

## A STUDY OF DYSMENORRHEA AMONG FEMALE RESIDENTS AGED 18–45 YEARS IN SEMIRURAL AREA OF WEST TURKEY

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### ABSTRACT

**Objective:** To determine the correlates and the prevalence of Dysmenorrhea in a group of women.

**Methodology:** This cross sectional study was carried out on the 556 subjects aged 18-45 years in a town of western Turkey between January, and March 2009. We used visual analogue scale to assess the severity of dysmenorrhea. The data were evaluated by Logistic Regression Analysis and Chi-square tests.

**Results:** The prevalence of dysmenorrhea was 66.7%. About 32.3% of the women described their dysmenorrhea as severe. When compared to the age group of 35 and over, the risk of dysmenorrhea was 2.677 fold higher in the age group of 24 and over. The risk of dysmenorrhea was nearly 2.5 fold higher in those who had family history of dysmenorrhea.

**Conclusion:** The prevalence of depression among women was relatively high. This indicates the need for knowledge concerning dysmenorrhea to be addressed by menstruation-related health education programs.

**KEY WORDS:** Dysmenorrhea.

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### INTRODUCTION

Dysmenorrhea is often described as crampy, colicky pain in the suprapubic region that may radiate to the lumbosacral region or the anterior thigh. It usually begins at the start of menstruation, continues for a few days.<sup>1</sup> It may be categorized into two distinct types: primary and secondary. Primary dysmenorrhea is menstrual pain without pelvic pathology, with onset typically just after menarche. Secondary dysmenorrhea is menstrual pain associated with underlying pathology and onset may be years after menarche.<sup>2</sup> To explain the etiology of primary dysmenorrhea the most accepted theory is over production of prostaglandins (PG) in endometrium during ovulatory cycles.<sup>3</sup> PG stimulates the myometrial contraction and local vasoconstriction that cause the menstrual

effluent to be expelled from the uterine cavity.<sup>4</sup> However, secondary dysmenorrhea can be caused by any of a dozen or so disorders such as endometriosis, pelvic inflammatory disease, intrauterine adhesions or cervical stenosis.<sup>5</sup>

There is a wide variation in the estimate of dysmenorhea from studies around the world with a range between 28% and 71.7%.<sup>6,7</sup> In the studies in Turkey, it has been reported that the frequency of dysmenorrhea ranged from 58.2% to 89.5%.<sup>8</sup>

The burden of dysmenorrhea is greater than any other gynaecological complaint, and is associated with significant impact on personal and public health problems, with a high degree of absenteeism, limitations on social, academic and daily activities/sports activities and severe economic loss in women of child-bearing age.<sup>4,9,10</sup>

This study was conducted to determine the prevalence of dysmenorrhea in a group of women aged 18-45 and also to evaluate the effects of dysmenorrhea on the women's sociodemographic characteristics.

## METHODOLOGY

*Setting:* According to the Beylikova Family Health Center, the total population of the semi-rural town, in which the study was conducted, was 3 623. The total population of women aged 18-45 years in the town was 731 (40.1%, 731/1826), whose 556 (76.1%, 556/731) who had menstruated up to the study time comprised the study group.

*Sampling, subjects and design:* The subjects were surveyed through a community based and cross-sectional research method between January, 5th and March 5th, 2009, with 74.6% agreeing to participate in the study. Data were obtained during routine visits to their homes.

*Procedures and questionnaires:* The questionnaire consisted of two parts. One included information about sociodemographic, some bad habits, nutritional features, fertility and menstrual features. The other one included Visual Analogue Scale (VAS) questions to assess the severity of dysmenorrhea.<sup>11</sup> If an adolescent 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.

