Comparison of Anxiety and Depression in Female Students with Primary Dysmenorrhea and Without Dysmenorrhea in Zahedan University of Medical Sciences in 2017

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ABSTRACT

Primary dysmenorrhea is the most common complaint in adolescent and young women. It interferes with daily activities and imposes many social costs on the community. The objective of this research was to compare anxiety and depression in female students with primary dysmenorrhea and without dysmenorrhea. This case-control study was conducted in Zahedan University of Medical Sciences in 2016 on 120 girls in 3 groups of without dysmenorrhea, primary dysmenorrhea with low back pain, and primary dysmenorrhea without low back pain. The Spielberger questionnaire was used to determine the anxiety score and Beck Depression Inventory was used to determine the depression score. To describe the data, central indicators, dispersion and frequency distribution tables (absolute and relative) were used and statistical analysis of variance and linear regression were used to analyze the data. The anxiety score was 60.69 ± 12.10, 56.36±11.54, and 51.57±12.03 in the non-dysmenorrhea group, primary dysmenorrhea with low back pain group, and in the dysmenorrhea without low back pain group, respectively, and the depression score was 10.51 ± 8.47, 14.12±9.41, and 16.29± 10.21 in the non-dysmenorrhea group, primary dysmenorrhea with low back pain group, and primary dysmenorrhea without low back pain group, respectively. There score of anxiety and depression showed significant difference among the three groups (P <0.005). The results of this research showed that anxiety in non-dysmenorrhea people was significantly higher than that in primary dysmenorrhea people, while depression score in non-dysmenorrhea people was significantly lower than that in primary dysmenorrhea people.

Key words: Anxiety, Depression, Primary Dysmenorrhea, Non-Dysmenorrhea

INTRODUCTION

Dysmenorrhea involves a disorder in the menstrual process, divided into two primary and secondary types. Primary dysmenorrhea is defined as a painful menstruation in women with normal pelvic anatomy, which usually begins at adolescence (1, 2). Primary dysmenorrhea is in the lower part of the abdomen without pelvic pathology, which may occur in the form of muscle cramps and spread to the legs and lower back (3, 4). This complication usually begins 6 to 12 months after the first menstruation (5). Pain usually occurs

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with the onset of menstrual bleeding and lasts between 8 and 72 hours (6). In people with primary dysmenorrhea, symptoms such as pelvic pain, back pain, premenstrual sensitivity, headache, anger, depression, nausea, vomiting, bloating, constipation, diarrhea, fatigue, and frequent urination might be seen during menstruation (5, 7).

Primary dysmenorrhea is the most common complaint in adolescent and young women (5). Its prevalence varies between 45% and 95% in reproductive age (8, 9). The prevalence of primary dysmenorrhea was reported to be 71% in Iran (10). Based on age prevalence, primary dysmenorrhea begins at the age of 15 to 17 and reaches the maximum at the age of 20 to 24 (11). Primary dysmenorrhea is a common cause of work and school absenteeism among women, so it interferes with daily life activities and imposes social costs on community (9). Despite the high prevalence of dysmenorrhea, many women consider menstruation as unpleasant and embarrassing event and consider experience of its pain as a normal process, so they are not looking for medical recommendations or treatment (5).

Emotional and behavioral problems might also exacerbate the symptoms of menstruation and dysmenorrhea. In this regard, it was reported that anxiety and depression affect dysmenorrhea (12). Depression, anxiety and lack of social support are factors increasing the severity of dysmenorrhea (13).

Depression is resulting from misunderstanding of the problems, which we experience them in our life (14). Depression is state of mood, associated with reduced self-respect, feelings of inadequacy, feeling incompetency, and undesired self-perception (15). Anxiety is a situation exacerbating the emotional excitements, leading to fear and anxiety (14). The overt anxiety refers to stressful situations and its occurrence is situational, while covert anxiety refers to individual differences in response to stressful situations with varying levels of overt anxiety (16).

