*Original Article*

# EVALUATION OF DYSMENORRHEA AMONG WOMEN AND ITS IMPACT ON QUALITY OF LIFE IN A REGION OF WESTERN TURKEY

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**ABSTRACT**

*Objectives:* To determine the prevalence of dysmenorrhea among a group of women and its effect on their quality of life (QoL).

*Methodology:* This cross-sectional study was carried out on 729 women in reproductive age in a town of western Turkey between March and April 2009. The questionnaire form was filled in by a face to face method. The severity of menstrual pain was determined by Visual Analogue Scale. The quality of life (QoL) was assessed by the Short Form-36 (SF-36). The Chi-square test, Student t test, Analysis of Variance and Logistic Regression analysis were used for statistical analyses. A value of $p<0.05$ was accepted statistically significant.

*Results:* The prevalence of dysmenorrhea was 63.6%. Not giving birth, menstrual irregularity, and a family history of dysmenorrhea were important risk factors for dysmenorrhea ($p<0.05$ for each one). The domains of QoL was lower in women with dysmenorrhea when compared to women without dysmenorrhea ($p<0.05$).

*Conclusion:* Dysmenorrhea is a public health problem that affects quality of life.

**KEY WORDS:** Dysmenorrhea, Quality of life, Women.

*How to cite this article:*

## INTRODUCTION

Dysmenorrhea is characterized by a crampy pelvic pain beginning shortly before or upon the onset of menses, and lasting for One to three days.[1] To explain its etiology the most accepted theory is over production of prostaglandins (PG) in endometrium during ovulatuar cycles.[2] PG stimulates the myometrial contraction and local vasoconstriction that cause the menstrual effluent to be expelled from the uterine cavity.[3]

Dysmenorrhea is a commonly reported cause of sickness absenteeism from work by the female community.[4] It has been reported to vary between 28.0% and 89.5%, depending on the method of assessment in many studies.[5-8]

Emotional and behavior problems may exacerbate menstrual cycle problems and dysmenorrhea. For example, depression and/or anxiety symptoms are reported to have an impact on menstrual cycle function and dysmenorrhea.[9] As a result of negative effects of dysmenorrhea on psychological status, women's quality of life may be significantly affected.

This cross sectional study was conducted to determine the prevalence of dysmenorrhea in a group of women, as well as to evaluate the effects of dysmenorrhea on the women's QoL.

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## METHODOLOGY

*Study area and Subjects:* Bozuyuk, where the study was conducted, is a rural town in Bilecik Province of Western Turkey. According to the records of Bozuyuk Community Health Centre in the year 2009, the population of reproductive age women living in the centre of the Bozuyuk town was 17.344.[10] In the study time, 19 family physicians were working in the family health centers. Depending on working conditions and job density, only two family physicians (no: 12, and no: 16 family physicians) "agreed to participate in the study". In this study period, 1020 women at reproductive age in total were admitted to two family physicians for any reason. Of these, 71.5% (729/1.020) agreed to participate in the study.

*Instruments and Procedures:* This cross-sectional study was conducted between March 1st, and April 30th, 2009. The questionnaire, prepared with reference to previous studies in the literature.[8,11,12] included the questions concerning the women's sociodemographic and menstrual characteristics, and their nutritional habits. Before the study began, the participants completed an informed consent form in which they were assured of the confidentiality of their responses following which they provided informed verbal consent that participation was voluntary and anonymous. The questionnaire form was filled in by a face to face method. If a woman had pain in the abdominal, groin and lumbar region on the day before than menstrual period and/or the first day of menstrual period, it was considered to be dysmenorrhea.[12]

The Visual Analogue Scale (VAS) using a 10 cm line represented the continuum of the women's opinion of the degree of pain. One extremity of the line represented "unbearable pain" and the other extremity represented "no pain at all". The participants were asked to rate the degree of pain by making a mark on the line. The scores received from the scale were classified into mild dysmenorrhea if it was between 1-3 points, moderate between 4-7 points and severe between 8-10 points.[13]

If a woman had the irregularities such as oligomenorrhea, polymenorrhea, menorrhagia, metrorhagia, menometrorhagia, hypomenorrhea, hypermenorrhea etc, they were considered to have menstrual irregularity.[14]

The women's QoL scores were assessed by the SF-36 scale. The original questionnaire was developed by Ware and Sherbourne.[15] and reliability and validity studies for the Turkish version of SF-36 were performed by Kocyigit et al.[16] The subjects gave appropriate answers for the questions in the SF-36 scale for their depression status during the last four weeks. Scores changed from 0 to 100 for each domain separately. The high scores obtained from the scale shows that the QoL increases in a good way.

