RESEARCH ARTICLE

Health Promoting Lifestyle Behaviour in Medical Students: a Multicentre Study from Turkey

Melis Nacar[1]*, Zeynep Baykan[1], Fevziye Cetinkaya[2], Didem Arslantas[3], Ali Ozer[4], Ozlem Coskun[5], Hilal Bati[6], Nazan Karaoglu[7], Ferhan Elmali[8], Gulay Yilmaze[1]

Abstract

Background: The aim of this study was to determine the predictors of health promoting lifestyle behaviour among medical students attending seven of the medical schools in Turkey. Materials and Methods: This cross-sectional descriptive study was performed during the second semester of the first and last (sixth) years of study from March to May 2011. A questionnaire with two sections was specifically designed. The first section contained questions on demographic characteristics; the second consisted of the Health Promoting Lifestyle Profile II (HPLP) Scale. From a total of 2,309 medical students, 2,118 (response rate 91.7%) completed the questionnaire. Data were analyzed using descriptive statistics, t, Anova, Tukey test and binary logistic regression analysis. The research was approved by the Ethics Committee of Erciyes University. Results: The mean age was 20.7±2.9 years and it was found that 55.1% were men, 62.3% were in the first year. The overall prevalence of smoking was 19.1%, and for drinking alcohol was 19.4%. HPLP point averages of the first year students were 129.2±17.7, and for last year 125.5±19.0. The overall mean score for the HPLP II was 2.5±0.4. They scored highest on the spiritual growth subscale (2.9±0.5), interpersonal relations (2.8±0.5), health responsibility subscale (2.3±0.5), nutrition subscale (2.3±0.5), stress management subscale (2.3±0.4), and the lowest subscale physical activity (2.0±0.5). It is established that student's grade, educational level of parents, economic status of family, marital status, smoking and general health perception of the students resulted in a significant difference in HPLP Scale total score average and the mean score of majority of subscales. There was no statistically significant difference between the total HPLP when evaluated for gender, chronic disease, alcohol drinking status and BMI. Conclusions: Based on these results, particularly in the curriculum of medical students in order to increase positive health behaviours including physical activity, health promotion issues, and giving more space to aim at behaviour change in these matters is recommended.

Keywords: Health promotion - behaviour - medical students - medical education - healthy life - Turkey

Introduction

In contemporary times, perception of health includes an approach based on protecting, enduring, and developing health of individuals, families, and society. The health concept not only consists of elimination of diseases but, also includes the goal of gaining the abilities for individuals in order to continue, protect, and develop their health (WHO, Health 21; Plank, 1991).

One of the basic human rights is human health, which is important for protecting, enduring, and developing the health concept. It is important for each individual in society to take responsibility and make the healthy life model a part of their daily routine in order to improve the concept of health (Komduur et al., 2009).

Health promoting lifestyle behaviors is defined as whole actions and beliefs which individuals enforce in order to stay healthy and prevent themselves from diseases. In addition, the health promoting lifestyle behaviour is based on nutritional values, the ability to express ones personality in social environments, taking the responsibility of one's own health, exercising, support between individuals, and stress management (Bidlack, 1996; Sonmezer et al., 2012).

Day by day chronic illnesses in developed countries are on the rise. This situation underscores the importance of health services, which should be performed in a way to protect, endure, and improve the health. The level of health in a society is measured by the proportion of the healthy individuals within it. An individual who can assimilate their healthy lifestyle behaviors in life can protect him/herself from diseases and live a more qualified and fulfilled

[1] Department of Medical Education, [2]Department of Public Health, [8]Department of Biostatistics, Erciyes University Faculty of Medicine, Kayseri, [5]Gazi University Faculty of Medicine, Ankara, [6]Ege University Faculty of Medicine, İzmir, [7]Necmettin Erbakan University Meram Faculty of Medicine, Konya, [3]Osmangazi University Faculty of Medicine, Eskisehir, [4]Inonu University Faculty of Medicine, Malatya, [9]Department of Nursery, Hitit University School of Health, Corum, Turkey *For correspondence: mnacar@ erciyes.edu.tr

life (Bryant et al., 2012; Cannon et al., 2012; Nogay et al., 2012).

