

Relationship between life qualities of adolescents and dysmenorrhoea.

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Abstract

Objective: In this study, it is aimed to investigate the relationship between life qualities of adolescents who have dysmenorrhoea and do not have in the menstrual period and symptoms.

Study Design: This study is a school-based cross-sectional. The search universe consists of the adolescent students (N=1752, between the ages of 13-19 years) from two girl in schools Central Anatolia Region. The study group consists of these students (n=1462) who were at the school in February-June in the year of 2013, had menstrual cycles during last one year, accepted to participate in the study and filled the forms used in the search completely.

Method: Data were obtained with a survey form which were improved by the researchers in the result of literature investigation and had 25 questions about socio-demographic and menstrual properties, a VAS pain scale and a life quality scale.

Results: Prevalence of dysmenorrhea was found 69.3% in the adolescents who were participated in the survey. 67.0% of the students with dysmenorrhea said that their daily lives were affected by the pain. The average of VAS score was found higher in the students who said that they affected compared to the students who said that they did not affect (p:0.000). The average of VAS score was also found higher in the students who cannot go to school because of dysmenorrhea compared to ones who can go to school (p:0.000). Furthermore, when the average scores were calculated in all sub-domains of SF: an average of 36 points life quality scale, the average scores of the students with dysmenorrhea was found lower according to ones with non-dysmenorrhea (p:0.00).

Conclusion: It is said that dysmenorrhoea in the adolescent periods more common than it was considered and it has been also negatively affected the quality of life and the continuity of social life.

Keywords: Adolescent, Dysmenorrhoea, Quality of life, Pain.

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Introduction

Dysmenorrhoea is characterised by low abdominal or pelvic pain occurring before or during menstruation [1]. Dysmenorrhoea is a very common gynaecological complaint in adolescents and young adults [2]. While dysmenorrhoea is very rare in the first years following menarche, it gains increasing frequency with the ovulatory feature of the cycles [2]. Studies have reported that the prevalence can vary between 50 and 85% of adolescent girls aged 12-15 years, with different measurement methods [3-5]. The reason for the difference in the prevalence studies is due to measurement methods. There are no certain criteria defined for dysmenorrhoea. However, dysmenorrhoea is defined as a characterised syndrome which is in reproductive age, repeats during menstruation for at least three cycles, often accompanies pelvic pain and with premenstrual tenderness, depression, nausea, vomiting, diarrhoea, constipation, fatigue, headache and muscle cramps [6,7]. Dysmenorrhoea is separated into two forms by

etiopathology: primary and secondary, and is divided into three groups clinically: mild, moderate and severe. Primary dysmenorrhoea is defined as the absence of a clinically detectable pathology and is generally seen <25 years; 6-12 months after menarche, pelvic pain is spasmodic. In the first menstrual period, 60% of cycles are an ovulatory or progesterone secretion is insufficient depending on corpus luteum shortness. Therefore, dysmenorrhoea complaints are seen together with cycles of sufficient ovulation after some cycles of menarche. The progesterone decrease seen at the end of the cycle after ovulation causes an increase in menstrual liquid and prostaglandin synthesis in the endometrium. Increased prostaglandins create an increase in myometrial tone and uterine contractions, making them painful by causing uterine ischemia [8,9]. Many studies have shown that there is no relationship between physical activity and dysmenorrhoea [9]. In total, 45-70% of post-pubertal girls have a primary complaint of dysmenorrhoea. For this reason, primary