*Definitions:* Following the completion of the questionnaires and inventory, their body mass indexes (BMIs) were calculated by measuring their heights and weights. Each student's body weight was measured with domestic scales and height with a meter rule. Women with BMI values that corresponded to an adult BMI of >25.0 kg/m2 were classified as overweight/obese. In addition, those smoking at least one cigarette in a day was evaluated as smokers, those consuming at least 30 gr ethyl alcohol in a week as alcohol consumer, those consuming at least four glasses of tea in a day (75ccx4) as those consuming tea, those consuming at least three cups of coffee in a day (150ccx3) as those consuming coffee, those consuming cola at least a glass of water in a day (200ccx1) as those consuming cola, and those eating at least two bars of chocolate in a day (150ccx3) as those consuming chocolate. The presence of dysmenorrhea in woman's mother or sister was accepted as positive family history of dysmenorrhea. Those unemployed, housewife and retired were considered to be not working.

*Statistical Analysis:* The data were determined in SPSS 15.0. In the statistical evaluation of data, the Chi-square test, Student t test, Analysis of Variance (One Way ANOVA), Backward Stepwise Logistic Regression analyses were used. A value of $p<0.05$ was considered statistically significant.

## RESULTS

The mean age of the women was 29.47±8.01 years (min=15, max=49). The frequency of dys-

Table-I: Relationships between some sociodemographic characteristics
and habits and the women's dysmenorrheal status

| SociodemographicCharacteristics | Dysmenorrhea | | | Statistical analysis$x^2$; p |
|---|---|---|---|---|
| | Yes (%)464 (63.6) | No (%)265 (36.4) | Total (%)729 (100.0) | |
| Age group (years) | | | | |
| 15-24 | 185 (78.1) | 52 (21.9) | 237 (32.5) | 56.249; 0.000 |
| 25-29 | 100 (71.9) | 39 (28.1) | 139 (19.1) | |
| 30-34 | 92 (57.1) | 69 (42.9) | 161 (22.1) | |
| 35-49 | 87 (45.3) | 105 (54.7) | 192 (26.3) | |
| Educational level | | | | |
| Primary school and below | 80 (48.2) | 86 (51.8) | 166 (22.8) | 25.368; 0.000 |
| Secondary school-high school | 189 (64.7) | 103 (35.3) | 292 (40.1) | |
| University | 195 (72.0) | 76 (28.0) | 271 (37.2) | |
| Marital status | | | | |
| Married | 203 (54.6) | 169 (45.4) | 372 (51.0) | 38.736; 0.000 |
| Unmarried | 232 (76.8) | 70 (23.2) | 302 (41.4) | |
| Widowed | 29 (52.7) | 26 (47.3) | 55 (7.5) | |
| Employment status | | | | |
| Employment | 325 (68.0) | 153 (32.0) | 478 (65.6) | 11.316; 0.001 |
| Health insurance status | | | | |
| Insured | 426 (62.7) | 253 (37.3) | 679 (93.1) | 2.990; 0.084 |
| Family income status | | | | |
| Good | 192 (66.2) | 98 (33.8) | 290 (39.8) | 1.362; 0.506 |
| Middle | 228 (62.0) | 140 (38.0) | 368 (50.5) | |
| Bad | 44 (62.0) | 27 (38.0) | 71 (9.7) | |
| Family type | | | | |
| Nuclei | 360 (62.8) | 213 (37.2) | 573 (78.6) | 0.781; 0.377 |
| Smoking | | | | |
| Yes | 205 (65.9) | 106 (34.1) | 311 (42.7) | 1.205; 0.272 |
| Alcohol consumption | | | | |
| Yes | 64 (71.9) | 25 (28.1) | 89 (12.2) | 2.990; 0.084 |
| Tea consumption | | | | |
| Yes | 330 (61.2) | 209 (38.8) | 539 (73.9) | 5.253; 0.022 |
| Coffee consumption | | | | |
| Yes | 160 (64.3) | 89 (35.7) | 249 (34.2) | 0.060; 0.806 |
| Cola consumption | | | | |
| Yes | 288 (67.4) | 139 (32.6) | 427 (58.6) | 6.428; 0.011 |
| Chocolate consumption | | | | |
| Yes | 176 (70.7) | 73 (29.3) | 249 (34.2) | 8.087; 0.004 |
| Overweight/obese | | | | |
| Yes | 84 (50.9) | 81 (49.1) | 165 (22.6) | 14.960; 0.000 |
| Number of birth | | | | |
| 0 | 275 (77.9) | 78 (22.1) | 353 (48.4) | 68.032; 0.000 |
| 1-2 | 148 (54.6) | 123 (45.4) | 271 (37.2) | |
| 3-11 | 41 (39.0) | 64 (61.0) | 105 (14.4) | |
| Age at menarche (year) | | | | |
| <12 | 128 (64.0) | 72 (36.0) | 200 (27.4) | 0.189; 0.910 |
| 13-14 | 254 (63.0) | 149 (37.0) | 403 (55.3) | |
| >15 | 82 (65.1) | 44 (34.9) | 126 (17.3) | |
| Menstrual regularity | | | | |
| Irregular | 134 (72.0) | 52 (28.0) | 186 (25.5) | 7.605; 0.006 |
| Using contraceptive method | | | | |
| Oral contraceptive | 41 (53.2) | 36 (46.8) | 77 (10.6) | 23.849; 0.000 |
| Spiral | 55 (53.4) | 48 (46.6) | 103 (14.1) | |
| Others | 49 (51.0) | 47 (49.0) | 96 (13.2) | |
| Family history of dysmenorrhea | | | | |
| Yes | 239 (94.5) | 14 (5.5) | 253 (34.7) | 159.048; 0.000 |

