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Women's Health Promotion Behavior as Related to Osteoporosis in the Period of Menopause

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ABSTRACT

Objective: The study was conducted as a descriptive study to determine the health promotion behavior of menopausal women as related to osteoporosis.
Materials & Methods: The study sample consisted of 191 women who agreed to participate in the study between January and April 2014. The research was conducted at face-to-face interviews during visits to woman living in the city center who were experiencing menopause. Data was collected using a Questionnaire and the Healthy Life Style Behavior Scale-II. Frequency, mean, percentage values and multiple linear regression tests were employed in the analysis of the data.
Results: According to the results of the multiple linear regression analysis, it was found that the factors affecting the healthy lifestyle behavior of the women were their professions, number of children, income level, age at menopause, history of chronic disease and menopausal complaints, smoking, coffee or acidic beverage consumption, the proportion of salt intake, taking osteoporosis drugs and family history of osteoporosis.
Conclusions: The health promotion behavior of menopausal women with respect to osteoporosis is at a moderate level. Individual and group training should be provided to improve health in terms of osteoporosis and individuals with osteoporosis risk should be monitored.

Keywords: Health Promotion Behavior, Menopause, Osteoporosis, Women

INTRODUCTION

Living a healthy life is possible by protecting and increasing quality of life and by making successful transitions between phases of life and maximizing opportunities throughout the life span. The continuous increase in life expectancy has brought up questions about how to increase the quality and duration of healthy lives.

Menopause is one of the five phases of women's lives. Although it is a natural and normal change, it can lead to various health problems. [1] Menopausal age differs from country to country but the average age for menopause is around 50-52 years. Menopausal age in Turkey is between 47 and 49 years while in Egypt, it is 48 years, and between 50 and 52 years in Jordan. [2] According to the results of the 2008 Turkey Population and Health Survey, 42% of women aged between 48 and 49 years are in menopause. [3] Menopausal age, state of health, and education levels affect health problems encountered during menopause. [4]

During menopause, women can experience problems related to the lack of estrogen. These can be symptoms such as psychological, emotional and physiological changes, anxiety, depression, nervousness, feeling bad, weeping, difficulty in focusing, forgetfulness, hot flashes, muscle and joint pain, headache, trouble sleeping, a decrease in sexual desire, stress incontinence and osteoporosis. [5] Among the physiological problems encountered, osteoporosis and osteoporosis-related problems have the most impact on women's health. In osteoporosis, decrease in bone strength can be seen as a result of increases in bone mineral density

and a consequential increase in bone fragility. Minimal traumas experienced during a woman's daily life activities can result in fractures. [6, 7] A study conducted in the U.S. reports that 30%-50% of women experience a critical fracture and morbidity related to fracture in some period of their lives. [8] According to the FRACTurk, a study carried out in Turkey, the prevalance of osteoporosis among women aged over 51 years is 12.9%. Osteoporosis can result in back and lumbar pain, humpback, mortality and a decrease in quality of life. It also places a burden on family and society. Delaying or preventing osteoporosis depends on individual lifestyles and attitudes towards health promoting behavior. [9-11] Promoting health is defined as a combination of educational, economical, organizational and environmental supports for any behavior and living status devoted to health; a process which makes it possible for individuals to enhance and develop control over their own health. [12] In Pender's health promoting model, it is stated that demographic characteristics of individuals have an effect on health promoting behavior through cognitive-perceptual factors. It is also stated that there is a relationship between health promoting behaviours and age, gender, education, marital status and level of income. [13] It has been stated that while an individuals' unique characteristics such as height, weight, and body mass index may affect human health behavior, good interactions with family, friends, health officers and relatives affect the level of acquiring positive health behaviours. A healthy lifestyle is defined as an individual's being able to control behaviors that can affect their health and choosing behaviors that are suitable for their state of health while organizing activities. [14] An individuals' transforming these behaviours into attitudes can both sustain existing healthiness as well as improve the state of health. [15] The present study was conducted on the basis of the thought that by determining their health promoting behaviors related to osteoporosis, which can have an adverse impact on quality of life, women can be helped to improve the quality of their lives if . The study therefore aimed to determine women's health promoting behaviours related to osteoporosis based on the expression their own experiences and to understand the individual characteristics that affect such health behaviors.