dysmenorrhoea should be separated from secondary dysmenorrhoea underlying another cause. Secondary dysmenorrhoea develops depending on pelvic pathologies such as reproductive or genital tract infections, pregnancy complications, endometriosis, congenital anomalies and neoplasms of genital system, and adhesions [8,10]. The pain can begin before menstruation and continues a few days after. In later years, duration and severity may increase. The character of the pain varies according to the type of pelvic pathology [11]. While the treatment for primary dysmenorrhoea is psychological relaxation and analgesic, it is a major the cause of secondary dysmenorrhoea [12]. Dysmenorrhoea is a syndrome characterized by recurrent crampy lower abdominal pain often accompanied by premenstrual tenderness, depression, nausea, vomiting, diarrhoea, constipation, fatigue during menstruation [7,13]. Dysmenorrhoea is rare in menarche during the first 1-2 years and is becoming increasingly common with the winning feature of ovulatory cycles [2]. Dysmenorrhoea affects 30-50% of young girls [5]. According to the etiopathogenesis, it is separated into two groups: primary and secondary dysmenorrhoea is mild and moderate, while severe is divided into three groups. Primary dysmenorrhoea is defined clinically as the absence of a detectable pathology and usually in the previous period of <25 years, is seen 6-12 months after menarche, pelvic pain is spasmodic. 60% of the cycles are an ovulatory in first menstrual period or secretion of progesterone is inadequate depending on the corpus luteum deficiency. Therefore, dysmenorrhoea complaints are occurred after a few cycles of menarche with ovulation occurring sufficient cycles. After ovulation, at the end of the cycle reduced progesterone is leads to decreasing prostaglandin synthesis in the endometrium and menstrual fluid. Increased prostaglandins create an increase in myometrial tone and uterine contractions and can lead to pain by causing uterine ischemia [8,9,11]. Dysmenorrhoea is an important health problem which is commonly seen in young girls. In many studies it is stated that dysmenorrhoea is an issue causing people not to go to school, and also affects their quality of life negatively. In this study, the effects of dysmenorrhoea in adolescents, who we have not yet been studied before in the literature, will be investigated.

Objectives

We aimed that at which level the daily life of 1462 adolescents affects from dysmenorrhoea and if dysmenorrhoea decreases the quality life or not. This study is important because it is the first to discuss the relationship between dysmenorrhoea prevalence and quality of life in such a large number of adolescents.

Materials and Methods

Participants and design

This study is a school-based cross-sectional study. The search universe consists of adolescent students (N=1752, between the ages of 13-19 years) from two girl's schools in Eskişehir

located in the Midwest of Turkey. The study group consists of these students (n=1462) who were at the school in February-June in the year of 2013, had menstrual cycles during the previous year, agreed to participate in the study and filled in the forms used in the search completely.

Exclusion criteria

Overall, 224 of all adolescents were not included because one year had not passed from the beginning of their menstrual cycles or they had not experienced menstrual cycles yet. Sixty-six of all individuals did not agree to participate in the study or filled in the forms incompletely.

Measures

The data were collected via two instruments: the student description form developed by the researchers and Health Survey Questionnaire.

Student description form

A form consisting of 25 questions was used to determine the students' demographic features (age, menarche age, etc.) and other features associated with their menstruation period.

Quality of life measure

Health-related QOL was assessed with the SF-36 Health Survey Questionnaire. The validity and reliability of this instrument has been established for measuring QOL in large populations of both healthy and diseased individuals. The original questionnaire was developed by Ware and Sherbourne [13], with reliability and validity studies for the Turkish version of SF-36 performed by Kocyigit et al. [14]. It is a self-evaluation instrument consisting of 36 items which provide assessment in 8 domains: physical functioning, social functioning, role limitations due to emotional problems (role-emotional), role limitations due to physical problems (role-physical), bodily pain, vitality, mental health and general health perception. In our study, we used the Turkish version of SF-36, which showed good reliability and validity in the Turkish validation study. Scores ranged from 0 to 100 for each domain separately. A higher score indicates better QOL [15].

Results

The mean age of the adolescents participating in the study was 16.01 ± 1.11 (min: 13; max: 20) and the mean menarche age was 12.86 ± 1.26 (min: 8; max: 17). In the adolescents who participated in this study, the dysmenorrhoea prevalence was 69.3% (n=1013). Overall, 48.1% of these adolescents stated that they had dysmenorrhoea for last three months and 51.9% of them stated that they had dysmenorrhoea for longer than one year. In total, 23.0% of the adolescents (n=230) with dysmenorrhoea said that they did not have this complaint during some menstrual periods and 67.0% of them (n: 683) stated that their daily lives were affected by pain. Their VAS (Visual Analogue Scale) average was higher than the average for adolescents who said that they were not affected (p: 0.000).

