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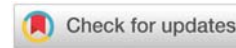
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***Corresponding author:** Hülya Tosun, Assistant Professor, Department of Midwifery, Kütahya Health Science University, Kütahya, Turkey, Tel: +905417251756; E-mail: hulyaerbaba3@hotmail.com

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Research Article

Do economic circumstances and family structures affect young girls' healthy living behaviors and menstrual symptoms?

Hülya Tosun^{1*} and Esra Karaca Çiftçi²

¹Department of Midwifery, Kütahya Health Science University, Kütahya, Turkey

²Department of Nursing, Beykent University, Istanbul, Turkey

Abstract

Background: Demographic features such as low income, low education, and living in a crowded or single-parent family increase young girls' premenstrual and menstrual symptoms such as pain, anxiety, and bleeding and negatively affect their healthy lifestyle. The purpose of the study was to analyze the relationship between healthy lifestyle behaviors and menstrual symptoms among young girls and their sociodemographic characteristics.

Methods: This descriptive study was conducted on 1,130 students from four high schools providing full-time education in the Beylikduzu district of Istanbul between February 3, 2020, and March 1, 2020. Volunteer students whose families gave consent participated in the study. A personal identification form, the Menstrual Symptom Scale and the Healthy Lifestyle Behavior Scale-II (HLBS-II) were used to collect data in the study. All statistical analyses were performed using SPSS Statistics version 23.

Results: It was found that economic status and painful menstruation negatively affected healthy lifestyle behaviors while living with one's nuclear family positively affected healthy lifestyle behaviors; furthermore, chronic disease, painful menstruation, and family types other than the nuclear family negatively affected menstrual symptoms.

Conclusion: Poor economic status and painful menstruation negatively affected healthy lifestyle behaviors, and chronic disease, painful menstruation and family type other than the nuclear family negatively affected menstrual symptoms.

Background

Personal and demographic characteristics are associated with overall adolescent health indicators [1,2]. Given the population characteristics of Turkey, the proportion of girls aged 10–19 years living in the country is 16.8% [3]. Turkey is included in the band of developing countries (<https://www.isi-web.org/index.php/capacity-building/developing-countries>). Adolescence is a physiologically, hormonally, and psychologically important transitional period [4–6]. In this country, many young girls are currently affected by negative factors such as low education, low income, and non-standard family life. They live with various problems such as nutritional disorders, insufficient exercise, high Body Mass Index (BMI), premenstrual symptoms, menstrual pain, and psychological

problems due to lack of knowledge and access to healthcare and comfortable facilities [6,7]. However, nutrition, physical activity, and coping with stress behaviors are indispensable elements for healthy lifestyle behaviors. Women with more sedentary lifestyles have been shown to have more menstrual pain, constipation, headaches, and backaches during their menstrual cycles, edema, and premenstrual problems. In addition, more menstrual pain and premenstrual problems occur in women who consume fatty junk food and have a high body fat ratio. Moreover, girls who do not know how to cope well with stress experience more menstrual anxiety [2,6,8].

In light of all of this information, how does economic status affect menstruation? First, the use of unsuitable absorption materials (i.e., those that do not wash or dry properly) can lead to infections [9]. In places with insufficient toilets due to

poverty, girls prefer to eat less and consume less liquid during menstruation as a coping strategy [10]; in an area of Nairobi, 65% of females have traded sex for sanitary pads [11]. Previous studies conducted in Turkey have reported that 98% of females use hygienic pads [12]; however, with a decrease in income levels, the rate at which pads are replaced decreases, and MIS implementation of menstruation-related practices become more common [13]. Family type is an important variable that affects healthy lifestyle behaviors and menstrual behaviors, and it is known that adolescents living with both parents have healthier behaviors than others [14]. Another factor is a chronic disease; while adolescence is a challenging time even for healthy individuals, having a chronic disease may lead to the development of negative health behaviors as a result of stress and tension. In particular, eating disorders and a reaction of denial may emerge among girls as a response to despair and disease [15].

