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Research Article

A Study on the Life Style of High School Girls in Relation to the Prevention of Osteoporosis, Ahvaz, Iran

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ABSTRACT

Osteoporosis is considered as a major health problem and the most common metabolic disease disabling in women. This study was performed in order to determine the life style of high school girls in Ahvaz City in relation to the prevention of osteoporosis. In this descriptive-analytical study 510 high school teen girls in Ahvaz City were randomly selected using the stratified cluster sampling methods. A questionnaire was used to collect the data, which was related to the different aspects of the life style associated with the prevention of osteoporosis, including calcium intake, physical activity and quality of sleep. Data were analyzed using SPSS software and Pearson correlation coefficient tests, ANOVA and T-test at a significance level of $p< 0.05$. The findings indicated that they had an unfavorable Life style in the field of nutrition, quality of sleep and physical activity respectively 69.2%, 24.9% and 20% of the units reviewed. The Life style of 64.5% of the students was medium. The correlation tests showed a significant relationship between the mother's occupation, mother's education, father's education and economic situation with the amount of calcium intake ($p< 0.0001$). Considering that life style of more than half of the female teens studied was not appropriate, education and information in order to comply with appropriate life style seems essential in preventing the silent disease of osteoporosis. Furthermore, to conduct more surveys and planning in a macro level to solve the problems mentioned in the style of life of the community is necessary.

Key words: Life style, High school girls, Prevention, Osteoporosis, Iran

INTRODUCTION

Maintaining public health and health promotion are of the important pillars of social development. Health organizations that used to focus on disease treatment, now stress attention to prevention and health through lifestyle modification and deletion of factors, which have a negative impact on health of the human. The application of positive behavior patterns in life is effective in health promotion. About 35 percent of deaths are

linked to members of the community with their lifestyle. Each person is responsible in the selection of memes lifestyle and maintaining their health, and in this manner tries to maintain and promote their health and prevention of diseases (1). Many health problems such as obesity, cardiovascular diseases, cancers and addiction, today seen in most countries, particularlydeveloping countries are associated with the change in lifestyles of its community. Inappropriate lifestyle is also one of the factors affecting the incidence of chronic diseases such as colon cancer, high blood pressure, chronic obstructive pulmonary diseases, liver cirrhosis, stomach ulcers, AIDS, and cardiovascular diseases (2). Lifestyle can be interpreted as a set of behaviors that a person uses not only to meet his current needs, but also to show certain narrative that the person has chosen for his own identity. Incarnate to others. Lifestyle is a term that is not applicable in traditional culture, as it is associated with a large number of possibilities available to be chosen from. Speaking of a plurality of selection should not lead to the idea that all options are open to all people, or that all people choose their decisions fully aware of all their existing facilities. Whether in the field or in the field of consumption for all groups that have been released from the shackles of traditional activities, there are a variety of choices in terms of lifestyle (3). Lack of safety precautions, exercise, stress management, obesity, and overweight factors are related to unhealthy lifestyles. Smoking and abuse of drugs, especially poor nutritional, fast food consumption pattern, and lack of adequate vegetable and fruit consumption, lack of participation in religious programs and groups, the lack of correct programs for leisure offer risk factors for lifestyle. Proper educational role of parents and a higher proportion of young people and encouraging them to participate in religious activities, family and religious factor could be of health-promoting activities in lifestyle (1, 3). Osteoporosis is a disease characterized by low bone density and loss of quality of bone microstructure known to increase the risk of fracture (4). Osteoporosis is a major health problem and the most common disabling metabolic disease in women(5). In people over fifty years, one in three women and one in twelve men suffers osteoporosis (6). Annual expenditure that is spent on fractures caused by osteoporosis in the UK and America are approximately 1.7 billion pounds and $ 18 million respectively (4). Comparing the upper part of the femur bone samples in America in the last 200 years has shown that today's women suffer bone loss more than women over the past centuries, which is probably because of reduced physical activity, reduction of dietary calcium, and smoking. It is predicted that from 1990 to 2050, the number of fractures of the femur has increased by six times (7). The results of Master Plan Study showed that 50% of male of fifty years and 70% of women over fifty suffer osteoporosis (8). Osteoporosis is influenced by various factors such as genetics, environmental factors, and lifestyle. According to the researchers, insufficient intake of vitamin D and calcium, lack of exercise and some habits such as smoking and alcohol are known causes of osteoporosis (6). Studies have shown that physical activity and adequate calcium intake are important in the prevention of osteoporosis (9). Standard recommended daily amounts of calcium intake in adolescence and youth is 1300- 1000 mg, while the average calcium intake in the 18- 10 year old Asian girls is almost 50% of the recommended limits (Recommended Daily Allowance: RDA) (10, 11). According to national studies, Iranian girls' intake of calcium is much less than the recommended amounts. In the study by Jafarirad and colleagues found that daily calcium intake 68.8% in girls of 14-18 years old is less than 75% of the recommended standard (12). Physical activities are the supplier and the reason for maintaining bone health. Although