Physicians are expected to have an important role in protecting and improving health. They have an invested interest as caregivers for the increased health of the society and as role models in lifestyle influences for individuals. In this regard, it is natural to expect them to have the most up to date and relevant information for the health developing concept, and the ability to apply this knowledge in practice.

Medical faculties aim to educate students, so they can inform the society and also treat individual disease conditions as well as provide advice on how to continue a healthy lifestyle. They also should be educated in a way so they can protect their own health, and should be exemplary role models to society. In this regard, medical students should be educated and their knowledge about this subject should be occasionally tested starting in the first year of the school.

The aim of this study was to determine the behaviors of healthy living and the factors that affect those behaviors, which include medical students from first year and last year of different schools in Turkey.

Materials and Methods

This study is based on descriptive statistics and includes randomly selected medical students from the first and last classes from different medical schools in Turkey. Data were gathered in March-May 2011 using a questionnaire method. In this study, a specific sample was not chosen and all students were involved.

The total number of students was 2,309 but the available student number for the actual study was 2,118. In the first class, the reaching rate was 96.3%, while the last class and total percentages were 84.2% and 91.7%, respectively. One hundred and ninety one students did not want to participate in the study.

The survey form was composed of two parts. In the first part, there were socio-demographic properties such as age, gender, consumption of cigarettes and alcohol, existence of chronic illnesses, health condition assessment (according to individuals own perception), height, and weight that were asked. In the second part, health behaviors were evaluated with a Health Promoting Lifestyle Profile Scale II (HPLPS) which was improved in 1987 by Walker et al (1987) and revised (Walker and Hill-Polerecky, 1997) in 2008 after exploratory and confirmatory factor analyses were done. It was compromised of 52 questions (Bahar et al., 2008).

The HPLPS is composed of sub-scale such as physical activity, nutrition, moral development, relationship between individuals, stress management behaviors. In the assessment, the Likert scale was used for the analysis and was as follows: never=1, sometimes=2, frequently=3, regularly=4.

Individuals that smoked at least one cigarette in a day were accepted as smokers, and individuals that drank one glass of alcohol in a week were accepted as alcohol users. The Body Mass Index (BMI) was evaluated by the formula: body mass divided by the square of height, with the value universally given in units of kg/m^2. Evaluation was made in acceptance of the World Health Organization (WHO) criteria (www.cdc.gov/az.do). According to this classification, if BMI is under 18.5 individual are considered underweight. If the BMI was 18.5-24.9, then it was considered normal and if it was over 30, then individuals were considered obese.

The normal distribution of the data was analyzed with the Shapiro-Wilk test. The data was evaluated with a Student-t test, Anova, Tukey tests, and Binary Logistic Regression Analyses. The Normative cut-off level was computed using the k-means cluster analysis (k=2) and ROC Curve analysis. Each of the sub-scale point units were

Table 1. The Scores of the Health Promoting Lifestyle Profile Scale II (HPLPS) and Sub-scales of the Research Group

Scale and Subscales	Number of Questions	Min-Max	Mean Scores±SD		t/p
HPLPS (n=2118)	52	52-208	127.9±18.2	2.5±0.4	t=4.513
First class (n=1382)			129.2±17.7	2.5±0.3	p=0.001
Last class (n=731)			125.5±19.0	2.4±0.4	
Health responsibility	9	09-36	20.5±4.3	2.3±0.5	t=3.762
First class			20.7±4.2	2.3±0.5	p=0.001
Last class			20.0±4.4	2.2±0.5	
Physical activity	8	08-32	16.0±4.4	2.0±0.5	t=4.844
First class			16.3±4.4	2.0±0.5	p=0.001
Last class			15.3±4.4	1.9±0.5	
Nutrition	9	09-36	21.1±4.1	2.3±0.5	t=1.876
First class			21.0±3.9	2.3±0.4	p=0.061
Last class			21.3±4.3	2.4±0.5	
Spiritual development	9	09-36	26.5±4.5	2.9±0.5	t=4.869
First class			26.8±4.3	3.0±0.5	p=0.001
Last class			25.8±4.7	2.9±0.5	
Interpersonal relationship	9	09-36	25.1±4.1	2.8±0.5	t=0.762
First class			25.1±4.0	2.8±0.4	p=0.446
Last class			25.0±4.1	2.8±0.5	
Stress management	8	08-32	18.8±3.5	2.3±0.4	t=8.039
First class			19.2±3.4	2.4±0.4	p=0.001
Last class			18.0±3.7	2.2±0.5	

separated into two groups using cluster analysis and ROC analyses. Proper cut point, sensitivity, specificity, positive predictive value, and negative predictive values were also evaluated. For Binary Logistics Regression Analysis, the independent variants that were not considered significant were not taken into model, which was found by using the Univariate Regression Analyses.