If the adolescent experienced menstrual bleeding in equal intervals between 21 and 35 days, it was evaluated as regular menstruation (normal); if less than 21 days as short, if more than 35 days as long. Menstruation less than two days has been accepted as short, between two and six days as normal, and more than six days and over as long.<sup>12</sup>

Following the completion of the questionnaires and inventory, their body mass indexes (BMIs) were calculated by measuring their heights and weights.<sup>13</sup> The statistical analysis was carried out using Chi-square ( $\chi^2$ ) test for categorical variables. Backward Wald Stepwise logistic regression analysis was formed by the variables, which were the parameters showing a meaningful level of  $p < 0.05$  in bivariate analyses. A goodness of fit test was estimated by Hosmer-Lemeshow c test.

Legal ethical consent: Study permission for the study was obtained from the appropriate health authority, Eskisehir, Turkey.

## RESULTS

The socio demographic characteristics of the females with dysmenorrhea and without dysmenorrhea are presented in Table-I. The mean age of them was  $32.28 \pm 8.63 \pm 1.02$  (range 18-45). The proportion of those with primary school and below education level was 53.4%. Most women were married (73.2%). Of 149 women (26.8%) who were not married, 148 were single and only one widower. the number of the women who were not working or did not have a job were 430 (77.3%) and 420 of those (97.7%) were housewives. About 15.8% women were deprived from social health insurance and 19.8% women's family income status was bad. The proportion of those who had a family of nucleus type was 82.7%.

The frequency of smoking in the subjects was 28.8% (n=160) and the frequency of consuming alcohol was 0.9% (n=5). About 4.0% of the women reported that they had never drunk tea, 55.8% reported that they had drunk five glasses

Table-I: Some sociodemographic characters of women with/ without dysmenorrhea

| <i>Sociodemographic characters</i> | <i>Dysmenorrhea</i> |               |                  | <i>Statistical analyses X<sup>2</sup>; p</i> |
|------------------------------------|---------------------|---------------|------------------|--|
|                                    | <i>Yes (%)</i>      | <i>No (%)</i> | <i>Total (%)</i> |  |
| <b><i>Age group (year)</i></b>     |                     |               |                  |  |
| <24                                | 111 (79.9)          | 28 (20.1)     | 139 (25.0)       | 21.803; 0.000                                |
| 25-29                              | 57 (72.2)           | 22 (27.8)     | 79 (14.2)        |  |
| 30-34                              | 54 (68.4)           | 25 (31.6)     | 79 (14.2)        |  |
| >35                                | 149 (57.5)          | 110 (42.5)    | 259 (46.6)       |  |
| <b><i>Educational level</i></b>    |                     |               |                  |  |
| Under first school                 | 18 (64.3)           | 10 (35.7)     | 28 (5.0)         | 3.433; 0.330                                 |
| First school                       | 170 (63.2)          | 99 (36.8)     | 269 (48.4)       |  |
| Middle school + collage            | 142 (71.0)          | 58 (29.0)     | 200 (36.0)       |  |
| University                         | 41 (69.5)           | 18 (30.5)     | 59 (10.6)        |  |
| <b><i>Marital status</i></b>       |                     |               |                  |  |
| Married                            | 259 (63.6)          | 148 (36.4)    | 407 (73.2)       | 6.532; 0.011                                 |
| Unmarried                          | 112 (75.2)          | 37 (24.8)     | 149 (26.8)       |  |
| <b><i>Job status</i></b>           |                     |               |                  |  |
| Yes                                | 88 (69.8)           | 38 (30.2)     | 126 (22.7)       | 0.712; 0.399                                 |
| No                                 | 283 (65.8)          | 147 (34.2)    | 430 (77.3)       |  |
| <b><i>Social insurance</i></b>     |                     |               |                  |  |
| Yes                                | 307 (65.6)          | 161 (34.4)    | 468 (84.2)       | 1.696; 0.193                                 |
| No                                 | 64 (72.7)           | 24 (27.3)     | 88 (15.8)        |  |
| <b><i>Family income status</i></b> |                     |               |                  |  |
| Good                               | 78 (66.7)           | 39 (33.3)     | 117 (21.0)       | 0.010; 0.995                                 |
| Middle                             | 220 (66.9)          | 109 (33.1)    | 329 (59.2)       |  |
| Bad                                | 73 (66.4)           | 37 (33.6)     | 110 (19.8)       |  |
| <b><i>Family type</i></b>          |                     |               |                  |  |
| Nuclei                             | 307 (66.7)          | 153 (33.3)    | 460 (82.7)       | 0.00; 0.989                                  |
| Large                              | 64 (66.7)           | 32 (33.3)     | 96 (17.3)        |  |
| Total                              | 371 (66.7)          | 185 (33.3)    | 556 (100.0)      |  |

