ORIGINAL PAPERS

What do academicians know about periodic health examinations?

EMRAH ERSOY[A, B, D–F], ESRA SAATCI[A, D–F]

Cukurova University School of Medicine, Department of Family Medicine, Adana, Turkey

A – Study Design, B – Data Collection, C – Statistical Analysis, D – Data Interpretation, E – Manuscript Preparation, F – Literature Search, G – Funds Collection

Summary | Background. A periodic health examination is a regular health check program for healthy people who have not yet demonstrated a disease.
Objectives. Evaluation of the level of knowledge, perception and status of action for periodic health examinations of academicians at Cukurova University.
Material and methods. Our sample was 392 academicians at Cukurova University. The participants completed a socio-demographic questionnaire (9 items), a questionnaire for knowledge on periodic health examinations (19 items), a questionnaire for perception of periodic health examinations (27 items) and a questionnaire about visits to have a periodic health examinations (24 items). The data was analyzed using the SPSS statistical analysis program.
Results. Of the participants, 143 (69.8%) were from the Faculty of Medicine, and 62 (30.2%) were from the Faculty of Agriculture (205 participants). The average age was 49.5 ± 9.2 years. Of the participants, 56.4% (116) were male, 26.9% (54) were smokers, 74.2% (152) were consuming alcoholic drinks, 25.3% (52) were doing regular exercise, 38.7% (24) were eating/drinking healthily. Participants who evaluated their overall health status as 'moderate' were more willing to undergo screening tests, 76% (156) said that they had measured their body mass index, 82.4% (169) had their blood lipid levels checked, and 94.1% (193) had their blood pressure measured. As the age of participants increased, the frequency of blood pressure measurement increased. Of the female participants, 52.3% (46) has had a Pap smear, and 48.9% (43) had undergone a mammography.
Conclusions. The low rate of periodic health examinations suggests that family physicians have more to do to increase the awareness levels of even highly educated individuals about the benefits of periodic health examinations.
Key words: academicians, Cukurova University, Turkey, family medicine, periodic health examination.

Background

Preventive services, being the basis of primary health care, contain to avoid from risks behaviors for healthy individuals, to reduce the risks of individuals at risk, to give an opportunity for early diagnosis and treatment of existing diseases and to prevent from permanent damages of chronic diseases. These basic targets are achieved through periodic health examinations (PHE), which are set by the recommendations of various national and international guidelines [1]. PHE is a specific, effective, feasible and acceptable follow-up program tailored to healthy people [2–4].

The Ministry of Health in Turkey updated the PHE and Screening Tests Guideline for family physicians in 2015. Many screening tests, including the Pap smear and fecal occult blood test, could be performed easily in family practice clinics.

In Turkey, about 100 thousand people die due to diseases caused by tobacco every year [5]. In a study in 2012, the smoking rate was found at 27% for individuals 15 years of age and older, whereas it was 31.3% in 2008 in Turkey [6].

The Burden of Disease Study in Turkey showed that 4.3% of diseases could be prevented through regular physical activity [7]. The National Household Survey showed that 36% of the Turkish population did not perform regular physical activity [8].

The World Health Organization Alcohol Report 2014 declared that alcohol consumption was the main cause of deaths due to liver cirrhosis and traffic accidents in Turkey [9].

The rate of alcohol consumption was 17.2% for males and 3.8% for females, a total of 10.4% according to 2012 data in Turkey [10].

Only 34.4% of 15-year and older individuals had their cholesterol levels measured according to 2014 data in Turkey [11].

In 2015, 15,352 deaths occurred in Turkey due to hypertensive diseases [12].

The most common cancer in females is breast cancer, causing 3 959 deaths in Turkey in 2015 [12].

According to 2012 Turkish Health Statistics data, only one in five women have been screened for breast cancer via mammography [10].

The PHE and Screening Tests Guideline for Family Practice in Turkey recommend screening for depression with two simple questions [13].

Objectives

Our aim in this study was to determine the level of knowledge, perception and status of action for periodic health examinations of academicians at Cukurova University and related socio-demographic factors and health-related behaviors.

Material and methods

Research design and setting

Our sample was the academic staff (assistant professors, associate professors and professors) of the Faculty of Medicine

(275) and Faculty of Agriculture (117) at Cukurova University. All participants gave informed verbal consent. Participants completed a socio-demographic questionnaire (9 items), a questionnaire for knowledge (19 items), perception (27 items) and about visits to have a periodic health examinations (24 items). The questionnaires were completed via the face-to-face interview method between 1 October 2015 to 28 February 2016.