This study is necessary since studies have generally focused on dysmenorrhea and menstrual symptoms. In this study, we investigate the relationships among parameters such as economic status, family type, chronic diseases, menstruation duration, BMI, healthy lifestyle behaviors, and menstrual symptoms, we plan to demonstrate what results affect both health behaviors and menstrual symptoms.

Methods

This descriptive study was conducted in four high schools with different curricula and student characteristics in order to explore the relationships among economic status, family, other demographic characteristics, healthy behaviors, and menstrual symptoms. These schools provide full-time education and are located in the most migration-receiving regions of a district in Istanbul. These districts have shown a moderate population density within the last five years that reflect the country's population profile. The school types are as follows: 1) social sciences high school, 2) vocational high school, 3) Imam Hatip (religious vocational) high school, and 4) regular high school. The study was conducted with the voluntary participation of 1,130 girls between February 3, 2020, and March 1, 2020. Since the girls were under the age of 18 years, consent was first obtained from their families and then from them. Girls who had not yet experienced menstruation were not included in the study. In Turkey, polygamy is not legal. Considering the age group of the participants, girls with a polygamous family were not included in the study. A personal identification form (including economic status, family pattern, BMI, nutrition, exercise, chronic diseases (heart diseases, epilepsy, diabetes, hypertension, asthma, chronic kidney diseases, and menstrual characteristics), the Healthy Lifestyle Behavior Scale-II (HLBS-II), and the Menstrual Symptom Scale (MSS) were used to collect data in the study. Consent was obtained from the directorate of education at the included schools. To ensure the confidentiality of personal information, a few of the scales were identified, and all were confidential. To prevent individual interactions, the researcher provided all forms face-to-face. Official approval for the study was obtained from the Human Sciences Ethics Committee of Beykent University (dated September 16, 2019, and number 103).

Healthy Lifestyle Behavior Scale-II (HLBS-II)

This scale was developed by Walker, et al. (1987) and consists of six subdimensions including health responsibility, physical activity, nutrition, spiritual development, interpersonal relationships, and stress management [16]. The Turkish validity and reliability study of the scale were investigated by Bahar, et al. [16]. The four-point Likert type scale consists of 52 items. The lowest and highest scores that can be obtained from the scale are 52 and 208 points, respectively. Cronbach's alpha of the HLSB-II is 0.92 and Cronbach's alpha of the scale in this study was 0.90.

Menstrual Symptom Scale (MSS)

This scale was developed by Chesney and Tasto [17] to evaluate menstrual pain and symptoms; responses to the 24 items on the MSS are rated on a five-point Likert-type scale [17]. The usability of the MSS in adolescents was evaluated by Negriff, et al. [18] and the scale was updated in 2009. The Turkish validity and reliability study of the scale was investigated by Güvenç et al. [19]. As a result of the adaptation by Güvenç, et al. the scale was revised to 22 items on a five-point Likert-type scale. The scale consists of three sub-dimensions: negative effects/somatic complaints, menstrual pain, and coping methods. The MSS score is calculated by taking the average of the total scores of the items on the scale; a higher average score indicates a higher severity of menstrual symptoms. Cronbach's alpha of the scale is 0.86 [19], while Cronbach's alpha of the scale was found to be 0.92 in this study.

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) version 25.0 for Windows. Independent variables of this study: family type, economic status, chronic disease, body mass index. The Healthy Lifestyle Behaviors Scale-II, Menstrual Symptom Scale are dependent variables. The data were evaluated using t-tests and ANOVA and are reported as numbers and percentages or the mean and Standard Deviation (SD). The t-test was used to compare the variables obtained from the two groups (presence of chronic disease, length of menstruation, presences of menstrual pain) with the total scores of the HLPS-II and MSS ANOVA was used to compare the variables obtained from three or more groups (family type, economic status, and BMI) with the total scores of the HLPS-II and MSS. All p-values <0.05 and <0.001 were considered statistically significant.