and over of tea in a day. The number of those who had never consumed coffee was 308 (55.4%), with the 95 women (17.1%) reporting consuming five cups and over of coffee in a week. Two hundred ninety two women (52.5%) reported that they had never consumed coke and 104 women (18.7%) having consuming five glasses and over of coke in a week. The proportion of the women who reported consuming five bars and over of chocolate was 14.0%, with the proportion of 41.5% women reporting never consuming chocolate. The mean BMI of those in the study group was  $24.92 \pm 5.10$  kg/m<sup>2</sup> (range 15.24-51.36), and the prevalence of obesity was 15.6% (n=87). The detailed data of the women with dysmenorhea and without dysmenorrhea by their some habits are presented in Table-II.

The prevalence of dysmenorrhea among the subjects was 66.7% (371/556). In this survey, approximately one third of the women (n=120, 32.3%) described their dysmenorrhea as severe, 27.0% (n=100) as moderate and 40.7% (n=151) as mild. The parity number of women ranged from 0 to 9. The number of those not ever giving birth was 151 (27.2%), with the number of 406 (73.0%) of those who ever did not have a miscarriage. The mean menarche age of the women was  $13.47 \pm 1.35$  (range: 10-19). The number of the women whose menarche age was between 13 and 14 was 307 (55.2%).

Most women (77.0%) reported that they had regular menstruation. The average menstrual cycles duration of the study group was  $30.88 \pm 11.12$  days, ranging from 15 to 105. Most

Table-II: Some habits of women with/ without dysmenorrhea

| Some habits                  | Dysmenorrhea |            |             | Statistical analyses $\chi^2$ ; p |
|------------------------------|--------------|------------|-------------|-----------------------------------|
|                              | Yes (%)      | No (%)     | Total (%)   |                                   |
| <i>Smoking</i>               |              |            |             |                                   |
| Yes                          | 107 (66.9)   | 53 (33.1)  | 160 (28.8)  | 0.002; 0.962                      |
| No                           | 264 (66.7)   | 132 (33.3) | 396 (71.2)  |                                   |
| <i>Alcohol consumption</i>   |              |            |             |                                   |
| Yes                          | 4 (80.0)     | 1 (20.0)   | 5 (0.9)     | Fisher;0.670                      |
| No                           | 367 (66.6)   | 184 (33.4) | 551 (99.1)  |                                   |
| <i>Tea consumption</i>       |              |            |             |                                   |
| Yes                          | 353 (66.1)   | 181 (33.9) | 534 (96.0)  | 1.695; 0.193                      |
| No                           | 18 (81.8)    | 4 (18.2)   | 22 (4.0)    |                                   |
| <i>Coffee consumption</i>    |              |            |             |                                   |
| Yes                          | 173 (69.8)   | 75 (30.2)  | 248 (44.6)  | 1.853; 0.173                      |
| No                           | 198 (64.3)   | 110 (35.7) | 308 (55.4)  |                                   |
| <i>Coke consumption</i>      |              |            |             |                                   |
| Yes                          | 182 (68.9)   | 82 (31.1)  | 264 (47.5)  | 1.109; 0.292                      |
| No                           | 189 (64.7)   | 103 (35.3) | 292 (52.5)  |                                   |
| <i>Chocolate consumption</i> |              |            |             |                                   |
| Yes                          | 223 (68.6)   | 102 (31.4) | 325 (58.5)  | 1.257; 0.262                      |
| No                           | 148 (64.1)   | 83 (35.9)  | 231 (41.5)  |                                   |
| <i>Obesity</i>               |              |            |             |                                   |
| Yes                          | 51 (58.6)    | 36 (41.4)  | 87 (15.6)   | 3.052; 0.081                      |
| No                           | 320 (68.2)   | 149 (31.8) | 469 (84.4)  |                                   |
| Total                        | 371 (66.7)   | 185 (33.3) | 556 (100.0) |                                   |