The study was planned regarding Helsinki principles and was confirmed by the Erciyes University Ethical Committee.

Results

The mean age of the 2,118 students in the research group was 20.7±2.9 (17-38), with a mean age of 18.8±1.2 in the first class and 24.1±1.8 in the sixth class. The group was composed of 55.1% male and 44.9% female. Of the students, 19.1% were smokers and 19.4% were habitual alcohol users. Of the users, 6.0% of them had some form of chronic disease, while 80.5% of them described their health status as good or very good. Of the students examined, 19.3% were in the slight overweight to obese range.

Table 2 shows the scores of the HPLPS and sub-scales of the research group according to their class. The average HPLPS of the all research group was 127.9±18.2, while it was 129.2±17.7 and 125.5±19.0 for the first and sixth classes, respectively. The evaluation of sub-scales showed that the highest score was spiritual development (26.5±4.5) and intercourse between individuals (25.1±4.1), while the lowest average score was physical activity (16.0±4.4).

The general and sub-group scale scores of the students in the first class were higher than the students in the sixth class. The difference between classes was significant for the general scale scores and sub-group scores of health responsibility, physical activity, spiritual development, and stress management (p<0.01).

Table 2 shows the distribution of average HPLPS for the research group according to some features. No significant relationship between HPLPS and sex, presence of chronic diseases, alcohol drinking habit, and body mass index was determined. The total score of HPLPS was higher for single individuals aged greater than or equal to 21, no smoking individuals, individuals with parents that graduated with at least a high school education, individuals qualifying their own health status as good, and those with better economic situation (p<0.001).

Table 3 shows the results of Binary logistic regression analysis. Accordingly, the class of the participant, education status of mother, smoking habit, and health perception were found to be related to the healthy lifestyle behavior.The health promoting lifestyle behavior scale of students at first class was 1.3 times greater than the ones at the sixth class. Students whose mother had at least high school education were 1.44 times greater than the ones with a lower education level. Students who do not smoke were 1.69 times greater than the ones who had a smoking habit, and the ones who had very good health perception were 4.72 times greater than the ones with medium to worse health perception.

Table 2. Research Group of Healthy Lifestyle Behaviors Scores of the Research Group According to some Characteristics

Characteristics (n=2118)	n		t/F	p
Age group				
21 and ↓	1348	129.2±17.7	4.374	0.0001
22 and ↑	765	125.6±18.9		
Gender				
Male	1167	127.2±18.6	1.919	0.055
Female	951	128.8±17.8		
Marital status				
Single	2074	128.1±18.2	2.354	0.019
Married /widowed	44	121.5±17.9		
Mothers education				
Illiterate / literate	190	123.8±17.2	17.746	0.0001
Primary or secondary school	828	126.0±17.2		
At least high school	1095	130.1±18.9		
Fathers education				
Illiterate / literate	54	123.4±17.8	14.431	0.0001
Primary or secondary school	484	124.4±17.1		
At least high school	1575	129.1±18.4		
Economic status				
Good	761	131.3±18.6	26.310	0.0001
Moderate	1231	126.5±17.6		
Worse	121	121.2±18.3		
Presence of chronic diseases				
Yes	127	130.0±20.4	1.305	0.192
No	1991	127.8±18.1		
Perception of health situation				
Very good	1703	129.4±17.9	36.081	0.0001
Good	385	122.2±17.9		
Moderate / Bad	25	111.3±22.9		
Smoking status				
Yes	403	123.2±19.8	5.797	0.0001
No	1710	129.0±17.7		
Drinking alcohol				
Yes	410	126.7±18.9	1.518	0.129
No	1708	128.2±18.1		
BMI				
Underweight	189	129.2±18.9	0.829	0.479
Normal	1520	128.0±17.9		
Overweight	354	127.4±19.1		
Obese	55	125.2±20.3		
Faculties of medicine				
Erciyes	578	128.8±18.6	1.605	0.142
Gazi	436	129.4±18.9		
Konya	219	127.7±17.8		
Eskisehir	251	127.3±18.5		
Ege	478	126.7±17.2		
Maras	61	124.5±18.7		
Malatya	95	126.2±17.0		