Results

Among the girls who participated in this study, 85.3% had a nuclear family, and 9.3% lived in an extended family. Furthermore, the family income for 73.2% of the girls was equal to their expenses, and the family income of 13.9% of the girls was lower than their expenses. Of the girls, 90.9% had no chronic disease. When BMI was analyzed, 63% of girls were within normal limits, 13.5% had mild obesity, and 12.1% were obese. The proportion of young girls with a menstruation length of five days or less was 45.7%, while 54.3% stated that it was six days or longer. Of the girls, 70.4% stated that they experienced pain during their menstrual periods. The mean MSS score of

the girls participating in the study was 59.61 ± 19.03 , and the mean HLBS-II score was 124.27 ± 20.42 (Table 1).

The mean HLBS-II scores and family types of the girls participating in the study were compared, and the quality of life of adolescents with a nuclear family was found to be better; furthermore, the difference was statistically significant ($p < 0.001$). In the comparison of family type and MSS scores, adolescents with divorced parents had higher MSS scores, and the scores of those with an extended family were lower than those of others; this difference was statistically significant ($p < 0.05$).

The mean HLBS-II scores and income status of the participants were compared. The mean HLBS-II scores of the adolescents with a family income equal to or greater than their expenses were higher than those of adolescents with a family income that was less than their expenses; income status also statistically significantly affected healthy lifestyle behaviors ($p < 0.001$). In the comparison of the mean MSS scores and income status, the adolescents had very similar mean MSS scores, and there was no significant difference between them ($p > 0.05$).

The HLBS-II scores of the girls with chronic diseases were compared, and no difference was found between them ($p > 0.05$). Girls with chronic diseases were found to experience statistically significantly more menstrual symptoms more than those without chronic diseases ($p < 0.05$).

The BMI, mean HLBS-II scores, and mean MSS scores of the participants were compared and, no statistically significant differences were found ($p > 0.05$).

In the study, no statistically significant difference was found between menstruation length and the scores for either the HLBS-II or MSS ($p > 0.05$).

Adolescents without menstrual pain had higher scores on the HLBS-II, and there was a statistically significant difference between these subgroups ($p < 0.05$). The mean MSS scores of those with menstrual pain were higher than those without pain, and there was a significant difference between these two subgroups ($p < 0.001$).

Discussion

This study showed that the healthy lifestyle behaviors of young girls were moderately good; these behaviors were associated with family type, income level, and the presence of painful menstruation. A systematic review by Sümen et al. including 11 papers from Turkey published between 2002 and 2015 found that the HLBS-II scores of high school students living in Turkey were moderate (max: 129.5 ± 21.9) [1]. Karaaslan and Çelebi (2018) studied 449 high school students and found that all of their HLBS-II scores were moderate; furthermore, they found that the health responsibility and physical activity scores of female students were significantly low [5].

Family type plays an important role in meeting family health needs and developing healthy behaviors. Nuclear family life appears more effective than other family types in terms of access to healthcare and sharing resources [20]. This study demonstrates that menstrual symptoms and painful menstruation are directly associated with family type. Adolescents with divorced parents were found to experience more severe menstrual symptoms. Altıparmak and Koca [21] found that the health perceptions of women aged 15–49 years

Table 1: Comparison of young girls' demographic and medical features with their total scores on the HLBS-II and MSS.