A number of studies have reported the correlation between psychological and physical problems in these people (17, 18). Previous studies have indicated a relationship between negative emotions and dysmenorrhea (19-21). In a research carried out by Cagu et al. (2013) on assessing the level of anxiety and depression in adolescents with primary dysmenorrhea, it was found that people with dysmenorrhea had higher level of anxiety and depression (22). In another research carried out by Laura et al. (2008) on menstruation symptoms in adolescent girls, they found a positive relationship between anxiety and depression and dysmenorrhea (12). In a clinical trial study conducted by Atrian et al. (2014) on the level of anxiety of patients with dysmenorrhea, it was found that applying pressure on the third point of the liver reduces the level of anxiety by improving the pain (23).

Previous studies have indicated that depression and anxiety were significantly higher in people with dysmenorrhea. However, most of the studies have evaluated the anxiety and depression in two groups of dysmenorrhea and non-dysmenorrhea and made no distinction between primary and secondary dysmenorrhea. Moreover, almost no study has been conducted to evaluate the anxiety and depression scores in healthy people and primary dysmenorrhea people in terms of the presence and absence of back pain (6, 22, 23). Hence, the objective of this research was to compare the level of anxiety and depression in female students suffering from primary dysmenorrhea with and without back pain and female students without dysmenorrhea in Zahedan University of Medical Sciences.

MATERIALS AND METHODS

This case-control study was carried out in Zahedan University of Medical Sciences in 2016 on female students. After admission and initial assessment, students entered the study based on the inclusion criteria of the study. The inclusion criteria of research included natural menstrual cycle (24), being single, lack of secondary dysmenorrhea (1), non-use of contraceptive drugs, lack of disease in reproductive system or other systemic diseases, and non-receiving previous geneological interventions (24). In this research, 120 medical sciences students participated. Based on the pain severity, subjects were divided into three equal groups (n = 40), including primary dysmenorrhea with and without low back pain (pain severity= 4-10) and non-dysmenorrhea (pain severity 0-3) (25). The demographic characteristics of the subjects (age, height and weight) and severity of pain were recorded in the evaluation form. After being aware of the goals and steps of the project, they read and signed the consent form. VAS scale was used to measure the pain severity. It is a horizontal line with length of 10 cm, which one end

of it shows no pain and the other end of it shows the highest possible pain. People were asked to determine their pain by marking this line (26).

Then, anxiety and depression questionnaires were provided for subjects to complete them. Spielberger questionnaire was used to assess the anxiety level. It includes separate self-reporting scales to measure overt and covert anxiety. The overt anxiety scale includes 20 sentences, assessing one's emotions at present time and when he or she answering the questions. The covert anxiety scale includes 20 sentences, assessing one's general and ordinary feelings of people. The reliability and validity of this questionnaire have been confirmed in previous studies (Cronbach's alpha was obtained 0.84 for overt anxiety questionnaire and 82.2 for covert anxiety questionnaire) (16). Beck Depression Inventory was used to assess the subjects' depression. This questionnaire includes 21 items, assessing the physical, behavioral, and depressive symptoms of depression. Reliability and validity of this questionnaire have been confirmed in previous studies (Cronbach's alpha was obtained 0.18). The test retest reliability with two-week interval was 0.73 (15). Data were analyzed in spss17 software. Central indicators, dispersion and frequency distribution tables (absolute and relative) were used to describe the data and statistical analysis of variance and linear regression were used to analyze the data. For statistical comparisons, the significance level (α) was considered lower than 0.05.

RESULTS

The demographic characteristics of subjects and risk factors of dysmenorrhea are shown in Tables 1 and 2. No significant difference was observed between two groups in terms of age, BMI, age of the first menstrual period, and the average consumption of fruits and vegetables. The mean pain severity was 1.50 ± 1.10, 6.97 ± 0.51,and 6.97 ± 0.51 in the non-dysmenorrhea group, in the primary dysmenorrhea with low back pain group, and in the primary dysmenorrhea without low back pain group, respectively. No significant difference was found between the two groups of primary dysmenorrhea in terms of severity of pain (P = 0.2). However, in the non-dysmenorrhea group, the mean pain severity was significantly lower than that in two groups of primary dysmenorrhea with and without low back pain (P <0.05).