The average sub-scale score for students at first class was (1.24 times for health responsibility, 1.51 times for physical activity, 1.23 times (1/0.81) for nutrition, 1.37 (1/0.73) times for spiritual development, and 1.63 times for stress management) greater than sixth class. The average sub-scale score of students who did not smoke was 1.59 times for health responsibility, 1.41 times for nutrition, 1.67 (1/0.60) times for spiritual development, 1.45 times for intercourse between individuals, and 1.46 times for stress management) greater than the students who have a cigarette smoking habit (Table 3).

Discussion

The importance of individuals to take responsibility of their own health is clear (Promthet et al., 2012). Our goal is to increase awareness about health and health responsibility. In order to achieve this goal, it is necessary

Melis Naçar et al

Table 3. To Evaluate of Healthy Lifestyles of Various Variables Impact on the Scale and Subscale Scores with Binary Logistic Regression Analysis in the Study Group*

Variables	Healthy lifestyle behaviors**				Odds (CI for Odds)		
	Health responsibility	Physical activity	Nutrition	Spiritual development	Interpersonal relations	Stress management	Total
Class							
Last							
First	1	1	1	1		1	1
Gender	1.24 (1.03-1.50)	1.51 (1.24-1.85)	0.81 (0.66-0.98)	0.73 (0.60-0.88)		1.63 (1.34-1.97)	1.30 (1.08-1.57)
Female							
Male		2.24 (1.85-2.72)	0.68 (0.56-0.82)	0.83 (0.69-1.00)	0.80 (0.67-0.96)		
Marital status							
Single							
Married				1.53 (0.28-0.99)	2.03 (1.06-3.86)		
Mothers education							
Primary or secondary school					1		1
At least high school					1.19 (0.86-1.65)		1.16 (0.83-1.62)
Perception of economic situation					1.57 (1.14-2.16)		1.44 (1.03-2.01)
Worse							
Good	1	1	1			1	1
Moderate	2.02 (1.33-3.01)	2.78 (1.75-4.40)	1.66 (1.05-2.61)			2.31 (1.50-3.54)	1.52 (1.00-2.31)
Smoking status	1.40 (0.93-2.11)	1.76 (1.12-2.77)	1.14 (0.73-1.78)			1.53 (1.01-2.33)	1.06 (0.71-1.58)
Yes							
No	1		1	1	1	1	1
Perception of health situation	1.59 (1.25-2.01)		1.41 (1.09-1.82)	0.60 (0.47-0.75)	1.45 (1.16-1.83)	1.46 (1.15-1.85)	1.69 (1.34-2.14)
Moderate/Bad							
Very good		1	1	1			1
Good		3.41 (1.01-11.55)	0.25 (0.11-0.59)	6.77 (2.30-19.92)			3.72 (1.37-10.08)
		2.05 (0.59-7.05)	0.54 (0.22-1.29)	4.06 (1.36-12.12)			2.10 (0.76-5.79)

*Independent variables tested in include: class, gender, marital status, mothers education, fathers education, perception of economic situation, smoking, perception of health situation; ** The empty cells are shown that insignificant variables in binary logistic regression analysis

to inform individuals about protecting their own health. During the study of medicine, students obtain this kind of information. The aim of this research was to understand the HPLPS of the physician candidates expected to inform society about healthy living behaviors and evaluate the education period of the first and last class of medical students. The reason for the differences between the numbers of students in the first and last class is most likely due to the government raising the number of doctors admitted into medical school.

The actual engagement in maintaining health action is reflected by the HPLPS score. The mean value of students was found to be 127.9±18.2. The lowest point for the HPLPS is 52, while the highest point was 208. In this regard, healthy living behaviors can be considered at an intermediate level. While the sub-scale scores of moral development and relationship between individuals brought a higher point, physical activity, responsibility of health, and nutrition were quite lower in their point values.

