

Self-management in Primary Dysmenorrhea: Toward Evidence-based EducationMaryam Kabirian¹, Zahra Abedian², Seyed Reza Mazlom³, Behroz Mahram⁴¹. MSc in midwifery, Department of Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran². Faculty Member, Department of Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran³. Faculty Member, Department of Medical & Surgical Nursing, Mashhad University of Medical Sciences, Mashhad, Iran⁴. Faculty Member, Mashhad Ferdowsi University, Mashhad, IranAbedianz@mums.ac.ir

Abstract: There is not an evidence-based education that reinforces use of scientific research in the context of self-management in primary dysmenorrhea. This study was conducted to determine the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea at dormitories of Ferdowsi University in Mashhad, Iran. The method of this study involves the following steps: A) Formulation of answerable questions to address self-care methods in primary dysmenorrhea. B) Systematic searching for the research evidence that could be used to answer the questions. C) Appraisal of the validity, relevance and applicability of the research evidence. D) Designing of the protocol of evidence-based education based on the best acquired evidence. E) Evaluation the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea. There was a significant reduction in pain score at the first (-0.6 ± 1.7 VS 1.1 ± 2.1 $P=0.000$) and second (-1.9 ± 1.5 VS 0.1 ± 1.6 $P=0.000$) menstrual period after intervention in the evidence-based education group compared with the girls in the control group. Also, the difference in self-care behaviors between evidence-based education versus control group at the second menstrual period after intervention (105.8 ± 8.9 VS 80.4 ± 11.3 $P=0.021$) was significant. Evidence-based care leads to remarkable advances in the management of primary dysmenorrhea. Health education systems can use evidence-based education in order to promote self-management behaviours among primary dysmenorrheic girls.

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1. Introduction

Primary dysmenorrhea is one of the most common gynecological problems that require clinical and intensive self-care (Marrow, 2009). More than 70% of Iranian girls experience dysmenorrhea (Panahandaz, 2008; Afshari, 2006; Jalili, 2004; and Kamjo, 2001). Besides being a gynecological problem, primary dysmenorrhea is an important health problem concerning public health, occupational health and family practice, as it affects both the quality of life and the national economy due to short-term school absenteeism and loss of labor. Menstruation with severe pain also affects development of motherhood (Havens, 2002).

Few educational programs have been directed at improving self-care behaviors among dysmenorrheic girls. Furthermore, health professionals are generally enthusiastic about the value of the education programs on offer. However, care should be taken to ensure that the quality of education provided in the education program is based on the best evidence available.

Evidence-based education is the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver

instruction (EBE, 2010). Educational protocols are based on evidence-based care, thereby supplying the health-professionals with the latest and most effective managements (Moran, 2004).

Self-care behaviors related to dysmenorrhea refer to those actions taken to enhance comfort and to prevent or respond to the condition (Ching-Hsing, 2004). Self-care behaviors are divided into two categories: externally oriented behavior including searching for knowledge, expression of emotions, seeking assistance, control over external factors and internally oriented behavior including resource utilization and self-control being.

There is not an evidence-based education that reinforces use of scientific research in the context of self-management in primary dysmenorrhea. This study was conducted to determine the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea at dormitories of Ferdowsi University in Mashhad, Iran.

2. Material and Methods

The method of this study involves the following steps:

- A) Formulation of answerable questions to address self-care methods in primary dysmenorrhea.
- B) Systematic searching for the research evidence that could be used to answer the questions.
- C) Appraisal of the validity, relevance and applicability of the research evidence.
- D) Designing of the protocol of evidence-based education based on the best acquired evidence.
- E) Evaluation the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea.

2.1. Answerable questions

A "well-built" question should include four parts, referred to as PICO that identify the patient problem or population (P), intervention (I), comparison (C) and outcome(s) (O). In this study:

P=girls with primary dysmenorrhea

I=self-care education

C=no education

O=reduction in the severity of dysmenorrhea and increase the self-care behaviors.

'In girls with primary dysmenorrhea, does self-care education, compared to no education, reduce the severity of dysmenorrhea?'

'In girls with primary dysmenorrhea, does self-care education, compared to no education, increase the self-care behaviors?'