The mean and standard deviation of anxiety and depression are shown in Table 3. Statistical analysis of variance analysis showed significant difference between the mean score of anxiety and depression in the three groups (P <0.05). The overt anxiety score was 60.69 ± 12.10, 56.56 ± 11.54, 51.57 ± 12.03 in the non-dysmenorrhea group, primary dysmenorrhea with low back pain group, and primary dysmenorrhea without back pain group, respectively. The covert anxiety score was 60.19 ± 10.61, 56.36 ± 8.30, and 54.91 ± 9.79 in the non-dysmenorrhea group, primary dysmenorrhea with low back pain group, and primary dysmenorrhea without back pain group, respectively. The anxiety score in non-dysmenorrhea group was more than that in two other groups and its level was at the lowest level in the primary dysmenorrhea without back pain group. Depression score in the non-dysmenorrhea group was less than that in two other groups and it was at the highest level in the non-dysmenorrhea without back pain group.

In addition, the anxiety and depression score of the subjects varied among the groups in terms of volume of bleeding, familial history of dysmenorrhea and abdominal pain in non-menstrual days (Table 4). Regression analysis was used to identify the predictor variables (Table 5). The results of regression analysis on overt anxiety showed that the model was significant in general (F = 8.95, P = 0.001). However, the study group and abdominal pains in non-menstrual days remained in model as predictor variables in overt anxiety (Table 5). In other words, a negative correlation is seen between the overt anxiety and the case group (B = -3.7, t = -2.8, P = 0.006), so that for each unit of change (class or group of study), overt anxiety score is reduced by 4 scores. The other predictor variable was abdominal pains in non-menstrual days, which showed a positive relationship with overt anxiety (B = 0.77, t = 2.40, P = 0.01), so that over anxiety score was better by 8 scores on average in subjects without abdominal pain compared to that in subjects with abdominal pain. The results of regression analysis on covert anxiety showed that the model was significant in general (F = 8.52, P = 0.001). However, the study group and abdominal pains in non-menstrual days remained in model as predictor variables in covert anxiety (Table 5).

There is in fact a negative relationship between the covert anxiety and the case group (B = -1.82, t = -1.70, P = 0.09), so that for each unit of change (class

or group of study), the covert anxiety score is reduced by 2 scores. The other predictor variable was abdominal pains in non-menstrual days, which showed a positive relationship with the covert anxiety (B = 8.52, t = 3.24, P = 0.002), so that covert anxiety score was better by 8 scores on average in subjects without abdominal pains in non-menstrual days, compared to that in subjects with abdominal pain.

The results of regression analysis on depression showed that the model was significant in general (F = 6.57, P = 0.002). However, the study group and abdominal pains in non-menstrual days remained as predictor variables of depression (Table 5). A positive relationship was in fact found between depression and the case group (B=2.34, t = 2.22, P = 0.02), so that for each unit of change (class or group of study), the depression score increases by 2 scores. The other predictor variable was abdominal pains in non-menstrual days, which showed a negative correlation with depression (B = -5.84, t = -2.26, P = 0.02), so that depression score was better by 6 scores on average in subjects with abdominal pain in non-menstrual days compared to that in subjects without abdominal pain.

Table 1. Demographic characteristics of groups studied

Variable Group	non-dysmenorrhea Mean±SD	Primary dysmenorrhea with low back pain Mean±SD	Primary dysmenorrhea without low back pain Mean±SD	P value
Age	2.91±21.73	1.90±21.36	2.36±22.02	0.48 [a]
BMI	2.85±21.44	3.26±21.78	3.58±21.47	0.74
Age of the first menstrual period	1.48±13.40	1.38±12.80	1.64±13.29	0.16
Average consumption of vegetable [b]	0.77±1.05	0.92±1.07	0.64±1.13	0.89
Average consumption of fruit [a]	2.34±1.72	0.69±1.15	1.44±1.98	0.08

a : significant at the level of p<0.05
b: (unit) one glass of raw vegetable, half glass of cooked vegetable and half glass of vegetables juice
c: (unit) one moderate-sized fruit

