequency of urination	2 (0.9)	2.22±1.10	
	Fatigue or tiredness	20 (8.6)	3.11±1.27	
	Cold hands and feet	11 (4.7)	2.44±1.27	
	Sensitive	38 (16.3)	3.45±1.18	
Water retention	Painful or tender breasts	28 (12.0)	3.04±1.34	2.69±1.12
	Swelling in the whole body	1 (6.0)	2.35±1.28	
Negative affect	Depression	20 (8.6)	2.89±1.30	2.82±1.13
	Nervousness	37 (15.9)	3.33±1.23	
	Anxiety	17 (7.3)	2.65±1.30	
	Malaise	11 (4.7)	2.40±1.27	
	Moodiness	22 (9.4)	2.91±1.32	
	Angered easily	20 (8.6)	2.79±1.31	
Total score of menstrual distress				2.51±0.80

[§] Frequency of subjects with severe menstrual distress about each item

3.3. Coping Responses used Menstrual Distress and Symptom Relief

The subjects used an average of 9.38 coping responses out of a possible 24 items to cope with their menstrual distress. It is shown that those items categorized as 'general symptomatic therapy coping' scored a mean of 3.66 out of 8, those labeled as 'active behavioral coping' scored an average of 1.08 out of 5 ways, those as 'active cognitive coping' had an average of 2.37 out of 4 ways, and those categorized as 'avoidant coping' averaged 1.54 out of 7 ways.

When menstrual coping is itemized, 'take rest and sleep' (84.5%) records the highest rate followed by 'regard as physiological and temporary' (78.1%), 'take a warm shower' (69.5%), 'control feeling by oneself' (62.7%), and 'talk about symptoms with friends' (60.5%). However, the effective means of symptom relief in menstrual coping were 'apply hot water bag on the painful point', 'take a pain killer', and 'take rest and sleep'.

'Apply hot water bag on the painful point' was used by 123 participants (52.8%) and the symptoms were relieved among 98.4% of them; 'Take pain killer' selected by 111 (47.6%) and the symptoms attenuated among 95.5% of them; 'Take rest and sleep' employed by 197 (84.5%) and the symptoms alleviated among 91.4% of them (Table 3).

Table 3. Coping Responses used Menstrual Distress and Symptom Relief Ratio (N=233)

Categories	Coping responses used n (%)	Symptom relief ratio* n (%)
Take vitamins.	10 (4.3)	5 (50.0)
Take rest and sleep	197 (84.5)	180 (91.4)
Take a pain killer.	111 (47.6)	106 (95.5)
Apply hot water bag on the painful point	123 (52.8)	121 (98.4)

Take a warm shower.	162 (69.5)	124 (76.5)
Listen soft music.	66 (28.3)	40 (60.6)
Take warm water.	38 (16.3)	29 (76.3)
Control feeling by oneself.	146(62.7)	91 (62.3)
General symptomatic therapy coping (0~8)	Mean±SD= 3.66±1.69	
Take exercise	30 (12.9)	18 (60.0)
Change a posture (for example, drop on one's knee to put the chest on the floor)	134 (57.2)	88 (65.7)
Leading busy time.	38 (16.3)	25 (65.8)
Have massage on the painful point.	130 (55.8)	94 (72.3)
Divert the attention (reading, painting, etc.)	88 (37.8)	61 (69.3)
Active behavioral coping (0~5)	Mean±SD = 1.80±1.28	
Solace oneself with great patience	130 (55.8)	69(53.1)
Talk about symptoms with friends.	141 (60.5)	57(40.4)
Receive friends' support	100 (42.9)	48(48.0)
Regard as physiological and temporary	182 (78.1)	78(42.9)
Active cognitive coping (0~4)	Mean±SD = 2.37±1.37	
Smoking	1 (0.4)	0 (0.0)
Have a drink.	19 (8.2)	1 (5.3)
Have some coffee or caffeine drink.	31 (13.3)	1 (3.2)
Have a bit or skip the meal.	44 (18.9)	12 (27.3)
Spend most of time by oneself.	96 (41.2)	42 (43.8)
Eat more than usual	114 (48.9)	42 (36.8)
Vent the anger on something else	56 (24.0)	28 (50.0)
Avoidant coping (0~7)	Mean±SD = 1.54±1.32	
Total coping responses (0~24)	Mean±SD = 9.38±4.26	

*The symptom relief coping mechanism ratio

3.4. Menstrual Distress According to General Characteristics of Subjects

The study found significant differences or correlations in menstrual distress according to age (r=0.19, p=0.002), health status (F=3.41, p=0.018), stress level (F=7.70, p=0.001), the volume of menstrual flow (F=7.99, p<0.001), onset of menstrual distress (t=3.76, p<0.001) and the painful feeling about menstruation (t=3.41, p=0.001).