2.2. Systematic searching

We searched the Medline, EMBASE, CINAHL and Cochrane Library. Searches were limited by the publication years as follows:

- Systematic Reviews: From January 2005 to July 2010
- Randomized Controlled Trials: From January 2000 to July 2010

The Inclusion Criteria were present original data or reviews of original data, focus on girls with primary dysmenorrhea, applicable to dysmenorrhea care or prevention in Iran, conducted in humans and published in the English language. The Exclusion Criteria were: studies of inappropriate population, studies that are not clinically applicable as self-care methods of dysmenorrhea management, reviews and articles which present the author's opinion rather than evidence.

2.3. Appraisal of the research evidence

Due to the large volume of studies addressing these issues, the 6 systematic reviews used as evidence are summarized in table 1.

2.4. Designing of the protocol of evidence-based education

The protocol of evidence-based education' was designed by evaluating the available resources in the context of self- management in primary dysmenorrhea. The evidence addressing the question "Self-care in Primary Dysmenorrhea" is categorized to 6 sub-headings based on orem's self-care theory as follows: seeking assistance, expression of emotions, searching for knowledge, control over external factors, resource utilization and self-control being.

2.5. Evaluation the outcomes

In this stage of study, a randomized clinical trial was designed to evaluate the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea. Single girls aged less than 25 years, who had experienced primary dysmenorrhea based on Verbal Multidimensional Scoring System for at least 3 months in the past half year, didn't have any prior history of gynecological disease and symptoms of secondary dysmenorrhea were eligible. The menstrual history for diagnosis of primary dysmenorrhea included the regularity of menstrual cycles (menstrual cycle length from 28 to 35 days and bleeding cycle length from 3 to 7 days) and the beginning of pain, a few hours before the onset of a menstrual period, not lasting more than 72 hours. Exclusion criteria included current or recent use of hormonal contraception, refusing to participate in educational section or fill out the follow up's questionnaires.

Girls with dysmenorrhea (n=111) from two different dormitories of Ferdowsi University fulfilled the inclusion criteria and were randomly assigned to evidence-based education (n=65) and control (n=65) groups. Subjects were asked to provide demographic information and fill out Pain Assessment Form (VAS) and Dysmenorrhic Self-Care Scale (DSCS) during their baseline cycle. After that, the evidence-based education sessions were carried out by method of small-group discussion in the intervention group. Post-test forms the same as pre-test one were completed in the end of the two follow-up cycles.

The data were analyzed using Independent t-test and Mann-Whitney by SPSS software version 11.5 (power of 80% and type I error (alpha) of 5%).

Table 1. Systematic reviews of interventions in management of primary dysmenorrhea

Author(s), year, number and type of studies included	Intervention	Population Characteristics	Outcome Measurements	Main Results
Marjoribanks et al, 2010, 2 Reviews 73 RCTs	Comparing NSAIDs vs placebo or paracetamol or each other	Girls with primary dysmenorrhea	Pain-relief	NSAIDs were significantly more effective than placebo and paracetamol, but there was insufficient evidence to determine which of them is the most effective
Proctor M et al, 2010, 5 trials involving 213 women	Comparing behavioural interventions with each other, placebo, no treatment, or conventional medical treatments	women with dysmenorrhoea	Symptom severity, daily activities and pain management	behavioural interventions (both of physical and cognitive procedures) may be effective for dysmenorrhoea
Cho SH & Hwang EW, 2010, 4 RCTs involving 458 women	Comparing acupressure with sham acupressure on non- acupoints	Girls with primary dysmenorrhea	Pain, anxiety, consumption of pain medication	Acupressure alleviates menstrual pain
Brown J & Brown S, 2010, 4 RCTs	Comparing exercise with a control or no intervention	Women with dysmenorrhea	Moo's Menstrual Distress Questionnaire	Exercise reduced the MDQ score during the menstrual phase and three observed cycles
Proctor M & Murphy PA, 2009, 7 RCTs	Comparing omega-3 fatty acids, magnesium, vitamin B6, B1, E, combination of vitamin B6 and magnesium with each other, placebo, no treatment or other conventional treatments	Girls with primary and secondary dysmenorrhea	Pain-relief	Vitamin B1 is shown to be an effective treatment, magnesium is a promising treatment, there is insufficient evidence to recommend the use of any of the other therapies in this review
Dennehy CE, 2006, (9 RCTs for dysmenorrhea part of this review)	Reviewing the use of herbs and dietary supplements	Women with menopause, premenstrual syndrome, dysmenorrhea, mastalgia, and infertility	-	Black cohosh for menopause; vitamins B1 and E for dysmenorrhea; calcium, vitamin B6, and chasteberry for premenstrual syndrome; and chasteberry for cyclic mastalgia. There were too few trials involving herbs and supplements in infertility.