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In Table 1, age, menarche age, VKI and family income status of adolescents who participated in the search have been reviewed. There was no difference in dysmenorrhoea according to age, VKI and menarche age when compared to that with no dysmenorrhoea ($p > 0.05$).

Table 1. The distribution of adolescents' demographic features according to their dysmenorrhoea situations.

	Dysmenorrhoea	No Dysmenorrhoea	P value
Feature	(n=1013, 69.30%)	(n=449, 30.70%)	
	Mean \pm SD	Mean \pm SD	
Age	16.01 \pm 1.08	16.02 \pm 1.16	p: 0.98
Menarche age	12.85 \pm 1.21	12.86 \pm 1.36	p: 0.88
VKI	20.16 \pm 2.97	20.15 \pm 2.80	p: 0.99

When the distribution according to dysmenorrhoea situations of menstrual periods of adolescents participated in this study was investigated, there was no significant difference ($p: 0.08$). The menstrual cycles of these adolescents with dysmenorrhoea lasted longer than those with no dysmenorrhoea ($p: 0.03$). In this study, the correlation between menstrual irregularity and dysmenorrhoea was significant ($p: 0.000$). As the amount of bleeding increased, so the frequency of dysmenorrhoea increased ($p: 0.000$). Overall, 56% (n: 572) said that menstrual pain continued until the end of Day 1, 23% (n: 222) said that it continued up to Day 2 and 21% (n: 219) said that it continued during menstruation.

Table 2. Effect of pain severity on daily living activities and school absence in adolescents with dysmenorrhoea.

Feature		VAS average	P value
Efficacy status of daily living activities	Yes	7.02 \pm 1.97	t: 14.71
	No	5.12 \pm 1.90	P<0.001
Status of causing school absence	Yes	7.31 \pm 2.07	t: 7.37
	No	6.15 \pm 2.09	P<0.001

In Table 2, 67% of adolescents with dysmenorrhoea (n: 683) stated that their daily living affected because of pain. VAS average of this group was significant compared to those who reported that theirs were not affected ($p: 0.00$). VAS average of the students who did not go to school because of dysmenorrhoea was higher than the average of students who go to school.

In Table 3, backache was observed at the highest level, in 66%, compared to symptoms associated with dysmenorrhoea. 27% of adolescents with dysmenorrhoea participated in this study (n: 272) and said that they had their nutrition changes during

their menstrual period. The percentage of these changes is shown in Table 4.

Table 3. Distribution of the symptoms accompanied to dysmenorrhoea.

Symptoms	n	%
Backache	673	66.0
Anger	606	60.0
Tension	587	58.0
Fatigue	515	51.0
Nausea	514	51.0
Breast tenderness	335	33.0
Crying request	338	33.0
Headache	260	26.0
Distractibility	217	21.0
Vomiting	90	09.0

Table 4. Distribution of nutrition changes of adolescents with dysmenorrhoea.

Nutrition Change	n	%
Increased the amount of sugary foods	198	73
Increased the amount of protein foods	147	54
Increased fruit and vegetable	223	82
Increased tea and coffee	93	34
Decreased smoking	74	27
Decreased salt	122	45
Decreased frequency of eating	116	43
Dncreased herbal tea	171	63

In our study group, when the average scores were calculated in all sub-domains of SF: an average of 36 points life quality scale, the average scores of the students with dysmenorrhoea was lower compared to those with non-dysmenorrhoea ($p: 0.00$).

Discussion

Many studies have been seen aimed at determining dysmenorrhoea prevalence in different societies. In these studies, example numbers are important in terms of pointing out risk factors clearly. While some of these studies investigated the risk-factors causing dysmenorrhoea, others tried to determine the risk factors causing school absence and coping methods. While our study is important in terms of the size of the sample number, it is one of the rare works also

taking on school absence and living quality of young girls (Table 5).