The older the participants were, the worse they experienced menstrual distress and participants with unhealthy conditions expressed more menstrual distress than those who considered themselves healthy. In addition, participants who experienced severe stress expressed more menstrual distress than those who experienced moderate or mild levels of stress.

Women with heavier menstrual flows reported more severe menstrual distress than did their counterparts with light or moderate flow. Moreover, participants experiencing menstrual distress 3~4 days before their period expressed more overall discomfort than those who expressed menstrual distress during their period. Lastly, regarding feelings towards menstruation, participants who consider the period as being sick expressed more menstrual distress than those who did not (Table 4).

Table 4. Menstrual Distress According to General Characteristics (N=233)

Variables	Mean±SD	t/ F/ r	p	Post-hoc§
Age (years)		0.19**	0.002	
Health Status		3.41*	0.018	b>a*
Very healthy[a)]	2.38±0.80			
Healthy	2.57±0.81			
Healthy but fatigued	2.74±0.77			

Unhealthy[b)]	3.00±0.52			
Stress level		7.70**	0.001	a>b*
Very high or high[a)]	2.87±0.64			a>c*
Moderate[b)]	2.45±0.79			
Mild[c)]	2.21±0.89			
Age at menarche		-0.01	0.813	
Regularity of menstruation		-0.12	0.899	
Regular	2.50±0.77			
Irregular	2.51±0.85			
Length of menstrual cycle		-0.04	0.618	
Volume of menstrual flow		7.99**	<0.001	a>b*
Heavy[a)]	2.83±0.64			a>c*
Moderate[b)]	2.46±0.81			
Light[c)]	2.21±0.82			
Onset of menstrual distress		3.76**	<0.001	
3~4 days before menstruation	2.70±0.70			
During the menstruation	2.27±0.82			
Feeling about menstruation: Discomfort		.635	0.526	
Having	2.52±0.81			
Don't have	2.44±0.78			
Feeling about menstruation: Pain		3.41**	0.001	
Having	2.67±0.78			
Don't have	2.32±0.78			
Feeling about menstruation: Feeling of dirty		1.23	0.220	
Having	2.70±0.83			
Don't have	2.48±0.79			

§ Post hoc contrast analysis (Duncan test, * $p<0.05$); * $p<0.05$, ** $p<0.01$

3.5. Menstrual Distress Coping Responses According to General Characteristics

The study found significant differences or correlations in menstrual coping responses according to the volume of menstrual flow (F=4.28, p=0.015), onset of menstrual distress (t=3.35, p=0.001) and the painful feeling about menstruation (t=3.72, p<0.001).

The study found significant differences or correlations in general symptomatic therapy coping of menstrual coping responses according to onset of menstrual distress (t=2.86, p=0.005) and the painful feeling about menstruation (t=3.18, p=0.002). The study found significant differences or correlations in active behavioral coping of menstrual coping responses according to the painful feeling about menstruation (t=3.29, p=0.001). The study found significant differences or correlations in coping according to active cognitive coping of menstrual coping responses according to the volume of menstrual flow (F=3.55, p=0.030), onset of menstrual distress (t=2.03, p=0.043) and the painful feeling about menstruation (t=3.87, p<0.001). The study found significant differences or correlations in coping according to avoidant coping of menstrual coping responses according to age (r=0.14, p=0.026), and onset of menstrual distress (t=2.77, p=0.006)) (Table 5).

Table 5. Menstrual Coping Responses According to General Characteristics (N=233)

Variables	Coping A	Coping B	Coping C	Coping D	Total
Age (years)	r=0.07 p=0.282	r=0.06 p=0.299	r=0.06 p=0.349	r=0.14* p=0.026	r=0.11 p=0.083