Data Analysis

Data was analyzed using the SPSS 21 statistical analysis program.

Demographic data was analyzed as numbers and percentages. Cross tables were used and analyzed using x^2 and ANOVA tests. The level of significance was set as $p < 0.05$.

We used the Shapiro–Wilk test to check distribution of variables. There were variables with normal distribution such as age, smoking, exercise, starting age and frequency for BMI measurement and frequency for blood lipid profile measurement. There were also variables without normal distribution such as socio-economic status, marital status, alcohol consumption, blood lipid profile measurement and positive family history for cancer.

Ethical approval

The study was approved by the Ethics Committee of the Faculty of Medicine of Cukurova University.

Results

The response rate for the Faculty of Medicine was 81% (223), and the number of valid questionnaires was 143 (64%). The response rate for the Faculty of Agriculture was 79% (93), and the number of valid questionnaires was 62 (66%). The overall response rate was 80.6% (316), and the number of valid questionnaires was 205 (65%).

The average age was 49.5 ± 9.2 years. Of the participants, 56.6% (116) were male, and 81.4% (167) were married. 63.9% (131) stated their socio-economic status was ‹medium-high› (Table 1). Of the participants, 26.9% (54) were smokers. The rate of alcohol consumption was 74.2% (152). Of the participants, 25.3% (52) were doing regular exercise more than 150 minutes per week, with only 39.1% (80) having healthy nutritional habits (Table 1).

Of the participants, 94.1% (193) had their blood pressure measured within the last two years, 82.4% (169) had their blood lipid profile measured during the last five years, 76% (156) had their body mass index (BMI) measured in the last year, and 14.6% (30) were screened for depression at least once.

Table 1. Socio-demographic characteristics and lifestyle behaviors of participants

Characteristics		Faculty of Medicine n (%)	Faculty of Agriculture n (%)	Total n (%)
Number of participants		143 (69.8)	62 (30.2)	205 (100)
Mean age (SD)		48.25 (9.1)	52.4 (8.9)	49.5 (9.2)
Male		77 (53.9)	39 (62.9)	116 (56.6)
Female		66 (46.1)	23 (37.1)	89 (43.4)
Married/living together		114 (79.7)	53 (85.5)	167 (81.4)
Socio-economic status	medium––high	89 (62.2)	42 (67.7)	131 (63.9)
	moderate	29 (20.3)	16 (25.8)	45 (21.9)
Household income per month (euros)	1300––1900	29 (20.3)	29 (46.8)	58 (28.2)
	> 1900	102 (71.3)	23 (37.1)	125 (60.9)

Smoking (cigarettes)	< 10	21 (14.6)	7 (11.3)	28 (13.6)
	10–19	11 (7.7)	5 (8.1)	16 (7.8)
	≥ 20	8 (5.6)	2 (3.2)	10 (4.7)
Alcohol consumption	rarely*	79 (55.2)	48 (77.4)	127 (61.9)
	twice a week and more	23 (16.1)	2 (3.2)	25 (12.1)
Regular exercise**		40 (27.9)	12 (19.4)	52 (25.3)
Healthy diet		55 (38.5)	23 (37.1)	78 (38.0)

*Once a month; **more than 150 minutes per week.

Of the female participants, 52.3% (46) had a Pap smear test in the last five years, and 48.9% (43) had a mammography in the last two years.

Of the 50-year and older respondents, 19.4% (20) had a colonoscopy in the last ten years, and 16.5% (17) had a fecal occult blood test in the last year.

Of the participants, only 38.5% (79) have been immunized against tetanus in the last ten years, and only 28.7% (59) had an influenza vaccination in the last year (Table 2).

The most preferred health care institution for screening tests was the university hospital (62.4%, 128). A familiar physician (such as a friend) was the second most preferred (14.6%, 30). Only 4.3% (9) of the participants had their screening tests performed by their family physician.