Table 5. Distribution of scores of dysmenorrhoea and live quality.

Quality of life variables	Dysmenorrhoea				P value
	Yes		No		
	Average	Min-Max	Average	Min-Max	
Physical Activity Function	80	0-100	85	0-100	P: 0.00
Physical Role Function	75	0-100	100	0-100	P: 0.00
Pain	45	0-100	81	0-100	P: 0.00
General Health Function	45	5-87	47	0-100	P: 0.00
Vitality Function	47.05	0-94.2	58.82	58.82	P: 0.00
Social Activity Function	50	0-100	62.5	0-100	P: 0.00
Mental Role Function	66	0-100	100	0-100	P: 0.00
Mental Health Function	43.47	0-86.90	47.82	8.7-100	P: 0.00

The present study found a high prevalence of young girls with dysmenorrhoea, who stated that their daily living was affected by pain (67.0%). VAS averages of these found higher than ones who said that their daily living was not affected (p: 0.000). At the same time, the school absence of the group whose VAS average is higher is also statistically significant (t: 7.37). In this study, it was seen that the life qualities of adolescents with dysmenorrhoea were lower compared to the adolescents with no dysmenorrhoea when physical activity function, physical role function, pain, general health function, vitality function, social activity function, mental role function and mental health function were analysed. It was seen that the pain in adolescents with dysmenorrhoea negatively affected their life qualities. This low of the life quality in every field affects young girls going on from school and their level of success.

Lots of studies have been done in the past on the prevalence of menstrual problems in adolescent girls, yet much research has not been done on their relation with lifestyle factors. Dysmenorrhoea is highly prevalent among women of reproductive age, with an estimated prevalence between 16% and 91% [16-23]. Also in this study, it was observed that dysmenorrhoea prevalence (69.3%) was quite common in young girls likewise literature. Because of dysmenorrhoea, school absence has come up as an important problem.

According to Gagua et al. [20], the rate of pain and dysmenorrhoea symptoms is 69.7%. It is the leading cause of recurrent short-term school absenteeism in adolescent girls in the United States [24,25]. It has been reported that this ratio is 30.7% in girls with dysmenorrhoea in a study done in Brazil [23]. According to Gagua et al. VAS averages of 69.1% of adolescents with dysmenorrhoea complain varied between 4 and 7 [20]. In this study, VAS average of the adolescents whose daily life activity was affected because of dysmenorrhoea was found to be 7.02 ± 1.97 . In a study of Chauhan and Kala [21], young girls living in rural and urban areas were compared and

17% of the girls with a dysmenorrhoea complaint in the middle level and live in rural areas, and 30% of girls who live in urban areas, could not go to school because of dysmenorrhoea complaints. In the study by Pitanguí et al., it has been reported that the rate of school absence because of dysmenorrhoea was 30.71%. In this study, a school absence of 356 people (35.1%) has been determined [22].

In the literature, there are studies which found a significant relationship between VKI and dysmenorrhoea prevalence. However, there are also studies which showed the opposite results. In the study of Nooh [25], the VKI of young girls with dysmenorrhoea was 23.4 ± 1.2 , while in our study it was 20.16 ± 2.97 . It was determined that 30.9% of the students with dysmenorrhoea were underweight, 63.9% were normal, 4.3% were overweight and 0.9% was morbidly obese. In the study by Vani et al., VKI of 76.5% of the students with dysmenorrhoea was in the normal range [15].

When the relationship between dysmenorrhoea prevalence and menarche age was looked at, the average was 12.3 ± 2.2 in a study by Strinić et al. [4], 12.58 ± 0.2 in Gagua et al. [19], 11.94 ± 0.04 in Jeon et al. [24] and 12.1 ± 1.6 in Nooh [25]. In the same way, the average menarche age was 12.85 ± 1.21 in our study [25].