MATERIALS AND METHODS

This is a descriptive study that was conducted to determine women's osteoporosis-related health promoting behaviors and factors affecting these behaviors. This fieldwork was carried out in the period January – April, 2014. The study group comprised 191 women from the city center who volunteered for the research and had not experienced menstruation for a period of one year. Data were collected by home visits where face-to-face interviews were conducted.

A personal information questionnaire and Healthy Lifestyle Behaviors Scale II (HLBS II) were us items questions to determine sociodemographic characteristics (age, body mass index, marital status, education, profession, level of income, place of residence), fertility (age of initial menstruation, length of menstrual cycle, birthing history, number of children, menopause age and menopause complaints), osteoporosis diagnosis and health behaviors (bone health problems, chronic disease history, smoking, salt consumption, coffee or fizzy drinks consumption and the frequency of sun exposure). HLBS II was developed by Walker, Sechrist and Pender (1995). [16] Akca (1998) has confirmed the validity and reliability of the scale for the Turkish population (Akca, 1998) and Bahar et al. (2008) has confirmed. [17] HLBS II consists of 52 items in total and six subgroups, which are: self-realization, health responsibility, exercise, nutrition, interpersonal support and stress/stress management. The items are scored on a four-point likert type scale (1=never, 4=regularly) and all statements are

positively scored. The lowest score for the whole scale is 52, the highest, 208. The lower and higher limits to scores on self-realization, nutrition, interpersonal support, and health responsibility are 9 and 36, respectively, while in the case of stress/stress management, the score can vary between 8 - 32. The Cronbach Alpha reliability value for the whole scale is .94 while for the six subgroups, it is between .79 - .87.

Ethical Considerations

Written permission for the study was obtained from the Public Health Directorate under which the Family Health Center where the study was conducted operates. Also, verbal consent was obtained from the participants in the study.

Statistical Analysis

The data analysis was performed with the SPSS (Statistical Package for Social Sciences) v19.0 software program. Frequencies, numbers, mean scores and multiple regression analysis were used in the analysis. In the model used in the multiple regression analysis, gender, age, educational status, level of income, number of children, menopausal complaintss taking a drug for osteoporosis, existence of a chronic disease history were determined as independent variables while the HLBS II scores were considered as dependent variables. The results were at a 95% confidence level and a 0.5 was accepted as the significance level. A significant difference was considered to be $p<0.5$ while $p>0.5$ indicated to significant difference.

RESULT

Of the women surveyed, 86.4% were between 50 and 65 years of age and the mean age was 55.8±5.6 years. Of the women, 36.6% were overweight, 86.4% were married, 54.9% had married at the age of 20 or younger (mean= 19.4±3.8 years), 34% were primary school graduates, 82.7% were housewives, 84.3% had a medium level of income, 34.6% were living in walk-up apartments (see Table 1). Furthermore, the women's mean initial age of menstruation was 13.6±1.4 years; the average length of the menstrual cycle was 5.2±1.4 days. The mean age of first labor was 21.2±4.1 years; almost all of them (96.9%) had borne children and had an average 3.7±1.7 children. The mean age of menopause was 46.7±4.9 years and -80.1% had a menopausal complaint. The most common menopausal complaints among the women were hot flashes (69.6%), trouble sleeping (50.3%), night sweat (49.2%), nervousness-distress (44.0%), tachycardia (30.9%), prostration (28.3%), urinary tract infection (10.5%), depression (6.3%) and memory lapse (3.1%). It was moreover discovered that 24.1% of the women were diagnosed with osteoporosis, 13.1% with bone health problems, 44% with chronic diseases. Also, 5.2% received treatment for osteoporosis and 6.3% for bone health problems. It was additionally observed that 29.3% of the women have history of osteoporosis in their families and mothers were the family members who had most commonly been diagnosed with osteoporosis (20.4%). It was additionally seen that the majority of the women (86.4%) were not smokers, that more than half (64.4%) consumed little salt, one-third (33.5%) never drank coffee or fizzy drinks and almost half (46.6%) sunbathed often (Table 1).