Table 2. Screening and vaccination status of participants

Characteristics (n)	Faculty of Medicine n (%)	Faculty of Agriculture n (%)	Total n (%)
Body mass index (205)	116 (81.1)	40 (64.5)	156 (76.0)
Blood lipid profile (205)	121 (84.6)	48 (77.4)	169 (82.4)
Blood pressure (205)	133 (93.0)	60 (96.8)	193 (94.1)
Depression (205)	23 (16.1)	7 (11.3)	30 (14.6)
Mammography (88)*	35 (53.0)	8 (34.8)	43 (48.9)
Pap smear test (88)*	35 (53.0)	11 (47.8)	46 (52.3)
Fecal occult blood test (103)**	14 (22.2)	6 (15.0)	20 (19.4)
Colonoscopy (103)**	11 (17.4)	6 (15.0)	17 (16.5)
Influenza (205)	40 (27.9)	19 (30.7)	59 (28.7)
Hepatitis B (205)	97 (67.8)	20 (32.3)	117 (57.1)
Tetanus (205)	62 (43.4)	17 (27.4)	79 (38.5)

*Female participants; **50-year and older participants.

Opinions about screening tests

Of the participants, 59.5% (122) were in favor of undergoing screening tests (Table 3).

Table 3. Opinions of participants for screening tests

Opinions	Faculty of Medicine n (%)	Faculty of Agriculture n (%)	Total n (%)
I am in favor of screening tests	88 (61.5)	34 (54.8)	122 (59.5)
I am not in favor of screening tests	15 (10.5)	10 (16.1)	25 (12.1)
I do not undergo screening tests, because I do not have enough time	18 (12.6)	2 (3.2)	20 (9.7)
I was not having regular screening tests, but my opinion has changed	7 (4.9)	3 (4.8)	10 (4.8)

Table 3. Opinions of participants for screening tests			
Opinions	**Faculty of Medicine** *n* **(%)**	**Faculty of Agriculture** *n* **(%)**	**Total** *n* **(%)**
I do not undergo screening tests, because I forget	4 (2.8)	7 (11.3)	11 (5.3)
I do not undergo screening tests, because I am healthy	4 (2.8)	2 (3.2)	6 (2.9)
I do not undergo screening tests, because I am not at the age for screening	2 (1.4)	1 (1.6)	3 (1.5)
Screening tests are time consuming and difficult	0 (0.0)	2 (3.2)	2 (0.9)

Knowledge about screening tests

Of the participants, 44.3% (91) thought that BMI measurements for healthy adults should be started at 18–29 years of age and 35.6% (73) stated that these should be measured once a year (Table 4).

Of the participants, 40.5% (83) stated that blood pressure measurements should be started at 18–29 years of age, and 25.4% (52) stated that blood pressure should be measured once a year (Table 4).

Of the participants, 12.7% (26) thought that blood lipid profile should be measured every five years, and 20.5% (42) stated that blood lipid measurements should be started at 35–39 years of age (Table 4).

Of the participants, 23.4% (48) thought that a Pap smear test should be performed every three years, and 28.3% (58) stated that a Pap smear test should be started at 18–29 years of age (Table 4).

Table 4. Knowledge level of participants about screening tests in healthy individuals without a positive family history				
Screening tests		**Faculty of Medicine*** **(%)**	**Faculty of Agriculture*** **(%)**	**Total*** **(%)**
Body mass index	frequency	once a month (32.2)	once a year (45.2)	once a year (35.6)
	starting age	18–29 (44.8)	18–29 (43.6)	18–29 (44.3)
Blood pressure	frequency	once a month (37.1)	once a month (37.1)	once a month (37.1)
	starting age	18–29 (41.9)	18–29 (37.1)	18–29 (40.5)
Blood lipid profile	frequency	once a year (46.8)	once a year (61.3)	once a year (51.2)
	starting age	35–39, 45–49 (20.9)	40–44 (25.8)	35–39 (20.5)
Pap smear test	frequency	once a year (46.2)	once a year (45.2)	once a year (45.9)
	starting age	18–29 (31.5)	40–44 (32.3)	18–29 (28.3)
Fecal occult blood test	frequency	once a year (70.6)	once a year (79.0)	once a year (73.2)
	starting age	50–54 (44.1)	50–54 (29.0)	50–54 (39.5)

*Top-rated responds.

Of the participants, 73.2% (150) stated that a fecal occult blood test should be performed once a year, and 39.5% (81) thought that it should be started at 50–54 years of age (Table 4).