When the literature was reviewed, some physical and emotional complaints were seen with dysmenorrhoea. For example, in the study by Gagua et al., it was pointed out that the most common complaints were 38.4% weakness, migraine 38.4% headache, 37.3% tension, 26.0% anxiety, 23.1% vertigo, 21.0% nausea [20]. In the study by Pitanguí et al. there was 61.4% breast swelling and pain, 36.2% backache, 32.7% tired legs, 27.5% vertigo, and 22.9% nausea [21]. In our study, the results were 66.0% backache, 60.0% anger, 58.0% tension, 51.0% fatigue, 51.0% nausea, and 33.0% breast tenderness.

Jeon et al. [24] investigated the methods of coping with dysmenorrhoea; they showed that 49.7% did not do anything, 38.8% slept, 58.4% used hot application on their abdomens, and 15.9% tried to concentrate on other works. In our study, we found that 11.0% said they did nothing, 68.0% said they relaxed by laying down, 51.0% reported that they used hot application on their abdomens, 34.0% said that they took a hot shower, 25.0% reported that they had a rubdown, 13.0% stated that they walked, and 19.0% said that they did exercise [25].

When the number of young girls using medicine because of dysmenorrhoea was observed, it was seen that 96% of participants used medicine in the study of Strinić et al. (2003) (4), but only 21.9% in Jeon et al. [24], 63.78% in Pitanguí et al. [21], 9.82% used NSAID and 71.78% used other painkillers and analgesics in Gagua et al. [19]. In our study, while 56% of the participants reported that they used medicine for dysmenorrhoea, 48% of this group said that they used paracetamol and 52% said that they used NSAID.

Some women change their nutrition during their menstrual period. While some tend to consume sugary foods, others consume more liquids. In our study, 27% of adolescents with dysmenorrhoea during their menstrual period reported that they changed their nutrition. It was seen that 82% of the participants increased fruit-vegetable, 73% increased the amount of sugary foods, 54% increased the amount of protein foods, 63% increased herbal tea and 45% decreased consuming salt. When the family income status of the participants was looked at, it was determined that 68.7% of the participants had a good family income, 71.9% had a moderate income, and 64.4% had a low income. In the study by Gagua et al. (2012), 85.51% of the participants with dysmenorrhoea were from families with a moderate income, while 9.42% was from families with high income [20].

In conclusion, we found that dysmenorrhoea is a health problem which is important for young girls and needs to be solved. Education programs about coping methods for young girls should be organised and consultancy should be given to reduce school absence and increase life quality. Availability of a physiological factor causing dysmenorrhoea needs to be excluded.

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Disclosure of Conflict of Interest

None.

Ethical Concerns

Written permission from the ethic committee of related universities was obtained in order to do the research. The students involved in the study were informed about the purpose

of the study. The participants were asked to sign consent forms and were informed that they could withdraw from the study at any time. 2012-11-008 scientifically coded is derived from the project supported by Eskişehir Osmangazi University Scientific Research Unit.