The mean scores of the women in the study on the HLBS II and its subgroups were at good levels of 28.2±3.6 on the self-realization subscale, 23.2±3.6 on the health responsibility subscale, 26.6±4.0 on the nutrition subscale, 28.6±4.1 on the interpersonal support subscale subscale, but at a medium levelon the stress/stress management (21.9±3.8) and exercise (15.0±3.8) subscales. The women's mean score for the whole of the HLBS (143.5±16.0) was at a good level (Table 2).

Table 1: Women's Characteristics Which Affect Their Sociodemographic, Fertility and Osteoporosis Development (n=191)

Variables		n	%
Sociodemographic Characteristics			
Age X±SD	55.8±5.6 (min. 45, max. 65)		
Body Mass Index (BMI)	Underweight	32	16.8
	Normal Weight	48	25.1
	Overweight	70	36.6
	Obese	41	21.5
Marital Status	Married	165	86.4
	Widowed/never married	26	13.6
First married age X±SD	19.4±3.8 (min. 13, max. 40)		
Educational Level	Illiterate	42	22.0
	Literate	36	18.8
	Primary school	65	34.0
	Middle School	11	5.8
	High school and over	37	19.4
Profession	Housewife	158	82.7
	Retired	20	10.5
	Other	13	6.8
Income status	Low	16	8.4
	Middle	161	84.3
	High	14	7.3
Living place	Detached house	64	33.5
	Apartment with elevator	61	31.9
	Apartment without elevator	66	34.6
Fertility Characteristics			
Age of first menarche X±SD	13.6±1.4 (min. 9, max. 17)		
Menstrual cycle time X±SD	5.2±1.4 (min. 1, max. 12)		
Birth status	+	185	96.9
	-	6	3.1
Age at a first birth X±SD	21.2±4.1 (min.14, max.41)		
Number of children X±SD	3.7±1.7(min.1, max. 11)		
Features Related to Menopause			
Menopause age X ± SD	46.7±4.9 (min. 27, max. 56)		
Menopause complaint	+	153	80.1
	-	38	19.9
Features Affecting Osteoporosis Development			
Osteoporosis	+	46	24.1
	-	145	75.9
Osteoporosis in family	+	65	29.3
	-	135	70.7
Bone health problem after menopause	+	25	13.1
	-	166	86.9
Chronic diseases	+	84	44.0
	-	107	56.0
Smoking	+	26	13.6
	-	165	86.4
The proportion salt in food	Without salt	22	11.5
	Slightly salt	123	64.4
	Salty	46	24.1
Consumption of coffee or asidic beverages	Never	64	33.5
	Sometimes	104	54.5
	Often	23	12.0
The frequency of sun exposure	Never	11	5.8
	Sometimes	55	28.8
	Often	89	46.6
	Always	36	18.8

Table 2: Women's HLBS-II General and Sub groups Average Scores (n=191)

Scale sub-dimensions	Lower and upper value	Marked lower and upper values	Mean± standard deviation	Marked item average
Health Responsibility	9-36	10 – 34	23.29± 3.64	2.5
Exercise	8-32	8-26	15.03±3.80	2.2
Nutrition	9-36	15-36	26.69±4.09	2.6
Self Realization	9-36	18-36	28.29±3.64	3.0
Interpersonal Support	9-36	18-40	28.63±4.10	2.9
Stress and coping with stress	8-32	13-34	21.97±3.85	2.5
HLBS -II General Rate	52-208	97-189	143.50±16.00	2.6

According to the results of the multiple linear regression analysis (in Table 3), when the subscales of the HLBS II are analyzed, it is discovered that there is a significant correlation between number of children, level of income, chronic disease story, smoking, coffee or fizzy drink consumption and the self-realization score in the self-realization subgroup (R=.435, R^2=.189, F=3.344, p<.05). The variables explain 18% of the total variance. According to the standardized regression coefficient (β), the relative order of importance of the predictor variables in self-actualization is as follows: coffee or fizzy drinks consumption, chronic disease history, smoking, level of income, and number of children. On the other hand, the length of the menstrual cycle, menopausal complaints, taking an osteoporosis drug, having a family member or relative diagnosed with osteoporosis , bone health problems and the frequency of sun exposure, which are also parts of the regression equation, have no significant influence over self-actualization (p>.05).