Of the participants, 67.8% (139) evaluated their overall health status as 'good', 18% (37) evaluated it as 'moderate,' and 14.1% (29) evaluated it as 'very good'.

Participants in the Faculty of Agriculture who evaluated their overall health status as 'moderate' were significantly more willing to undergo screening test ($p = 0.044$). Additionally, there was a positive significant relationship between the self-assessed overall health status and exercising regularly ($p = 0.018$). However, the self-assessed overall health status was not significantly related to smoking, alcohol consumption and a healthy diet ($p > 0.05$) (Table 5).

The socio-economic status of participants in the Faculty of Medicine was significantly related to smoking behavior ($p = 0.023$) (Table 5).

Male participants were smoking more than female participants in the Faculty of Agriculture ($p = 0.045$) (Table 5).

As the age of participants increased, the frequency of blood pressure measurement increased in both faculties ($p = 0.023$ for the Faculty Medicine and $p = 0.025$ for the Faculty of Agriculture) (Table 5).

Female participants had their BMI measured more frequently than male participants ($p = 0.006$) (Table 5).

Participants of the Faculty of Medicine who had their BMI measured in the last year stated that BMI should be measured more frequently (once a month) and should be started at an earlier age (18–29 years) ($p < 0.001$ and $p < 0.001$, respectively). Participants of the Faculty of Agriculture who had their BMI measured in the last year also stated that BMI measurements should be started at an earlier age (18–29 years) ($p = 0.004$) (Table 5).

Participants of the Faculty of Medicine who had their blood pressure measured recently thought that blood pressure should be measured more frequently and at an earlier age ($p < 0.001$, $p < 0.001$, respectively) (Table 5).

Participants of the Faculty of Medicine who had their blood lipid profile measured thought that blood lipid profile should be measured more frequently and should be started at an earlier age ($p = 0.020$, $p = 0.001$, respectively) (Table 5).

Table 5. Screening tests and related socio-demographic factors of participants			
Socio-demographic factors		**Faculty of Medicine** *p**	**Faculty of Agriculture** *p**
Age	BMI** measurement	0.621	0.888
	blood lipid profile measurement	0.824	0.050
	blood pressure measurement	**0.023**	**0.025**
Gender	BMI** measurement	**0.006**	**0.005**
	blood lipid profile measurement	0.612	0.600
	blood pressure measurement	0.943	0.903
	smoking	0.911	**0.045**
	alcohol consumption	0.113	0.105
	regular exercise	0.975	0.263
Socio-economic status	smoking	**0.023**	0.228
	alcohol consumption	0.622	0.071
	regular Exercise	0.911	0.057

Table 5. Screening tests and related socio-demographic factors of participants

Socio-demographic factors		Faculty of Medicine p*	Faculty of Agriculture p*
Positive family history for cancer	in favor of screening tests	0.368	0.471
BMI** measurement	frequency for BMI** measurement	< 0.001	0.137
	starting age for BMI** measurement	< 0.001	0.004
Blood lipid profile measurement	frequency for blood lipid profile measurement	0.020	0.418

*Pearson chi-square test; **Body mass index.

Discussion

Approximately 55 million people die each year in the world. Cardiovascular diseases, cancers, chronic lung diseases and accidents are the main causes of death. Factors that affect the causes of death include environmental and genetic risks, unhealthy diet, sedentary lifestyle, obesity and tobacco and alcohol consumption.

In our study, the smoking rate was 26.9%, and consuming alcoholic drinks twice a week or more was 12.1%. Our findings were consistent with the national rates.

BMI, blood pressure and blood lipid profile measurement rates were quite satisfactory in our sample. The higher rates of measurements in our study, compared to national rates, may be due to the high educational and social status and high awareness of diseases including hypertension, hyperlipidemia, obesity, cardiovascular diseases, etc. However, the situation was not the same for depression.

Another reason might be the ease of accessibility to care in the university hospital and the chance of having another academician in the hospital as a friend.

The lower rates of vaccinations are consistent with the national adult vaccination rates in Turkey. The PHE and Screening Tests Guideline for Family Medicine Practice in Turkey emphasized the importance of immunization in adults [13]. Immunization should be an essential part of adult health care.