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References

1. International Association for the Study of Pain Task Force on Taxonomy. Classification of Chronic Pain (2nd edn). 2011.
2. Harel Z. Dysmenorrhea in adolescents and young adults: etiology and management. *J Pediatr Adolesc Gynecol* 2006; 19: 363-371.
3. Zhu X, Bensoussan A, Zhu L, Qian J, Xu M, Zhou C, Chao P, Lo S. Primary dysmenorrhoea: a comparative study on Australian and Chinese women. *Complement Ther Med* 2009; 17: 155-160.
4. Strinić T, Buković D, Pavelić L, Fajdić J, Herman I, Stipić I, Palada I, Hirs I. Anthropological and clinical characteristics in adolescent women with dysmenorrhea. *Coll Antropol* 2003; 27: 707-711.
5. Taşci KD. Evaluation of nursing students' premenstrual symptoms. *TAF Prevent Med Bull* 2006; 5: 434-443.
6. Klein JR, Litt IF. Epidemiology of adolescent dysmenorrhea. *Pediatrics* 1981; 68: 661-664.
7. Ozerdoğan N, Sayiner D, Ayrancı U, Unsal A, Giray S. Prevalence and predictors of dysmenorrhea among students at a university in Turkey. *Int J Gynaecol Obstet* 2009; 107: 39-43.
8. Vicdan K, Kükner OS, Dabakoğlu T, Ergin T, Keleş OG, Gökmen O. Adolesanlarda dismenore sıklığı. *Türkiye Klinikleri J Gynecol Obst* 1993; 3: 218-221.
9. Alvin PE, Litt IF. Current status of the etiology and management of dysmenorrhea in adolescence. *Pediatrics* 1982; 70: 516-525.
10. Kamacı M, Önder Y, Akman N. Adolesanlardaki Primer Dismenorenin Vücut Kütle İndeksi ile İlişkisi. *Van Tıp Dergisi* 1997; 4: 154-157.
11. Çepni I. Dismenore. IU. Cerrahpaşa Tıp Fakültesi Sürekli Tıp Eğitimi Etkinlikleri. Adolesan Sağlığı Sempozyum Dizisi 2005; 43: 151-157.
12. Ünal PC, Kaya ÇA, Akgün T, Yıkılkan H, İşgör A. Approach to Adolescent Health In Primary Care: Scientific Letter. *Türkiye Klinikleri J Med Sci* 2007; 27: 567-576.
13. Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medi Care* 1992; 30: 473-483.
14. Kocuyigit H, Aydemir O, Olmez N, Memis A. Reliability and validity of the Turkish version of Short-Form-36 (SF-36). *Turkish J Drugs Therap* 1999; 12: 102-106.

15. Rupa Vani K, Veena KS, Subitha L, Hemanth Kumar VR, Bupathy A. Menstrual Abnormalities in School Going Girls–Are They Related to Dietary and Exercise Pattern? *J Clin Diagn Res* 2013; 7: 2537.
16. Ju H, Jones M, Mishra G. The prevalence and risk factors of dysmenorrhea. *Epidemiol Rev* 2014; 36: 104-113.
17. Azurah AGN, Sancı L, Moore E, Grover S. The quality of life of adolescents with menstrual problems. *J Pediatr Adolesc Gynecol* 2013; 26: 102-108.
18. Chen CX, Barrett B, Kwekkeboom KL. Efficacy of Oral Ginger (*Zingiber officinale*) for dysmenorrhea: a systematic review and meta-analysis. *Evid Based Complement Alternat Med* 2016; 2016: 6295737.
19. Gagua T, Tkeshelashvili B, Gagua D. Primary dysmenorrhea: prevalence in adolescent population of Tbilisi, Georgia and risk factors. *J Turk Ger Gynecol* 2012; 13: 162.
20. Chauhan M, Kala J. Relation between dysmenorrhea and body mass index in adolescents with rural versus urban variation. *J Obstet Gynaecol India* 2012; 62: 442-445.
21. Pitangui AC, Gomes MR, Lima AS, Schwingel PA, Albuquerque AP, de Araújo RC. Menstruation disturbances: prevalence, characteristics, and effects on the activities of daily living among adolescent girls from Brazil. *J Pediatr Adolesc Gynecol* 2013; 26: 148-152.
22. Banikarim C, Chacko MR, Kelder SH. Prevalence and impact of dysmenorrhea on Hispanic female adolescents. *Arch Pediatr Adolesc Med* 2000; 154: 1226-1229.
23. French L. Dysmenorrhea. *Am Fam Physician* 2005; 71: 285-291.
24. Jeon GE, Cha NH, Sok SR. Factors Influencing the Dysmenorrhea among Korean Adolescents in Middle School. *J Phys Ther Sci* 2014; 26: 1337.
25. Nooh AM. Menstrual disorders among Zagazig University Students, Zagazig, *J Obstet Gynaecol India, Egypt. Middle East Fertil Soc J* 2014; 20: 198-203.

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