As the point taken from HPLPS increases, an individual shows a characteristic of having desired healthy behaviors. The results of the investigation considering the mean values of the study show that there are similarities between the different cities in Turkey (Tambag, 2011; Ertop et al., 2012; Simsek et al., 2012; Ozveren et al., 2013; Yılmazel et al., 2013).

Total points taken from HPLPS in responsibility of health, physical activity, moral development, and stress management sub-scales showed a significant decrease from the first class compared to the last class of students (Table 1). Similar studies also support these results (Can et al., 2008; Ay et al., 2012; Al-Naggar et al., 2013; Ozveren H et al., 2013).

Contrary to expectations, the points of the first class students in the HPLPS tests, who expected to have less information about healthy living, was significantly higher in responsibility of health, physical activity, moral development, and stress management sub-scales. Because last year students (those that will be real doctors in the near future) scored lower in points for all subjects, it seems to be a paradox. Taking into account this result, it can be concluded that medical schools either the consciousness of being healthy cannot be fully learned or it cannot be applied.

Students that are of age 22 or higher had the lowest points from HPLPS compared to students with ages less than 21, contrary with the literature (Table 2). In those studies (Walker et al., 1988; Unalan et al., 2007; Al Kandari et al., 2008; Kreutz et al., 2009; Ay et al., 2012), it is found that consciousness of health increases with age. The reason we found contradicting results with this study may be associated with the stress and responsibilities of the medical students with rising ages.

In this study, there were no differences between genders for HPLPS points. However, the studies which took place in Kayseri (Unalan et al., 2007) and India (Suraj and Singh, 2011) showed that females had higher points than males. The studies which were carried out by Peltzer (2002) and Wei et al (2012) demonstrated that there are no significant differences of HPLPS points between males and females. These results can be interpreted in that, according to type of the study, the results may have shown differences between genders. In different cultures, different roles have been expected from different genders so it can differentially effect the perception of the importance of health between males and females.

The HPLPS scores of single students were significantly higher than the scores of married students. On the contrary of this study, there were studies showing that healthy life style behavior of married individuals were higher in the literature (Al Kandari et al., 2008). A study made in Spain showed similar results (Ulla Diez and Perez Fortis, 2009). According to logistic regression analysis, marital status doesn't affect the HPLPS. Despite various studies

Deteminants of Lifestyle Behaviour in Medical Students in Turkey

reporting marriage effects, the physical and mental health is positively affected and is most likely a function of regulating healthy life style behavior (Simon, 2002; Waite and Lehrer, 2003). The reason for this might be married and widowed individuals that were evaluated together because of the low number of participants.

The higher level of parent education resulted in higher scores of the HPLPS. This indicates that the level of education of the parents has a positive effect on the healthy life style behavior of students. Also, the Binary Regression Analysis results showed that the higher the level of the mother's education affects the behavior of healthy life style positively. Studies performed both in Turkey (Ozbasaran et al., 2004; Hacıhasanoglu et al., 2011) and in Spain (Ulla Diez and Perez Fortis, 2009) showed that the HPLPS of students increase as the education level of parents improved. Thus, several studies demonstrated that there was a significant relationship between higher levels of education and favorable behavior of health and the level of education of parents, which effects the behavior of health of both children and whole family (Leigh, 1998; Van Oort and Van Lenthe, 2004)

The HPLPS scores of students with poor economic status were lower. The study results (Ozbasaran et al., 2004; Ulla and Perez-Fortis 2009; Yılmazel et al., 2013; Ozveren et al., 2013) among university students supported this study. The study performed by Unalan et al. in Kayseri (Unalan et al., 2007) observed no relationship between scores of the HPLPS and economic status. Social and economic factors should be handled together to evaluate behavior about health.

There was no significant relationship determined between HPLPS scores and chronic disease existence despite individuals with chronic disease obtaining higher points. Studies performed in various cities of Turkey (Tambag, 2011; Simsek et al., 2012) support the results of this study. While better healthy life style is being expected for individuals having chronic diseases, no difference was identified between healthy individuals and these individuals. This indicates the significance of educating individuals with chronic diseases in hopes of changing their health behavior.

As the general health perception of medicine students increases, the points from HPLPS also significantly increased. The results of the studies that took place in Kayseri and Corum (Unalan et al., 2007; Yılmazel et al., 2013) also support this result. It is expected that the individual's perception of health should be good and very good which will reflect the higher values from HPLPS.