It was seen that in the exercise subgroup, there was a significant correlation between profession, menopausal age and complaints, salt intake in meals (R= .414, R^2=.172, F=2.54, p:.002) and the exercise subscale score. The variables explain 17% of total variance. According to the standardized regression coefficient (β), the relative order of importance of the predictor variables in exercise is as follows: taking a drug for chronic disease, menopausal age, menopausal complaint, occupation, salt intake rate. On the other hand, body mass index, a diagnosis of osteoporosis, taking osteoporosis medicine, bone health treatment, the frequency of sun exposure, bone health problems, place of residence have no significant influence on the exercise subgroup (p>.05).

A significant correlation was observed in the nutrition subscale between the nutrition score and taking a drug for osteoporosis, chronic disease history, smoking (R=.328, R^2= .108, F = 4.46, p<.05). The variables explained 10% of total variance. According to the standardized regression coefficient (β), the relative order of importance of the predictor variables is as follows: taking a drug for osteoporosis, smoking and chronic disease history. On the other hand, coffee or fizzy drink consumption and salt intake, which are also parts of the regression equation, have no significant influence over the nutrition subscale (p>.05).

In the stress and stress management subscale, there was a significant relationship between the stress and stress management subscale score and level of income, a family history of osteoporosis (R=.327, R^2= .107, F = 2.583, p<.05). The variables explained 10% of total variance. According to the standardized regression analysis coefficient (β), the relative order of importance of the predictor variables in the stress and stress management subscale was as follows: level of income, family history of osteoporosis. On the other hand, salt intake, body mass index, place of residence, profession, number of children, age at first birth, which are also included in the regression equation, did not have a significant influence over stress and stress management (p>.05).

In the health responsibility subscale, a significant correlation was discovered between the health responsibility score and the level of income, place of residence (R=.358, R^2=.128, F = 3.825, p =.001). Salt consumption, taking a drug for chronic disease, educational status, age at first menstruation, age at first marriage, which are also parts of the regression equation, did not display a significant influence over the health responsibility score (p>.05). According to the standardized regression coefficient (β), the relative order of importance of the predictor variables was as follows: level of income, living place.

The results of multiple regression analysis related to the subscale of predicting interpersonal support for health promoting behaviors, subgroup determined that age, menopausal complaints, a diagnosis of osteoporosis, taking a drug for osteoporosis,

a history of chronic disease, bone health problems, educational status, smoking, coffee or fizzy drink consumption and age at first labor did not have a significant effect on the interpersonal support subgroup (p>.05) (Table 3).

Findings gathered from regression analysis, which examines relationships between variables that can influence the general HLBS II score, have shown that there is a significant correlation between general self-actualization, health responsibility, exercise, nutrition, interpersonal support, stress and stress management scores and women's general scores (R=.983, R^2= .967, F = 886.66, p=.000). According to the standardized regression coefficient (β), the relative order of importance of the variables over the healthy lifestyle behaviors score is as follows: health responsibility, interpersonal support, nutrition, self-actualization, exercise, and stress and stress management (Table 3).

Table 3: Multiple Linear Regression Analysis Related to Prediction of HLBS II With Some Variables