adolescence and youth are of the most active periods of life, only a third of Iranian girls have regular physical activity in this age, and less than 10% of women aged 65-18 years do exercise regularly (13). Halioua et al., in their study showed that Caucasian women who had more physical activity had bone mineral density in high levels in some bones (14). Rahnavar et al. in a study stated that the majority of high school girls did not have good performance in the field of exercise and nutrition (15). In a study conducted by Ford et al. (2010) on adults in the United States in 1996-2007 on factors such as fruit and vegetable intake, physical activity, smoking and body mass index, it was showed that the percentage of adults who had a healthy lifestyle dropped during the decade (16). Moreover, in another study by Pisinger et al. (2006) in Denmark showed that there is a relationship between physical activity and physical health, improved mental state, and healthy diet and people with unhealthy lifestyles had less physical mental health than those who had a healthier lifestyle (17).

Osteoporosis is a preventable disease. The simplest and cheapest way to deal with it is prevention and lifestyle modification and receiving maximum bone mass (18). By choosing lifestyle choices for health promotion and disease prevention activities (such as diet, sleep and exercise, exercise, weight control, smoking and alcohol consumption and immunization against diseases), the individual does some activities forming his lifestyle (19).

Because so far no study has been conducted to investigate the lifestyle associated with osteoporosis in the Ahvaz and given the importance of lifestyle changes in teens and its main role in its prevention in the elderly, this study aimed to determine the life style of Ahvaz high school girls in relation to the prevention of this disease.

METHOD

The present study is a sectional study of descriptive-analytical type that uses Cochran's formula to estimate sample size as 510 people. The subjects were stratified sampling method. To select the sample to management education in Ahvaz and the total number of high school girls were collected by school and class. Then, based on stratified sampling, the number of samples were taken from each school and each class were estimated.

Finally, based on random estimates (drawing the list of students), samples were selected from each class. During the study teens that have been diagnosed with diseases or treated were not included in the study. This study was conducted with the consent and with confidentiality. Data collection instrument was a questionnaire containing 42 questions and consisting of two parts:

The first part is related to demographic characteristics, and the second is related to different dimensions of lifestyle prevention of osteoporosis including nutritional status of calcium with ten questions each question with a score between 0 and 5 scores (50 total score), amount of physical activity and sport with four questions each question with a score of 0 to 5 score (20 total scale score) and habits (Smoking, alcohol and sleep quality) with 6 questions and each question with a score between 0 and 5 points (30 points total questionnaires).

Total score of adverse lifestyle was classified at three levels unfavorable (below 50%), relatively favorable (50 -75%) and good (75 - 100%). To determine the scientific validity of the questionnaire, the content validity method was used so that the questionnaire was shown to a number of experts (professors of Nutrition Schools Ahvaz University of Medical Sciences), and then their views were examined and the final form was prepared by applying on the questionnaire.

Cronbach's alpha coefficient was used to determine the reliability of the procedure (r= 0.79). Data analysis was done using SPSS software and one-sided t-test at a significance level of less than 5%.

RESULTS

The results showed that the mean height of the subjects was 160.17 cm and a weight of 53.87 kg and mean body mass index 20.7±3.18 kg in square meters. About 34.7% of high school girls were in third grade, and 42.2% of them were enrolled in humanities disciplines. Most students studied (59.4%) were satisfied with their family income. Household size in 54% of cases was more than 4 people.