2.6. Dysmenorrhic Self-Care Scale (DSCS)

It is the revised form of DSCS by Ching-Hsing et al (2004). This is a 25-item, self-administered scale that was designed based on Orem's self-care deficit theory. For each item, dysmenorrhic girls rate their self-care behavior on a 5-point scale from 1 (I never do) to 5 (I always do). The total score ranges from 25-125 and is calculated by summing the scores for each item. CVI for this scale was calculated 0.82 and Cronbach's alpha coefficient was 0.84

2.7. Ethical and confidentiality considerations

The study received ethical approval from the committee for research on human subjects of Mashhad University of Medical Sciences. All subjects gave written consent for participation. They were thoroughly explained on the purpose and procedures of the study and informed that they could withdraw from the study any time without any consequences.

3. Results

The demographic and menstrual characteristics of the subjects (n=111) in the two groups are shown in table 2. The distribution of all recorded characteristics didn't have significant difference among groups.

Table 2. The demographic and menstrual characteristics of the participants.

	Health provider-led education group	Control group	p-Value
	(n=50)	(n=61)	
	Mean (SD) or %	Mean (SD) or %	
Age (years)	21.4 (1.4)	21.7 (1.1)	0.402
BMI (kg/m ²)	22.6 (1.8)	22.7 (2.0)	0.836
Menstrual cycle length (day)	29.1 (1.7)	29.7 (2.0)	0.057
Bleeding cycle length (day)	6.1 (1.1)	6.3 (0.9)	0.302
Age of menarche (years)	13.7 (1.1)	13.3 (1.4)	0.315
Age of onset of menstrual pain (years)	15.1 (1.4)	14.8 (2.2)	0.143
Degree of dysmenorrhea			
Degree 1	10.0	6.6	
Degree 2	80.0	73.8	0.586
Degree 3	10.0	19.7	
Duration of menstrual pain (hours)	37.6 (4.8)	37.1 (6.2)	0.632
frequency of cycles combined with dysmenorrhea during the past 6 months	5.2 (1.0)	5.2 (0.8)	0.053

Table 3. comparison of self-care behavior scores between evidence-based education and control groups

	evidence-based education group	Control group	p-Value
	(n=50)	(n=61)	
Dysmenorrhic Self-Care	Mean (SD) or %	Mean (SD) or %	
Baseline Cycle	79.8 (9.1)	76.6 (12.4)	0.163
The first Cycle after intervention	100.4 (12.4)	89.1 (9.8)	0.090
The second Cycle after intervention	105.8 (8.9)	80.4 (11.0)	0.005
p-Value	0.000	0.219	