The HPLPS scores of the students who did not smoke were significantly higher than the smokers ($p<0.01$). With regard to the logistics regression analyses, healthy living behaviors of the non-smoking individuals were 1.7 times higher than the smokers. In some of the studies which took place in Turkey (Hacıhasanoglu et al., 2011), it showed that sub-scale points of non-smoking individuals were significantly higher than the smokers but, in other studies (Unalan et al., 2007; Sonmezer et al., 2012; Yılmazel et al., 2013) it was determined that smoking and non-smoking conditions as they correspond to the HPLPS points were irrelevant. It is an expected result from smoking

individuals to take lower points from HPLPS. Although, knowing its harm to the human body and still continuing to smoke is a pointing the fact of not caring about one's own health and also shows that the individual does not take the responsibility of their own health.

As a result, the healthy life scores of the last class were worse than the first class. Health behavior about improving health was generally moderate, and the highest score was about spiritual development and relationship between individuals while the lowest score was about physical activity.

This study showed that medical students (aged 22 and younger, married/ divorced, smoking, having worse economic status, and poor health perception, parents with low education level) have significantly reduced HPLPS. Thus, we can say that for a healthy life importance should be attached to the changeable factors as smoking habit, physical activity, and nutrition habit in medical education.

Several other studies performed in our country seem to be similar to ours, so that leads us to believe that the results are compatible with the whole country and can be generalized to all medical schools. Therefore, to improve the healthy life behavior and practice, initiating applications like 'Healthy Campus', 'Universities Improving Health', and regulating medical education programs intended for developing the behavior and applications to improve health might be suggested. Applications raising the awareness of health should be added to the medical education schedules, so that medical doctor candidates may pay more attention to their own health and better themselves as role models for their patients and other health staff.

References

Al-Kandari F, Vidal VL, Thomas D (2008). Healthpromoting lifestyle and body mass index among college of nursing students in Kuwait: A correlational study. *Nurs Health Sci*, **10**, 43-50.

Al-Naggar RA, Bobryshev YV, Mohd Noor NA (2013). Lifestyle practice among Malaysian university students. *Asian Pac J Cancer Prev*, **14**, 1895-903.

Ay S, Yanikkerem E, Calim SI, Yazici M (2012). Health-promoting lifestyle behaviour for cancer prevention: a survey of Turkish university students. *Asian Pac J Cancer Prev*, **13**, 2269-77.

Bahar Z, Beser A, Gordes N, et al. (2008). Validity and reliability study of the health-promoting lifestyle profile II. *J Cumhuriyet Univers Nurs School*, **12**, 1-13.

Bidlack WR (1996). Interrelationships of food, nutrition, diet and health: the national association of state universities and land grant colleges white paper. *J Am Coll Nutr*, **15**, 422-33.

Bryant H, Shin HR, Forman D, et al (2012). Managing population health to prevent and detect cancer and non-communicable diseases. *Asian Pac J Cancer Prev*, **13**, 13-22.

Can G, Ozdilli K, Erol O, et al (2008). Comparison of the health promoting lifestyles of nursing and non-nursing students in Istanbul, Turkey. *Nurs Health Sci*, **10**, 273-80.

Cannon G, Gupta P, Gomes F, et al (2012). Prevention of cancer and non-communicable diseases. *Asian Pac J Cancer Prev*, **13**, 3-11.

Centers for Disease Control and Prevention (CDC). About body mass index for Adults http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html. [29.05.2014].

Ertop NG, Yılmaz A, Erdem Y. (2012). Universite ogrencilerinin saglıklı yasam bicimleri. *KU Tıp Fakultesi Dergisi*, **14**, 1-7.

Hacıhasanoglu R, Yıldırım A, Karakurt P, Saglam R (2011). Healthy lifestyle behaviour in university students and influential factors in eastern Turkey. *Intern J Nurs Pract*, **17**, 43-51.

Komduur RH, Korthals M, Molder H (2009). The good life: living for health and a life without risks? On a prominent script of nutrigenomics. *Br J Nutr*, **101**, 307-16.

Kreutz G, Ginsborg J, Williamon A (2009). Health-promoting behaviours in conservatoire students. *Psychology Music*, **37**, 47-61.