74.7% of fathers of students studied had education less than diploma, and 28.2% of mothers studied had primary education (Table 1). About 83.5% of students did not have a family history of osteoporosis, 94% (480 people) of the studied subjects were not diagnosed with the disease. Only 6% (30 people) had a disease associated with osteoporosis (hyperthyroidism, kidney failure, uncontrolled blood sugar and chronic gastrointestinal disease).

About the lifestyle, the results showed that lifestyle 69.2% in the prevention of osteoporosis associated with poor nutrition, physical activity and exercise 44.6% of subjects in the field of prevention of osteoporosis and desirable habits (quality sleep) 37.6% had a medium level. In general, lifestyle in most cases (64.5%) was average (Table 2).

About getting the nutrients with calcium, the findings revealed that the average calcium intake in our study is 882.11 mg. About 42.4% of students studied reported the use of 1-2 glasses of milk consumption per week. Average daily calcium intake from milk was 106.74 mg, and the highest average of the received calcium was from yoghurt with daily average of 250.67 mg.

About physical activity and exercise, 62.3% of students studied exercised less than 20 minutes, and only 38% of students had daily physical activity of 30 minutes and more. A very small percentage of students (6.4%) have a background of secondary school had regular exercise for 2 years or more. 63.1% of students had light activity (walking, etc.) and only 2% of the students had heavy activity. About sleep habits, 51% of the studied population had daily sleep between 7-9 hours, and 32.2% of the sample had daily sleep less than 7 hours of sleep who do not have a good night's sleep.

Table 1: Distribution of Ahvaz high school girls based on personal characteristics

Variable	Level	Frequency	Percent
Maternal education	Illiterate	81	15.9
	Primary	144	28.2
	Intermediate	104	20.4
	High school	116	22.7
	Collegiate	65	12.8
Education Father	Illiterate	28	5.5
	Primary	80	15.7
	Intermediate	111	21.8
	High school	149	29.2
	Collegiate	142	27.8
Income level	Low	50	9.8
	Middle	119	23.3
	Good	303	59.4
	High	38	7.5
BMI	Thin	110	21.6
	Normal	319	62.5
	Overweight	62	12.2
	Obese	19	3.7

Status lifestyle	ysical activity Number (Percentage)	Nutrition Number (Percentage)	Sleep Number (Percentage)	Awareness Number (Percentage)	Lifestyle Number (Percentage)
Undesirable	102 (20.0)	353 (69.2)	127 (24.9)	328 (64.3)	92(18.0)
Average	181(35.4)	73 (14.3)	192 (37.6)	169 (33.2)	329 (64.5)
Favorable	227 (44.6)	84 (16.5)	191 (37.4)	13 (2.5)	89 (17.5)

Table 2: Distribution of lifestyle items related to the prevention of osteoporosis in Ahvaz high school girls

Moreover, the results of the study showed that most students (64.3%) have very poor awareness of osteoporosis and only 2.5% of students had appropriate knowledge about osteoporosis. According to ANOVA, a significant relationship is seen between lifestyle with father's education (P= 0.04), mother education, (P= 0.002),and mother's job (P< 0.0001) (Table 3).

Moreover, in this study a statistically direct significant correlation was observed between feeding styles of students with educational level of father, mother education, father's occupation, mother's occupation and economic situation.

Table 3: Distribution of high school girls lifestyle situation and determine its relationship with demographic data (analysis of variance)

Variable	level	Undesirable Number (%)	Average Number (%)	Desirable Number (%)	Significance level
Education of Mother	Illiterate	22 (23.9)	45 (13.7)	14 (15.7)	0.002
	Primary	26 (28.3)	96 (29.2)	22 (24.8)	
	Intermediate	14 (15.2)	67 (20.4)	23 (25.9)	
	High school	22 (23.9)	78 (23.7)	16 (17.9)	
	Diploma or higher	8 (8.7)	43 (13.0)	14 (15.7)	
Education of Father	Illiterate	7(7.6)	18 (5.5)	3 (3.4)	0.04
	Primary	14 (15.2)	43 (13.1)	23 (25.8)	
	Intermediate	26 (28.3)	73 (22.2)	12 (13.5)	
	High school	28 (30.4)	98 (29.8)	23 (25.8)	
	Diploma or higher	17 (18.5)	97 (29.4)	28 (31.5)	
Mother's job	Housewife	84(91.8)	308 (39.6)	76 (85.4)	0.000
	Employee	1(1.1)	13 (41.6)	7 (7.9)	
	Other	7 (7.6)	8 (4.0)	6 (6.7)	
Father's job	Unemployed	10 (10.9)	29 (8.8)	8 (0.9)	0.34
	Employee	36 (39.1)	125 (0.38)	35 (39.3)	
	Self-employed	31 (33.7)	98 (29.8)	27 (30.3)	
	Other	15 (16.3)	77 (23.4)	19 (20.4)	