Health Status	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Very healthy	3.42±1.72	1.73±1.34	2.36±1.41	1.46±1.28	8.98±4.47
Healthy	4.13±1.54	2.06±1.18	2.52±1.33	1.63±1.27	10.36±3.93
Healthy but fatigued	3.91±1.76	1.69±1.24	2.26±1.28	1.76±1.50	9.63±4.02
Unhealthy	3.57±0.97	2.14±1.06	2.42±1.39	1.28±0.95	9.42±2.93
	F=2.39	F=1.01	F=0.28	F=0.73	F=1.22
	p=0.069	*p*=0.386	*p*=0.838	*p*=0.530	*p*=0.301
Stress level	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Very high or high	3.69±1.64	1.91±1.22	2.28±1.27	1.81±1.42	9.71±3.72
Moderate	3.71±1.69	1.81±1.33	2.42±1.40	1.48±1.29	9.43±4.37
Mild	3.31±1.81	1.55±1.12	2.24±1.40	1.44±1.29	8.55±4.54
	F=0.70	F=0.75	F=0.34	F=1.27	F=0.71
	p=0.495	*p*=0.473	*p*=0.708	*p*=0.281	*p*=0.493
Age at Menarche	r=-0.02	r=-0.09	r=-0.07	r=-0.02	r=-0.06
	p=0.719	*p*=0.169	*p*=0.238	*p*=0.739	*p*=0.298
Regularity of menstruation	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Regular	3.70±1.70	1.87±1.29	2.41±1.41	1.56±1.32	9.56±4.34
Irregular	3.59±1.69	1.69±1.27	2.31±1.31	1.52±1.32	9.12±4.15
	t=0.48	t=1.08	t=0.49	t=0.26	t=0.76
	p=0.631	*p*=0.280	*p*=0.621	*p*=0.790	*p*=0.448
Length of menstrual cycle	r=-0.12	r=-0.09	r=-0.06	r=-0.08	r=-0.12
	p=0.144	*p*=0.291	*p*=0.437	*p*=0.337	*p*=0.150
Volume of menstrual flow	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Heavy[a)]	4.10±1.79	2.14±1.15	2.73±1.16	1.64±1.18	10.62±3.67
Moderate[b)]	3.57±1.60	1.72±1.30	2.33±1.42	1.61±1.37	9.25±4.23
Light[c)]	3.34±1.79	1.60±1.35	2.00±1.37	1.19±1.30	8.14±4.76
	F=2.88	F=2.72	F=3.55*	F=1.80	F=4.28*
	p=0.058	*p*=0.067	*p*=0.030 a>c§	*p*=0.167	*p*=0.015 a>c§
Onset of menstrual disstress	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
3~4 days before	3.98±1.46	1.93±1.28	2.53±1.32	1.66±1.30	10.12±3.77
During the period	3.21±1.96	1.62±1.21	2.13±1.36	1.15±1.09	8.13±4.42
	t=2.86*	t=1.69	t=2.03*	t=2.77*	t=3.35*
	p=0.005	*p*=0.092	*p*=0.043	*p*=0.006	*p*=0.001
Discomfort$	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Having	3.62±1.75	1.82±1.30	2.41±1.37	1.47±1.30	9.33±4.33
Don't have	3.80±1.49	1.70±1.23	2.23±1.35	1.82±1.35	9.56±4.02
	t=-0.67	t=0.60	t=0.81	t=-1.68	t=-0.34
	p=0.498	*p*=0.545	*p*=0.417	*p*=0.094	*p*=0.731
Pain$	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Having	3.98±1.67	2.05±1.22	2.68±1.24	1.60±1.33	10.32±3.92
Don't have	3.28±1.65	1.50±1.30	2.00±1.43	1.49±1.31	8.29±4.39
	t=3.18*	t=3.29*	t=3.87*	t=0.62	t=3.72*
	p=0.002	*p*=0.001	*p*<0.001	*p*=0.531	*p*<0.001
Feeling of dirty$	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Having	3.29±1.82	2.20±1.47	2.45±1.31	1.66±1.27	9.62±4.85
Don't have	3.70±1.68	1.75±1.26	2.36±1.38	1.53±1.33	9.35±4.20
	t=-1.12	t=1.63	t=0.32	t=0.45	t=0.28
	p=0.262	*p*=0.103	*p*=0.749	*p*=0.647	*p*=0.773

Note. Coping A= General symptomatic therapy coping, Coping B= Active behavioral coping, Coping C= Active cognitive coping, Coping D= Avoidant coping

$ Feeling about menstruation; § Post hoc contrast analysis (Duncan test, $p<0.05$); * $p<0.05$, ** $p<0.01$

3.6. Relationships between Menstrual Distress and Number of Coping Responses

The menstrual distress score significantly correlated with the number of coping responses to all menstrual distress (r=.55, p<.001); that is, the number of coping responses increased as the menstrual distress intensified. In terms of the coping categories, menstrual distress in all domains correlated with the number of coping responses (r=.31~.50, p<.001); namely, as the menstrual distress intensified, all coping responses including 'general symptomatic therapy coping', 'active cognitive coping', 'active cognitive coping', and 'avoidant coping' were shown to increase.