Table 2. frequency distribution of characteristics of menstrual cycle in studied subjects by group

group \ Variable	non-dysmenorrhea	Primary dysmenorrhea with low back	Primary dysmenorrhea without low back	p-value
Bleeding volume high Moderate and low	2)4.8(% 40)95.2(%	15)36.6(% 26)63.4(%	8)21.6(% 29)78.4(%	0.001
Abdominal pain in non-menstrual days yes no	1)2.4(% 41)97.6(%	6)14.6(% 35)85.4(%	(21%/6)8 (78%/4)29	0.03
Family history yes no	16)38.1(% 26)61.9(%	27)65.9(% 14)34.1(%	19)51.4(% 18)48.6(%	0.04

Table 3. mean and SD of anxiety and depression score in three groups studied

Group Variable	non-dysmenorrhea Mean±SD	Primary dysmenorrhea with low back pain Mean±SD	Primary dysmenorrhea without low back pain Mean±SD	P value
Overt anxiety	12.10±60.69	11.54±56.36	12.03±51.57	0.004[a]
Covert anxiety	10.61±60.16	8.30±56.36	9.79±54.91	0.04
Depression	8.47±10.51	9.41±14.12	10.01±16.29	0.02

a : significant at the level of p<0.05

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Table 4. mean and SD of anxiety and depression score in terms of family history, bleeding volume, and abdominal pain in non-menstrual days in three groups studied

	Group Variable		non-dysmenorrhea Mean±SD	Primary dysmenorrhea with low back pain Mean±SD	Primary dysmenorrhea without low back pain Mean±SD	P value
Overt anxiety	Family history	Yes	*13.48±58.25	12.43±56.74	12.60±50.84	0.18ᵃ
		no	11.18±62.19	9.98±55.64	11.71±52.33	0.01
	Bleeding volume	high	19.76±57.00	9.97±59.53	13.67±46.75	0.06
		Low and moderate	11.97±60.87	12.16±54.53	11.44±52.89	0.01
	Abdominal pain in non-menstrual days	yes	43.00	11.55±52.33	13.08±44.50	0.49
		no	11.92±61.12	11.56±57.05	11.18±53.51	0.02
Covert anxiety	Family history	Yes	*11.20±58.56	8.74±57.40	9.38±53.68	**0.28
		no	10.33±61.15	7.26±54.35	10.31±56.22	0.07
	Bleeding volume	high	10.60±59.50	8.65±57.66	9.97±53.50	0.53
		Low and moderate	±10/7560.20	8.17±55.61	9.88±55.31	0.07
	Abdominal pain in non-menstrual days	yes	52.00	5.31±48.50	9.08±48.75	0.91
		no	10.66±60.36	8.01±57.71	9.42±56.62	0.23
Depression	Family history	Yes	*7.22±10.37	8.69±11.75	10.30±18.63	**0.01
		no	9.29±10.59	9.36±18.67	9.35±13.83	0.04
	Bleeding volume	high	4.24±13.00	9.05±12.00	11.38±19.87	0.19
		Low and moderate	8.64±10.38	9.57±15.34	9.58±15.31	0.04
	Abdominal pain in non-menstrual days	Yes	16.00	2.73±19.25	9.92±20.75	0.82
		no	8.53±10.37	9.88±13.24	9.85±15.06	0.11

a : significant at the level of p<0.05

Table 5. factors affecting anxiety and depression score in people studied

	Model	Non-standard coefficient of determination		standard coefficient of determination	T test	Significance level
		B	Sig.Error	Beta		
Overt anxiety	Group	-3.7	1.34	-0.24	2.8-	0.006
	Abdominal pain in non-menstrual days	7.93	3.29	0.21	2.40	0.01
Cover t anxiety	Group	-1.82	1.07	-0.15	1.70-	0.09
	Abdominal pain in non-menstrual days	8.52	2.62	0.28	3.24	0.002
Depression	Group	2.34	1.05	0.20	2.22	0.02
	Abdominal pain in non-menstrual days	-5.84	2.58	-0.20	2.26	0.02

DISCUSSION

The current research showed that the scores of anxiety and depression were significantly different in the three groups. The anxiety score was higher in the non-dysmenorrhea group than that in other two groups, while depression score was lower in the non-dysmenorrhea group than that in the other two groups and it was the highest in dysmenorrhea without the back pain group. In a research conducted by Gugo et al (2013), it was concluded that primary dysmenorrhea has a strong relationship with anxiety and depression, and dysmenorrhea people have a more severe anxiety

(12). In a research conducted by Laura et al. (2008), they concluded that there is a positive relationship between anxiety and depression and dysmenorrhea (12).