women's menstrual bleeding duration (80.2%) was between 22 and 34 days. The average menstrual bleeding duration was  $5.29 \pm 1.95$  days, ranging from 1 to 15, and nearly three quarters of the women (72.7%) had 6 and less menstrual bleeding duration. Over one thirds of the women (34.7%) reported using no contraceptive method, and nearly half of the women (46.9%) had family history of dysmenorrhea. Some characteristics related to menstruation and parity of women with/ without dysmenorrhea are given in Table-III.

According to the Backward Stepwise Logistic Regression Analysis, when compared to the age group of 35 and over, the reference group, the risk of dysmenorrhea was nearly 1.5 fold higher in the age group of 30-34 (OR=1.486;  $p=0.001$ ), 1.722 fold higher in the age group of 25-29 ( $p=0.060$ ) and 2.677 fold higher in the age group of 24 and over ( $p=0.000$ ). The risk of dysmenorrhea was nearly 1.9 fold higher in those whose menstruation were irregular when compared to those whose menstruation were regu-

lar, the reference group (OR=1.872;  $p=0.000$ ). Furthermore, the risk of dysmenorrhea was nearly 2.5 fold higher in those who had family history of dysmenorrhea when compared to those who did not family history of dysmenorhae, the reference group (OR=2.385;  $p=0.000$ ).

## DISCUSSION

The present study found a high prevalence of dysmenorrhea (66.7%) reported among women in rural Turkey; this figure is consistent with previous studies reporting rates between 45% and 85%.<sup>14,15</sup> Similarly, the previous studies conducted in Turkey indicated that the prevalence of dysmenorrhea among the same age group of women ranged between 23.4% and 89.5%.<sup>16,17</sup> A reason for the variation in these estimates may be the use of selected groups of women, and the absence of a universally accepted method of defining dysmenorrhea probably as greatly as the methods of collecting data, the study

Table-III: Some characters related menstruation and parity of women with/without dysmenorrhea