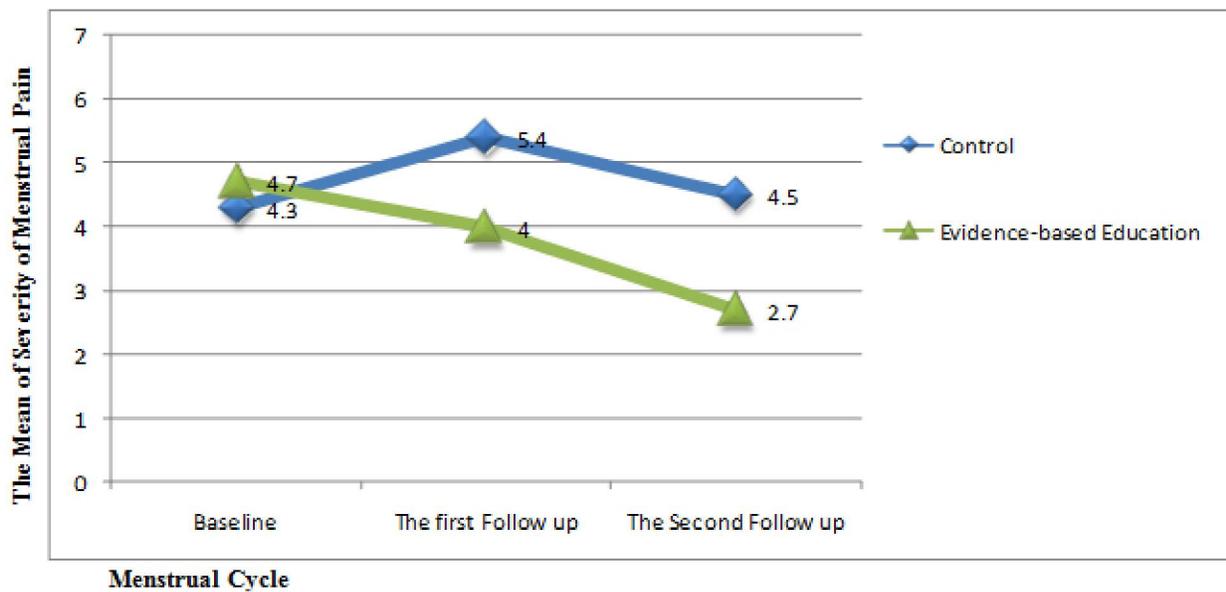


Figure 1. Comparison of severity of menstrual pain in evidence-based education and control groups

Table 3 shows the comparison of self-care behavior scores between two groups before and one and two menstrual period after intervention. There was a significant difference in self-care behavior between evidence-based education versus control group at the second menstrual period after intervention.

The mean of dysmenorrhea in the evidence-based education group decreased 0.7 score in the first menstrual after intervention and 2 score in the second menstrual after intervention. (Fig1.)

4. Discussions

There is a wide range of strategies in management of primary dysmenorrhea, but the midwives should be aware of which therapies have evidence-based support, carry a low side effect burden, and the least potential to interact with other medications. The review of trials found some evidence that NSAIDs are an effective treatment for dysmenorrhoea, though women using them need to be aware of the significant risk of adverse effects (Marjoribanks, 2010). Many dietary supplements and herbs have been proposed as being effective for primary dysmenorrhea, including black cohosh, chastetree, dong quai, black haw (*Viburnum prunifolium*), crampbark (*Viburnum opulus*), omega-3 fatty acids, vitamin E, thiamine (vitamin B1), niacin (vitamin B3), and magnesium (Proctor, 2009). In our review, Vitamin B1, E and magnesium are shown to be effective treatments and there is insufficient evidence to recommend the use of any of the other therapies (Proctor, 2009; Dennehy, 2006). Behavioural therapies focus on both physical and psychological coping

strategies reduce menstrual symptoms. Pain management training and relaxation plus biofeedback may help with period pain in general and progressive muscle relaxation with or without imagery and relaxation may help with spasmodic (acute, cramping pain) symptoms of period pain (Proctor, 2007).

The available data from RCTs suggest that acupressure reduced the pain and anxiety typical of dysmenorrhoea and there was no adverse event in acupressure treatment (Cho, 2010). In our review, the SP6 point is known as the most recommended point for treatment of primary dysmenorrhea. There are several plausible mechanisms by which exercise might be effective in the management of primary dysmenorrhea. Evidence from controlled trials suggests that exercise can reduce primary dysmenorrhea and associated symptoms, but the results should be viewed with caution due to the limited evidence (Brown, 2010; Daley, 2008).

Despite treatments being available for primary dysmenorrhea and the positive effects of self-care behaviors on treatment, the low self-care knowledge causes the high prevalence of primary dysmenorrhea. The results of this study show that evidence-based education can encourage the girls with dysmenorrhea to do self-care behaviors. The self-care behaviors increased 1.3 times; as a result, the severity of dysmenorrhea decreased 2 times in the evidence-based education group. Chiou et al (2007) evaluated the effects of systematic health education on dysmenorrheic girls' knowledge, attitudes and self-care behaviors and resulted a significant increase in the experimental group members' dysmenorrhea-related

knowledge and self-care behaviors. Considering the importance of self-care behaviors, it is important to use evidence-based resources when seeking information about management of primary dysmenorrhea. We hope to use of the findings of this study as a basis for further research to recognize the best evidence for self-management in primary dysmenorrhea.

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