	Predictor Variables	**Standard error**	**Coefficient (β)**	**t**	**p**
HLBS-II SUB-DIMENSIONS	Self Realization				
	Number of children	,149	-,145	-1,977	**,050**
	Income status	,640	,152	2,171	**,031**
	Chronic disease	,560	,190	2,476	**,014**
	Smoking	,809	,163	2,136	**,034**
	Consumption of coffee or asidic beverage	,443	,214	2,647	**,009**
	R=.435 R^2= .189 F: 3.344				
	Exercise				
	Menopause age	,057	,178	2,382	**,018**
	Profession	,354	,161	2,181	**,031**
	Menopause complaint	,697	-,162	-2,252	**,026**
	Using drug	,066	,189	2,145	**,033**
	The proportion salt in food	,434	-,146	-2,026	**,044**
	R= .414 R^2=.172 F: 2.547				
	Nutrition				
	Using osteoporosis drug	,497	-,208	-2,915	**,004**
	Chronic disease	,595	-,143	-1,978	**,049**
	Smoking	,895	,189	2,515	**,013**
	R=.328 R^2= .108 F: 4.468				
	Stress and coping with stress				
	Income status	,722	,177	2,387	**,018**
	Osteoporosis in family	,627	-,174	-2,367	**,019**
	R=.327 R^2= .107 F:2.583				
	Health Responsibility				
	Income status	,924	,200	2,813	**,005**
	Living place	,452	,164	2,282	**,024**
	R=.358 R^2=.128 F:3.825				
	HLBS-II General Rate				
	Self Realization rate	,097	,220	10,005	**,000**
	Health Responsibility rate	,047	,335	21,897	**,000**
	Exercise rate	,063	,219	14,474	**,000**
	Self Realization rate	,059	,242	16,143	**,000**
	Interpersonal Support rate	,082	,285	13,550	**,000**
	Stress and coping with stress rate	,076	,206	11,331	**,000**
	R=.983 R^2=.967 F:886.662 p:.000				

DISCUSSION

In many cultures women are seen as the ones who are responsible for the health of the family. For that reason it is important that they acquire constructive health promoting behaviours. The general average HLBS II score of the women included in this study (143.5±16.0) is good. Sayan and Erci (2001) report a total general average HLBS score of 122.5±14.5 in their study of working women in Erzurum; and Ahijevch's and Bernard's study (1994) with Afro-American women reports a score of 121.0±21.9. [18-19] The average total score of the present study is higher than previous research. The factors of level of income and age have a significant effect on the general healthy lifestyle behaviors score.

When women's average subscale scores are analyzed, it can be seen that the average

self-actualization subscale score is good (28.2±3.6). In Altıparmak and KocaKutlu's (2009) study, the average score is 33.4±7.4; Johnson's (2005) study with Afro-American women displays an average score of 3.1±0.5 while Misra et al. (2000) report an average score of 2.8±0.7 in their study with Indian women. [20-22] According to Maslow's hierarchy of needs theory, in order to satisfy an individual's need for self-actualization, physiological needs as well as the need for shelter, safety, and feelings of belonging should be satisfied. The findings gathered from the regression analysis in this study have shown that number of children, level of income, history of chronic disease, smoking, and coffee or fizzy drink consumption have an 18% effect on the self-actualization score. Having a child has a positive effect on self-actualization and this may be related to Turkish culture and its traditional family structure. In their study, Unsar, Kostak, Kurt and Erol (2011) have found that self-actualization levels of nurses having two children are higher than in nurses having only one child. [23]

Among the six subgroups in the healthy lifestyle behaviors scale, the exercise subgroup displays the lowest average score (15.0±3.8). Similiar to our study, Bilgili and Ayaz(2009), Thanavaro et al. (2006) also state that women's lowest average score belongs to the exercise subgroup. [24,25] In a study conducted in Berlin, a positive relationship has been found between regular physical exercise and reduced problems during menopause. [26] In another study examining the relationship between physical activity levels and menopausal symptoms, it was revealed that heavy physical exercise has less of an effect on menopausal symptoms than light physical exercise performed in the garden, during leisure time, in the workplace or while carrying something. [27] In the "Let's eat healthily and protect our hearts" project conducted in 7 cities in Turkey's 7 geographical regions with 15.468 individuals over the age of 30 years, s queries on the physical activity habits of the individuals revealed that only 3.5% regularly performed physical exercise (three days a week; 30 minutes, at average pace). According to the results of National Household Survey (2003), it was seen that 20.3% of Turkey's population is living sedentary lives and 15.9% are deficient in carrying out physical activity. In terms of physical activity engaged in by the group of individuals 18 years and older, it has been shown that only 63.6% exercise for 150 minutes a week or more.

A significant correlation was discovered between salt intake and the exercising subgroup score. Consuming nine grams of salt a day from different sources is thought to be a nutritional risk factor for osteoporosis. [28] The SALTurk survey conducted in Turkey showed that daily salt consumption is 18 grams a day. It is thought that bread, which is very commonly consumed in the Black Sea region; traditional products (pickles, foods with added sauces, canned food, etc.), cheese and other manufactured goods and salt added to meals at the table contribute to that rate.