menorrhea was 63.6% (464/729). Their mean BMI score was 22.58±3.82 kg/m$^2$ (min=14.67, max=40.06), and the frequency of overweight/obesity was 22.6% (165/729).

Table-I presents the relationships between some sociodemographic characteristics and habits and the women's dysmenorrheal status. The Logistic Regression Analysis Results are presented in Table-II. Table-III shows the mean scores of SF-36 domains according to the women's dysmenorrheal status. The mean scores of SF-36 domains according to the severity of dysmenorrhea are presented in Table-IV.

## DISCUSSION

The present study found a high prevalence of dysmenorrhea (63.6%) reported among women; this figure may be said to be consistent with the literature.[5-8,17] In our study, more than the half of women with dysmenorrhea had moderate or severe menstrual pain. Burnett et al.,[6] reported a similar result.

Many studies[6,12,17] determined that the prevalence of dysmenorrhea showed decrease with increasing age, indicating that primary dysmenorrhea peaks in late adolescence and the early 20s and the incidence falls with increasing age.[7] Similarly, in our study, it was found that the prevalence of dysmenorrhea showed decrease as age increased (p<0.05). However, a young age was not a risk factor for dysmenorrhea according to the logistic model results (p>0.05).

In the current study, the prevalence of dysmenorrhea was lower among married women (p<0.05). An explanation for this finding may be that women who are unmarried are younger when compared to those who are married. However, in the logistic regression model, marital status did not take place in the final step.

The employment, social insurance, family income, and family type are the indicators of socioeconomic status. An easy access to health services may be responsible for reducing dysmenorrhea frequency in women with a higher socioeconomic level. However, in our study, employment, social insurance, family income, and family type were not the risk factors for dysmenorrhea in the logistic model analysis (p>0.05). Aykut et al.,[17] also reported similar results.

Hornsby et al.,[18] reported a negative effect of smoking on dysmenorrhea. However, in our study, it did not reveal any association between smoking and dysmenorrhea (p>0.05). An explanation for this may be that we did not determine the relationship between dose of cigarette and duration for smoking may explain these results. A similar result has been reported in a study from Turkey.[17]

Alcohol does not cause menstrual pain. But alcohol consumption may prolong the pain in women who have dysmenorrhea.[11] However, in our study, any association was not found between alcohol consumption and dysmenorrhea (p>0.05). Aykut et al.,[17] reported that there

Table-II: Significant independent variables for dysmenorrhea according
to Logistic regression analysis (Final Step: 9)

| Variables | ß | SE[a] | p | OR[b] | %95 CI[c] |
|---|---|---|---|---|---|
| Constant | -1.284 | 0.266 | 0.000 | | |
| Employment status (reference: unemployment) | | | | | |
| Employment | -0.381 | 0.221 | 0.085 | 0.683 | 0.443-1.054 |
| Number of birth (reference: >3) | | | | | |
| 1-2 | 0.845 | 0.290 | 0.004 | 2.328 | 1.319-4.108 |
| 0 | 2.058 | 0.317 | 0.000 | 7.831 | 4.208-14.573 |
| Menstrual regularity (reference: regularity) | | | | | |
| Irregularity | 0.639 | 0.225 | 0.005 | 1.895 | 1.219-32.947 |
| Family history of dysmenorrhea | | | | | |
| Yes | 3.032 | 0.301 | 0.000 | 20.731 | 11.484-37.424 |

SE[a]: Standard error, OR[b]: Odd's ratio, CI[c]: Confidence interval
(Hosmer and Lemeshow Test: x$^2$=3.395, df=8; p=0.907)