Characteristics	Frequency		HLBS-II		MSS	
	N	%	Mean	Test, p-value	Mean	Test, p-value
Family Type						
Nuclear family	964	85.3	125.30 ± 20.40	F=9.009** P=0.000†	59.64 ± 19.20	F=3.852** P=0.022†
Extended family	105	9.3	119.45 ± 18.01		56.31 ± 18.35	
Mother and father Live separately	61	5.4	116.22 ± 21.89		64.78 ± 16.22	
Economic Status						
Inc. is less than exp.	157	13.9	117.96 ± 19.86	F=8.893** P=0.000†	58.07 ± 20.10	F=0.636** P=0.530
Inc. is equal to exp.	825	73.2	125.19 ± 20.03		59.93 ± 18.96	
Inc. more than exp.	146	12.9	125.85 ± 22.07		59.44 ± 18.24	
Chronic Disease						
Yes	103	9.1	125.14 ± 22.27	T=0.455* P=0.649	63.24 ± 20.35	T=2.032* P=0.042†
No	1027	90.9	124.18 ± 20.23		59.25 ± 18.86	
BMI						
Severely underweight	29	2.6	122.00 ± 22.48	F=1.514** P=0.196	56.41 ± 16.67	F=0.352** P=0.843
Underweight	100	8.8	124.22 ± 17.67		59.83 ± 18.90	
Normal	712	63.0	125.31 ± 0.77		59.86 ± 19.24	
Overweight	152	13.5	122.19 ± 20.00		58.61 ± 19.29	
Obese	137	12.1	121.65 ± 21.23		59.64 ± 18.37	
Length of menstruation						
5 days or fewer	516	45.7	124.54 ± 21.53	T=0.401* P=0.689	58.69 ± 18.94	T=1.482* P=0.139
6 days or more	614	54.3	124.04 ± 19.45		60.38 ± 19.08	
Menstrual Pain						
Yes	796	70.4	123.31 ± 20.06	T=2.450* P=0.014†	65.48 ± 17.42	T=18.203* P=0.000†
No	334	29.6	126.56 ± 21.10		45.61 ± 14.73	

* t test; **: Analysis of Variance (ANOVA); † = $p < 0.05$, ‡ = $p < 0.001$, Inc. = Income, exp. = expenses



living in a nuclear family were higher than those of others. In addition, this study found that the quality of life of adolescents living in a nuclear family was improved [21]. Borjigen et al. showed that girls who lived with a single parent or whose parents were divorced had less menstrual knowledge and more often experienced stress than those from nuclear families [22].

The results of this study support the literature and show that the mean healthy lifestyle behavior scores of adolescents with incomes greater than their expenses are higher than the scores of adolescents with family incomes less than their expenses; thus, income status affects healthy lifestyle behaviors. However, regarding the effects of economic status on menstrual symptoms, this study found no significant difference between income status and MSS scores. While Ersoy, et al. [23] stated that adolescent girls with a low socioeconomic status had fewer premenstrual complaints [23], Borjigen, et al. [22] reported that the menstrual knowledge and related behaviors of girls with better monthly incomes were more positive [22].

Chronic disease is perceived by young people as a condition that limits their independence and requires the frequent use of medication; it may pose challenges for young people and their families [24]. In this study, the HLBS-II scores of the girls with chronic diseases were compared, and no difference was found between them ($p > 0.05$). However, girls with chronic diseases experienced more menstrual symptoms than those without chronic diseases [25].

This result is thought to be attributable to young girls experiencing more stress due to chronic disease and developing sensitivities due to their nutritional habits, inadequate mobility, and medications. However, strict follow-up by parents can cause young people to exhibit rebellious and risky behaviors [26], leading them to act in a manner that adversely affects their illnesses. For example, young people with diabetes have been shown to skip meals, and this study on young people with type 1 diabetes showed that young people tended to hide their illnesses and delay their insulin doses, leading to hypo/hyperglycemia problems [27].