| Some characters                          | Dysmenorrhea |            |            | Statistical analyses X <sup>2</sup> ; p |
|--|--------------|------------|------------|---|
|  | Var (%)      | Yok (%)    | Toplam (%) |   |
| <i>Number of parity</i>                  |              |            |            |   |
| 0  | 118 (78.1)   | 33 (21.9)  | 151 (27.2) | 13.773; 0.001                           |
| 1-2                                      | 178 (64.5)   | 98 (35.5)  | 276 (49.6) |   |
| 3 and upper                              | 75 (58.1)    | 54 (41.9)  | 129 (23.2) |   |
| <i>Number of abortion</i>                |              |            |            |   |
| 0  | 283 (69.7)   | 123 (30.3) | 406 (73.0) | 8.255; 0.016                            |
| 1  | 65 (62.5)    | 39 (37.5)  | 104 (18.7) |   |
| 2 and upper                              | 23 (50.0)    | 23 (50.0)  | 46 (8.3)   |   |
| <i>Age at menarche (year)</i>            |              |            |            |   |
| <12                                      | 90 (67.7)    | 43 (32.3)  | 133 (23.9) | 0.571; 0.752                            |
| 13-14                                    | 207 (67.4)   | 100 (32.6) | 307 (55.2) |   |
| >15                                      | 74 (63.8)    | 42 (36.2)  | 116 (20.9) |   |
| <i>Menstrual regularity</i>              |              |            |            |   |
| Regular                                  | 271 (63.3)   | 157 (36.7) | 428 (77)   | 9.730; 0.002                            |
| Irregular                                | 100 (78.1)   | 28 (21.9)  | 128 (23)   |   |
| <i>Menstrual cycle duration (day)</i>    |              |            |            |   |
| <21                                      | 22 (66.7)    | 11 (33.3)  | 33 (5.9)   | 6.345; 0.042                            |
| 22-34                                    | 288 (64.6)   | 158 (35.4) | 446 (80.2) |   |
| >35                                      | 61 (79.2)    | 16 (20.8)  | 77 (13.8)  |   |
| <i>Menstrual bleeding duration (day)</i> |              |            |            |   |
| <6                                       | 251 (62.1)   | 153 (37.9) | 404 (72.7) | 14.071; 0.000                           |
| >7                                       | 120 (78.9)   | 32 (21.1)  | 152 (27.3) |   |
| <i>Contraceptive using</i>               |              |            |            |   |
| No                                       | 142 (73.6)   | 51 (26.4)  | 193 (34.7) | 12.087; 0.007                           |
| Oral contraceptive                       | 16 (50.0)    | 16 (50.0)  | 32 (5.8)   |   |
| Intrauterine devices                     | 68 (71.6)    | 27 (28.4)  | 95 (17.1)  |   |
| Other                                    | 145 (61.4)   | 91 (38.6)  | 236 (42.4) |   |

definitions of dysmenorrhea and pain, and the study populations themselves.<sup>18</sup>

In this survey, approximately one third of the women (n=120, 32.3%) described their dysmenorrhea as severe, and 27.0% (n=100) as moderate, in line with the study by Burnett et al (2005).<sup>6</sup> This indicates that nearly 60% of these Turkish women in rural area experience severe or moderate dysmenorrhea, which may have a negative effect on quality of life, social environment, work, and psychological status.

In this survey, it was determined that the prevalence of dysmenorrhea showed decrease as age increased (p<0.05), consistent with many studies indicating that primary dysmenorrhea peaks in late adolescence and the early 20s and the incidence falls with increasing age.<sup>6,19,20</sup>

In the current study, the prevalence of dysmenorrhoea was lower among married

women (p<0.05), possibly due to childbearing.<sup>21</sup> Another explanation could be that nearly all of unmarried women in this study were single and younger. In addition, our study found that as the number of birth increased, the frequency of dysmenorrhea showed decrease (p<0.05), in line with some studies.<sup>22</sup>

In our study, in those with menstrual irregularity, prolonged menstrual cycles (>35 days) and prolonged menstrual bleeding (>7 days), the prevalence of dysmenorrhea was higher (p<0.05, for each one), compatible with many study results.<sup>17</sup>

Oral contraception is a good choice for therapy, combining contraception with a beneficial impact on dysmenorrhea, menstrual flow and menstrual irregularity. The explanation for the benefit observed when taking oral contraceptives is decreased prostaglandin synthesis

associated with the atrophic decidualized endometrium.<sup>23</sup> There are some studies indicating that, in oral contraceptive users, the frequency of dysmenorrhea was seen less frequently,<sup>6</sup> in similar to our study results.

This study found that those had family history of dysmenorrhea had higher frequency of dysmenorrhea when compared those who did not have, in addition logistic analysis showed a 2.4 fold higher ratio of dysmenorrhea in those who had positive family history. This result could be explained with the fact that this study was conducted out in a rural area where there was no exogamy.

The prevalence of depression among women in a rural area was relatively high throughout our study, reaching almost three quarters (66.7%). This indicates the need for knowledge concerning dysmenorrhea still exists and needs to be addressed by menstruation, menarche and dysmenorrhea-related health education programs.

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