In a research conducted by Sung Hi et al., it was reported that majority of patients with chronic miuffacial pain have severe to moderate level of anxiety (27). Mack Williams et al also reported that there is stronger relationship between chronic pain disorders and anxiety disorders such as panic disorder and post-traumatic stress disorders compared to the relationship between chronic pain and depression (28). However, in a research

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conducted by Darsh et al, they concluded that the prevalence of depression in chronic pain was higher than that prevalence of anxiety (29). Most of the studies have indicated a direct relationship between dysmenorrhea and anxiety and depression, which these results were in line with results of our research with regard to depression but inconsistent with results of our research with regard to anxiety. In the current research, the anxiety score was higher in non- dysmenorrhea group.

Moreover, this research revealed that the anxiety and depression scores of the subjects varied based on the volume of bleeding, family history of dysmenorrhea and abdominal pain in non-menstrual days in the studied groups, so that the level of anxiety was higher in those without familial history of dysmenorrhea, and as more percentage of non-dysmenorrhea people had no family history, the high anxiety in this group might be attributed to this variable. This group might have higher anxiety due to lack of adequate experience in dealing with menstrual period or due to modeling their mothers and sisters behavior who had dysmenorrhea. In a research conducted by Minalshova Burke et al. (2017), it was revealed that people who had more medical educations and health literacy have more knowledge on the ways to cope with dysmenorrhea disorders, and people with non-medical education had a negative attitude toward dysmenorrhea (30).

Moreover, the results of previous studies have revealed a positive relationship between the severity of dysmenorrhea pain and the family history of dysmenorrhea due to modeling the behavior of their mothers and sisters and genetic factors (31). In addition, in people with low and moderate bleeding and those who did not experience abdominal pain on non-menstrual days, the anxiety level was higher. Thus, dysmenorrhea group, in which higher percentage of people experienced severe bleeding and abdominal pain on non-menstrual days, more followed the medical treatments (using pain killer drugs) and health measures to cope with these complications. Thus, the anxiety was lower in this group.

To our knowledge, no research was found to compare the scores of anxiety and depression in healthy people and those with primary dysmenorrhea in terms of presence and absence of low back pain with dysmenorrhea. This research compared anxiety and depression scores in three groups of primary dysmenorrhea with and without low back pain and non-dysmenorrhea, and risk factors affecting dysmenorrhea, also anxiety and depression were examined. Comparing the anxiety between the two groups of primary dysmenorrhea with low back pain and without low back pain, anxiety in the primary dysmenorrhea with lower back pain group was higher and the depression score unexpectedly was more in primary dysmenorrhea without low back pain compared to that in the primary dysmenorrhea with low back pain.

In addition, depression was lower in the primary dysmenorrhea with low back pain group with family history of dysmenorrhea and severe bleeding, and depression was higher in subjects with abdominal pain in non-menstrual days. The reason for these differences might be attributed to these variables. Moreover, the severity of pain and volume of bleeding were higher in the primary dysmenorrhea with low back pain group compared to those in primary dysmenorrhea without back pain group. It is likely that these subjects followed more health cares and medical measures to cope with disorders caused by dysmenorrhea. Thus, lower level of depression in the primary dysmenorrhea with low back pain group compared to that in the primary dysmenorrhea without back pain group might be due to this reason.

CONCLUSION

Primary dysmenorrhea is a common disorder. In those girls who are suffering from primary dysmenorrhea, physical and mental health is affected and depression and anxiety are significantly influenced, leading to disruption in performing everyday life activities. Thus, it is recommended that researchers and health care providers consider dysmenorrhea as a health problem in women and take steps to develop appropriate interventional studies in order to reduce the factors affecting the dysmenorrhea. It is also better that increasing the knowledge and information on the ways of coping with this disorder to be included in health literacy programs of the girls and mothers so that this disorder less affects their everyday life.

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