Although pain is a personal experience and depends on various factors, menstrual pain is known to be associated with a healthy lifestyle such as a balanced diet and exercise [28]; this study determined that adolescents without menstrual pain had higher HLBS-II scores. In the literature, no other study has compared healthy lifestyle behaviors with menstrual pain. However, Fernandez, et al. [29] reported a 75% prevalence of dysmenorrhea, an 81% prevalence of psychological complaints, and a 79% prevalence of fatigue and demonstrated that menstrual symptoms inhibited students' social lives and school attendance [29]. Moreover, it has been reported that unhealthy behaviors such as the consumption of caffeinated beverages [30], alcohol, excessive tea, junk food, and fatty foods [31], all increase menstrual pain. In the study by Erbaba and Şahin [6] that evaluated obese girls, there was a painful menstruation rate of 60% in the pre-education intervention group, which decreased to 42% at the end of nutrition, exercise, and menstrual symptom educational intervention; this finding

shows that menstrual pain may become less frequent in adolescents with healthy lifestyle behaviors [6].

In this study, no relationship was found among BMI, healthy lifestyle behaviors, and menstrual symptoms. This result should be interpreted cautiously, and new studies with different approaches should be conducted in the future to clarify the relationships among body fat percentage, healthy lifestyle choices, and menstrual symptoms. Several previous studies have shown that healthy lifestyle behaviors decrease, and menstrual problems increase as BMI increases [2,6,9].

Although 54% of participants in our study had bleeding for more than six days, this did not affect healthy lifestyle behaviors or menstrual symptoms. Any length of menstruation longer than 10 days was evaluated as hypermenorrhea, which can cause problems such as anemia, dizziness, and headache in women of almost any age [32,33].

Studies have generally focused on dysmenorrhea and menstrual symptoms. Menstruation and symptoms that are controlled by hormones are affected by many environmental stimuli. The purpose of this study is to explore the relationships among economic status, family, other demographic characteristics, healthy behaviors, and menstrual symptoms. It seems that both situations are seriously affected by economic and demographic features and need further evaluation for improved understanding.

Although the city where the study was conducted is highly populated, studies conducted in schools in our country are subjected to stringent permissions to prevent students from experiencing interruptions to their lessons or exams. 280 high school seniors refused to participate on the grounds that they took the university entrance exam. Additionally, it was very difficult to obtain a sufficient number of volunteers because students in this age group are often disinterested in completing. 199 students were rejected because they found these surveys privy, long and boring.

In this study, participants living in nuclear families had better menstrual symptoms and HLBS II scores. Future studies can be examined according to the polygamous family, stepchild status. The consequences of this can reveal the deprivation of health possibilities due to domestic injustice. According to this study, good economic conditions positively affect HLBS II scores and menstrual symptoms. However, can we reach the same conclusion regarding the economic situation when associated with each chronic disease? In other respects what kind of results will we achieve in this age group that has to earn a living by working? These can be included in the literature to help explore the topic from a wider perspective. The relationship between BMI and menstrual symptoms is a very interesting topic, and there remains a need for long-term studies. When the inform individual correctly, they do enough physical activity and partially cope with stress. However, it is not so easy to reach well feeding behaviors and possibilities. Therefore, easily accessible free nutrition and health care support arrangements can be made in schools or local governments for healthy nutrition of young girls. In schools,



training on the content and alternatives of food sources, stress management and menstrual symptom management can be given frequently.

Conclusion

The identification of factors that have a significant relationship with economic, familial, and menstrual characteristics, health behaviors, and the menstrual symptoms of high school girls will help us determine what behaviors and approaches are necessary for girls in this period. According to the results obtained in the present study, economic status and painful menstruation negatively affect healthy lifestyle behaviors, while living in a nuclear family positively affects them. Chronic diseases, painful menstruation, and a family type other than the nuclear family all negatively affect menstrual symptoms.

Declarations

Ethics approval and consent to participate

Consent was obtained from the directorate of education at the included schools. To ensure the confidentiality of personal information, a few of the scales were identified, and all were confidential.

Consent for publication

Official approval for the study was obtained from the Human Sciences Ethics Committee of Beykent University (dated September 16, 2019, and number 103).

Availability of data and materials

Data can be given by the authors when requested.

Authors' contributions

All authors read and approved the final manuscript.

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