Leigh JP (1998). Parents' schooling and the correlation between education and frailty. *Inst Local Government Studies*, **17**, 349-58.

Nogay NH, Akinci AC, Sert H, Kurtulus Z, Gedik S (2012). Dietary habits contributing to the cancer prevention among health college students in Turkey. *Asian Pac J Cancer Prev*, **13**, 963-8.

Ozbasaran F, Cakmakcı A, Gungor N (2004). Health Behaviors of Students in School of Health in Celal Bayar University. *Ataturk Univers Hemsirelik Yuksekokulu Dergisi*, **7**, 43-55 (in Turkish).

Ozveren H, Cerit B, Ertop NG. (2013). Differences in health promoting lifestyle behavior of health management students based upon early diagnosis coverage in a cancer course. *Asian Pac J Cancer Prev*, **14**, 5769-73.

Peltzer K (2002). Health-promoting and personality among black South African students. *Social Behavior Personality*, **30**, 417-22.

Palank CL (1991). Determinants of health-promotive behavior. A review of current research. *Nurs Clin North Am*, **26**, 815-32.

Promthet S, Wiangnon S, Senarak W, et al (2012). Evaluation of health education in the multi-professional intervention and training for ongoing volunteer-based community health programme in the north-east of Thailand. *Asian Pac J Cancer Prev*, **13**, 1753-5.

Simon RW (2002). Revisiting the relationship among gender, marital status, and mental health. *Am J Soc*, **107**, 1065-96.

Sonmezer H, Cetinkaya F, Nacar M (2012). Healthy life-style promoting behaviour in Turkish women aged 18-64. *Asian Pac J Cancer Prev*, **13**, 1241-5.

Suraj S, Singh A (2011). Study of sense of coherence health promoting behavior in north Indian students. *Indian J Med Res*, **134**, 645-52.

Simsek H, Oztoprak D, Ikizoglu E, et al (2012). Healthy lifestyle behaviours and related factors of medical school students. *DEU Tıp Fakultesi Dergisi*, **26**, 151-7 (in Turkish).

Tambag H (2011). Hatay Health School students' healthy lifestyle behaviors and influencing factors. *Hacettepe Univers Fac Health Sci Nurs J*, **25**, 47-58.

Ulla Diez SM, Perez-Fortis A (2009). Socio-demographic predictors of health behaviors in mexican college students. *Health Promot Int*, **25**, 85-93.

Unalan D, Senol V, Ozturk A et al (2007). A research on the relation between the healthy life style behaviors and self-care levels of the students in health and social programs of vocational collages. *J Turgut Ozal Med Center*, **14**, 101-9.

Waite LJ, Lehrer EL (2003). The benefits from marriage and religion in the United States: a comparative analysis. *Popul Dev Rev*, **29**, 255-76.

Walker SN. Hill-Polerecky, DM (1997). Psychometric evaluation of health promoting lifestyle profile II. unpublished manuscript, university of nebraska medical center, College of Nursing, Lincoln.

Walker SN, Sechrist KR, Pender NJ (1987). The health-promoting lifestyle profile: development and psychometric characteristics. *Nurs Res*, **36**, 76-81.

Van Oort FVA, Van Lenthe FJ, Mackenbach JP (2004). Cooccurrence of lifestyle risk factors and the explanation of education inequalities in mortality: Results from the GLOBE study. *Prev Med*, **39**, 1126-34.

Walker SN, Volkan K, Sechrist KR, Pender NJ (1988). Health-promoting life styles of older adulths: comparison with young and middle-aged adults, correlates and patterns. *Adv Nurs Sci*, **11**, 76-90.

Wei CN, Harada K, Ueda K, et al (2012). Assessment of health-promoting lifestyle profile in Japanese university students. *Environ Health Prev Med*, **17**, 222-7.

WHO. Health 21-health for all in the 21st century. http://www.euro.who.int/_data/assets/pdf_file/0003/88590/EHFA5-E.pdf [29.05.2014].

Yılmazel G, Cetinkaya F, Nacar M (2013). Health promoting behaviors in nursing students. *TAF Prev Med Bull*, **12**, 261-70.

100.0

6.3

75.0

56.3

50.0

25.0

31.3

0

Newly diagnosed without treatment