It was determined that the average score in the interpersonal support subgroup, which was the highest average among the groups, was good. In their studies as well, Bilgili and Ayaz (2009), Thanavaro et al. stated that interpersonal support is high. [24,25] Social support systems that are important in providing interpersonal support have an impact on an individual's physical and spiritual health by meeting their social requirements. This result may have stemmed from the fact that the majority of the women included in this study were married and had strong interpersonal support systems. In addition, it may also be related to the fact that the local community still follows a life philosophy that supports standing by each other through thick and thin.

In the findings gathered from regression analysis examining the relationship between variables that can affect the nutrition score, it was found that taking a drug for osteoporosis, having a

history of chronic disease and smoking showed that these have a 10% predictor effect on the nutrition score. In order to prevent the development of chronic disease, the most important change in lifestyle must be acquiring healthy eating habits. [29] In their study investigating the prevalence of obesity in postmenopausal women, Aktener et al. (2006) found that the presence of chronic illness affects nutrition and subsequently leads to increased obesity. [30] In that study, smoking is reported as another factor that affects the nutrition subscale. Smoking is among the behaviours that affect the level of wellness and is considered a component to be dealt with in the promotion of good health. [31] According to the Global Adult Tobacco Survey conducted in 2008, 31.3% of individuals in Turkey 15 years of age and above smoke. In women, this rate (15.2%) is lower than in men (47.9%). [32]

It was determined that the average score of stress and stress management, which is one of the most important problems of our age, was good. The variables affecting this level are income and a history of osteoporosis in the family; the predictive effect of these factors was 10%. Of women in Turkey, 62.5% have no personal income. The main reasons for this are women's low participation in the labor force and the high rate of unpaid women working in the family. It can be said that women with higher level of income are better in stress and stress management. It can also be said the better economic conditions are, the easier it is for individuals to cope with stress management.

Our study determined that women's health responsibility score is good. On the other hand, different studies conducted with women, health responsibility scores have been found to be low. [21, 22,33] It was moreover found in this study that place and level of income affected the health responsibility score by 12%. Similar to the results of this study, a study performed with different sample groups has found that the higher the level of income, the higher the increase in taking responsibility for one's health. [15,34-36]

When the subgroups of the HLBS II were analyzed in our study, it was found that among the behaviors that contributed to promoting health, the highest averages were in self-actualization, health responsibility and interpersonal support, respectively. The lowest average belongs to the exercise subgroup. The highest averages do not differ in similar studies. [15] Other results in terms of the exercise subgroup were that of Ayaz et al. (8.7±2.5), both of which parallel the result of this study (8.8±3.3). [34]

Limitation

One of the limitations of this study that focuses on health behaviors of Turkish women in menopause is that there is no information here about the health behaviors of women prior to menopause. For this reason, the evaluation of what kinds of changes occurred in health promoting behaviors defined for menopause could not be made. Another limitation was that this is a cross-sectional study that reflects only a certain limited period of time and therefore the results cannot be generalized.

CONCLUSION

As a result of this study that was conducted with the aim of determining the factors affecting women health behaviors in menopause and their healthy lifestyle behaviors related to osteoporosis:

- It was seen that osteoporosis-related healthy lifestyle behaviors of the surveyed women in menopause were at an average level; the self-actualization, health responsibility, nutrition, interpersonal support subgroups were good and the exercise, stress/stress management subgroups were at an average level.
- Menopausal women's osteoporosis-related healthy lifestyle behaviors are affected by variables such as level of income, age, number of children, history of chronic disease, smoking, coffee or fizzy drink consumption, menopausal age and menopausal complaints, profession, taking a

drug for chronic disease, salt intake, taking a drug for osteoporosis, having somebody with osteoporosis in the family, and place of residence.

These results show that participants' physical activity and stress/stress management methods must be evaluated using an interactive approach. Nurses are in a position to encourage individuals to develop health promoting behaviours during the period of menopause. It is recommended that health services should be more easily accessible and less expensive so that nurses are able to promote osteoporosis related health among menopausal women. Also, studies including a wider sample should be conducted.

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