Table-III: Mean scores of SF-36 domains according to dysmenorrheal status

| SF-36 domains | Dysmenorrhea | | Statistical analysis |
|---|---|---|---|
| | Yes (n=464)(mean±SD) | No (n=265)(mean±SD) | t test; p value |
| Physical functioning | 71.91±25.80 | 77.25±21.31 | 2.857; 0.004 |
| Role-physical | 62.88±40.25 | 69.53±37.41 | 2.201; 0.028 |
| Bodily pain | 53.57±22.99 | 61.69±23.15 | 4.575; 0.000 |
| General health perception | 53.85±16.39 | 59.94±17.54 | 4.708; 0.000 |
| Vitality | 49.86±15.91 | 55.98±16.47 | 4.932; 0.000 |
| Social functioning | 58.22±22.14 | 65.66±20.73 | 4.468; 0.000 |
| Role-emotional | 46.12±42.75 | 64.28±39.66 | 5.661; 0.000 |
| Mental health | 52.77±15.27 | 59.77±14.30 | 6.098; 0.000 |

was no correlation between tea, coffee, cola consumption and dysmenorrhea, and they also reported that chocolate consumption was a risk factor for dysmenorrhea. In addition, Ozturk[19] reported that cola drinking is a risk factor for dysmenorrhea. In the logistic model results, tea, coffee, cola and chocolate consumptions were not risk factors for dysmenorrhea (p>0.05 for each one).

Some studies[20,21] have reported that prevalence of dysmenorrhea was higher in obese women. In comparison to this study, the overweight/obese women had higher frequency of dysmenorrhea frequency (p<0.05). But according to the logistic model results, being overweight/obese was not a risk factor for dysmenorrhea (p>0.05).

Some studies[22,23] reported a higher dysmenorrhea frequency in women who had menarche at an early age. In our study, age of menarche was not independently associated with dysmenorrhea (p>0.05). Burnett et al.,[6] have reported results similar to the results of our study.

According to the bivariate and logistic regres-

sion analysis, the prevalence of dysmenorrhea was higher in women with menstrual irregularity (p<0.05, OR=1.895), in consistent with some study findings.[22,24]

In the bivariate analysis result, in women who used any contraceptive method, the prevalence of dysmenorrhea was higher (p<0.05). These result is compatible with many research findings.[6,25]

According to the bivariate and logistic regression analysis, those with family history of dysmenorrhea had a higher prevalence of dysmenorrhea (p<0.05 and p<0.05, OR=20.731, respectively), a finding which is consistent with some studies.[26] This result indicates that a family history of dysmenorrhea seems to be an important characteristic for women with dysmenorrhea. As an explanation for this, some researchers have reported that daughters of mothers who have menstrual complaints also experienced menstrual discomfort, and that the reason for this could be related with behavior that is learned from mother.[27]

In this study, the mean scores from all the

Table-IV: Mean scores of SF-36 domains according to the severity of dysmenorrhea

| SF-36 domains | The severity of dysmenorrhea | | | Statistical analysis |
|---|---|---|---|---|
| | Mild (n=211) (mean±SD) | Moderate(n=144) (mean±SD) | Severe (n=109) (mean±SD) | P value |
| Physical functioning | 77.70±20.38 | 71.25±25.82 | 61.56±31.34 | 14.991; 0.000 |
| Role-physical | 69.43±38.29 | 63.37±38.99 | 49.54±42.63 | 9.100; 0.000 |
| Bodily pain | 57.70±20.52 | 53.56±21.68 | 45.60±26.96 | 10.357; 0.000 |
| General health | 56.07±14.12 | 53.33±15.69 | 50.23±20.36 | 4.736; 0.009 |
| Vitality | 51.23±14.99 | 49.13±15.76 | 48.17±17.69 | 1.557; 0.212 |
| Social functioning | 61.73±20.92 | 56.68±20.48 | 53.44±25.39 | 5.649; 0.004 |
| Role-emotional | 53.56±42.43 | 45.60±42.96 | 32.42±39.92 | 9.108; 0.000 |
| Mental health | 55.41±14.19 | 51.81±14.89 | 48.92±16.86 | 7.101; 0.001 |

domains of the SF-36 scale were lower in women with dysmenorrhea when compared to women without (p<0.05, for each one). Moreover, the mean scores from all the domains of the SF-36 scale except for the domain of vitality showed decrease as the severity of dysmenorrhea increased (p<0.05, for each one).

*Limitations of the study*: We are well aware of the limitations of the present study. Firstly, it was performed in a single district, and in only two family health centers, therefore the sample may not be representative of all Turkish women. As such its comparability with community-based studies is weak. Thus, in order to definitively answer this question, a large sample containing different areas in the country needs to be conducted.

In conclusion, the high prevalence of dysmenorrhea among Turkish women demonstrated that this condition is a significant public health problem that requires attention.

## ACKNOWLEDGEMENTS

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