In terms of the correlation between the categories, 'pain', 'impaired concentration', 'behavior change', and 'autonomic reactions' among the menstrual distress were shown to have intimate interrelation with 'general symptomatic therapy coping' (r=.41~.49, p<.001), whereas 'negative affect' strongly correlated with 'avoidant coping' (r=.45, p<.001) (Table 6).

Table 6. Relationships Between Menstrual Distress and Number of Coping Responses (N=233)

Menstrual distress	Menstrual coping responses				
	Coping A r (p)	Coping B r (p)	Coping C r (p)	Coping D r (p)	Total r (p)
Pain	.48**	.27**	.32**	.25**	.45**
Impaired concentration	.41**	.27**	.31**	.26**	.43**
Behavior change	.49**	.25**	.35**	.33**	.49**
Autonomic reactions	.47**	.32**	.41**	.31**	.51**
Water retention	.28**	.23**	.29**	.25**	.35**
Negative affect	.36**	.22**	.34**	.45**	.46**
Total	.50**	.31**	.41**	.39**	.55**

Note. Coping A= General symptomatic therapy coping, Coping B= Active behavioral coping, Coping C= Active cognitive coping, Coping D= Avoidant coping; ** p<0.001

4. Discussion

This report evaluated the prevalence of menstrual distress and menstrual coping responses among college women, and attempted to address the associations between menstrual distress and menstrual coping responses.

This study result showed that female college students expressed menstrual distress more frequently before the period than during the period. Subjects of this study indicated that they have negative feelings of menstruation as shown by the study's findings that 78.1% of subjects perceived the period as uncomfortable and 53.6% of subjects perceived it as painful. Unfortunately, dysmenorrhea or premenstrual distress tends to breed negative attitudes and emotions toward menstruation in women [14].

Subjects' menstrual discomfort score was an average of 2.51 and it is similar to Hwang's[15] study result which showed 2.6 on menstrual discomfort among fertile women. Subjects' menstrual distress scored the highest in 'negative affect'. As menstruation plays an important role in the health of a woman, it is crucial that a woman obtains accurate knowledge about menstruation and learns to accept menstruation as a positive, natural part of her life [16]. It was reported that positive perception on the period actually contributes to decrease menstrual distress.

This study found that subjects who experienced less menstrual distress were healthier and had a lower level of stress. As a result, it is considered that managing health and stress is an important variation which directly affects menstrual distress. In addition,

because subjects expressed menstrual distress more before the period than during the period, it is very important to understand and manage menstrual symptoms appropriately

In this study, the subjects used an average of 9.38 coping responses out of total 24 items to cope with their menstrual distress. The most popular coping response was 'Take rest and sleep', and the next one was 'Regard as physiological and temporary', and 'Take warm shower', 'Control feeling by oneself', and 'Talk about symptoms with friends' respectively.

Among coping responses to menstrual distress, the most effective one that minimize the symptoms were 'Apply hot water bag on the painful point', 'Take a pain killer' and 'Take rest and sleep. In Jo and colleagues study[17], nurses preferred administering a pain killer, managing local skin symptoms, or managing behavioral recognition, but the results of this study differed. Therefore, it is necessary to educate female college students of more effective coping responses to menstrual distress. Especially only 47.6% of this study's subjects indicated that they would take a pain killer and it is required to educate students to take pain killer properly in cases where menstrual distress severely disrupts their daily life.

This study observed that there is a significant correlation between menstrual distress and coping responses to the period. That is, the higher menstrual distress was, the more various the coping responses used. However, among menstrual distress, negative affect was highly correlated to avoidant coping. These types of coping strategies have been labeled as maladaptive and are associated with higher levels of psychological distress, including depression and anxiety[18]. The present results found that women with a negative attitude to menstruation used less problem-focused and more denial coping strategies.

Therefore, it is necessary to educate female college students to have an appropriate perception and positive feelings on the period and to have effective and positive coping responses. It is considered a very important nursing intervention to help women to understand their menstrual period correctly in order to minimize and cope with their menstrual distress.

5. Conclusions

The study results indicated that the majority of female college students expressed various menstrual distress such as abdominal pain or lower back pain, feeling sensitive and nervous and so on. The study results also indicated that menstrual distress were very closely related to participants' health conditions, degree of stress, the amount of menstrual bleeding, and their feelings on the period. However, this study found that there was negative perception on the period and insufficient coping responses to the period were used. Therefore, it is very important to provide appropriate education on the period so that female college students can understand it as an important health matter and manage their symptoms in a proper way.

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