DISCUSSION

Lifestyle should be considered as a complex combination of actions and habits of behavior in individuals and groups, especially given the cultures and socio-economic conditions and social relations and their personalities. Although we are well aware of the environment, people make many decisions that affect their health. The World Health Organization defines lifestyle based on specific and defined patterns of behavior that is in the interaction between personal characteristics, social interaction, environmental, and socioeconomic situations (20).

The results of this study show that high school girls in Ahvaz, in general, have a modest

lifestyle. In the present study three aspects of lifestyle, nutrition, physical activity and exercise and sleep habits are related to the prevention of osteoporosis. Evidence has shown that a diet rich in dairy products will not only reduce the risk of osteoporosis and high blood pressure, but may also contribute to obesity prevention (21-24).

The findings of this study showed that most of the units studied in the field of prevention of osteoporosis have had undesirable lifestyle. However, in the study by Rafii et al., most women usually ate dairy products (25).

On the other hand, in the study by Ahmadnia et al. studied more than half of the students had poor lifestyle in the fields of nutrition (26).

In the study by Rahnavard et al., lifestyle among female teenagers is reported to be unfavorable in the field of nutrition in 51.8% cases (15). In a study to determine the status of vitamins and minerals in students of medical sciences in Ardabil, there was a lack of calcium in the diet students (27).

Moreover, Abdali, in his research also showed that only 4.8% of the subjects had adequate dietary calcium intake (28). Mackelvie et al. in their study, concluded that the absorption of calcium in the Asian girls in both the first stage and second stage of budding breasts compared to white girls is low (29).

To evaluate the diet of Japanese students, Shimbo et al. concluded that the lack of calcium intake is of the greatest nutritional problems of the students (30). These results confirmed the findings of the study and show that the studied students did not have the favorable lifestyle concerning nutrition to stop osteoporosis.

Therefore, in this regard the meals of fruits, vegetables, and dairy snacks are included in the program and providing adequate training on healthy nutrition can help to some extent to improve the nutritional status of students.

In the case of physical activity, most students studied had moderate lifestyle and only 4.1% of students did not have any physical activity. While in the study by Rahnavard et al. most of the studied subjects in the prevention of osteoporosis by physical activity and exercise have had undesirable lifestyle (15). In a study by Rafii et al. 66.4% of women surveyed did not exercise (25).

The results of these studies are different from the present study. This difference may be due to differences in the population studied. Granbum and Kann in their research found that 57% of female students had serious exercise, 22.8% of female students had moderate physical activity and 37.9% of female students had no physical activity (31).

Phipps (2003) states that nutrition, and physical activity can effectively prevent cardiovascular diseases (32). Pisinger's study also showed that there is a relationship between healthy lifestyle of people and physical and mental condition, and people with healthy lifestyle have better physical and mental conditions (17).

Most of the units were appropriate in sleep habits and had between 9 to 7 hours of daily sleep. In the study by Rafii et al., 51% of women were sleeping between 9 to 7 hours of sleep (25). However, in the study by Estaji et al. 45.6% of samples did not have regular sleep, and only 36.2% slept 8 hours a day (33).

The results also showed that there is a significant relationship between the level of education of mother and father's education and lifestyle (P= 0.005). Takakura and Nagayama's findings showed that smoking and lack of physical activity among students whose parents have less than high school education is higher (34).

Simantagen in his research found that the rate of smoking and alcohol use among teens whose parents' education was less than high school increased (35). This result confirms the findings of this study.

CONCLUSION

The findings of this research suggest that lifestyle of more than half of the girls was not acceptable. This shows the need to pay attention to the role of health education to familiarize the High school girls with proper lifestyle and habits of proper behavior in the prevention of osteoporosis as a silent disease to act as a preventive factor.

It is hoped that the officials and planners use the results of this study in its planning at the macro level to resolve the mentioned problems in society and the promotion of health lifestyle.

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