In our study, female participants had better mammography rates compared to national rates. In 2015, 472 women died due to cervical cancer in Turkey [12]. More than 50% of patients with cervical cancer had never had a Pap smear test, and more than 60% of cervical cancers were diagnosed in women without screenings for cervical cancer in the past five years [14]. Only 22.1% of women were screened for cervical cancer with a Pap smear test in Turkey [10]. In our study, 52.3% of the female participants were screened for cervical cancer with a Pap smear test in the last five years. After the initiation of PHE programs in Turkey, cervical cancer screening is now easily accessible in family practice clinics.

In Turkey, 5 691 deaths occurred due to malignant tumors of the colon in 2015. Colon cancer is the fourth most common cause of death through malign tumors [12]. The rate of screening for colorectal cancer was found to be very low (3.5%) in 567 patients with colorectal cancer [15]. In our study, only one in five of 50-year and older participants of the Faculty of Medicine were screened for colorectal cancer via a fecal occult blood test in the last year. This rate was even lower for participants of the Faculty of Agriculture. The colonoscopy rate in the last ten years was 16.5% in our sample. In Turkey, 50-year and older individuals can be easily screened for colorectal cancer with a fecal oc-

cult blood test in family practice clinics. Our rate is higher than the national rate; however, it is quite low compared to that of the USA (59–65%) [16, 17].

More than half of the participants (59.5%) were in favor of screening tests in our study. Although the recommendations for screening tests in periodic health examinations are frequently updated, the low rates of screening tests in our study indicates that we, as family physicians, need to do more to increase the level of knowledge and awareness and action for PHE. Understanding beliefs about health has an important role in achieving success in preventive health care services [18].

It has been shown that a self-assessed health status as 'bad' is significantly related to increased mortality, chronic diseases and outpatient admissions [19, 20]. In our study, 67.8% of the participants evaluated their overall health status as 'good', 18% as 'moderate' and 14.1% as 'very good'. The national data in 2012 showed similar rates [10]. The participants who evaluated their health status as 'moderate' in the Faculty of Agriculture were significantly more willing to undergo screening tests. There may be a desire to undergo screening tests due to health concerns. The opposite situation may also be true; undergoing screening tests regularly can reduce health concerns and increase confidence in health.

The participants who exercise regularly in our study assessed themselves to be healthier. Several studies emphasized the significant relationship between a self-assessed health status and healthy behaviors (no smoking, no consumption of alcoholic drinks, healthy diet) [21–24].

A study concerning a change in health behavior showed that lifestyle behaviors such as smoking, alcohol consumption, exercise and diet have improved in people who had periodic health examinations [25].

Number of visits for having a periodical health examination is affected by many factors, including age, gender, educational and socio-economic status and knowledge and perception about PHE.

In Turkey, the mean number of admissions to a family physician per year is 2.9 [26]. Family physicians are key health care providers for counseling and early diagnosis of diseases. Family physicians who are responsible for PHE should update the knowledge of PHE and perform a PHE for every individual. We, as family physicians, need to do more to increase the level of knowledge and awareness and visits ratio for PHE. Understanding beliefs about health has an important role in achieving success in preventive health care services [26].

Primary health care plays an important role in the implementation of public health operations, including health protection, health promotion and disease prevention [27].

Limitations of the study

Our study, as far as we know, is the first study in our country about periodic health examination attitudes of academicians. Our questionnaire consisted of several topics including cancer screening, blood pressure and blood lipid level measurements, vaccinations, healthy life style (smoking behavior, alcohol consumption, regular physical activity), and depression screening.

However, our study has some limitations. First, our sampling procedure included only 392 out of 1900 (20.6%) academicians in Cukurova University. Therefore, our findings cannot be generalized. Further studies are required to have more accurate data on periodic health examination attitudes of academicians. Second, we used a self-developed questionnaire to learn periodic health examination behaviors of academicians. Thus, the data collection tool has no international validity and reliability. Third, 205 out of 392 valid questionnaires might have been completed by the individuals who had previous awareness and interest in this topic and this might have caused a bias. Fourth, we collected data in five months. More participants could have

been reached if the study time could have been longer. Fifth, the academicians were selected in two different faculties (Medicine and Agriculture) however; we could not compare them to conclude whether there was a significant difference between the participants of two faculties.

Nevertheless, we believe that our study has some contribution as having this essential task of family physicians as a topic and giving some idea about our country's university academicians' health behaviors.

Conclusions

Knowledge and behavior for periodic health examinations seem to be significantly related to age, gender and socio-economic status, perception about periodic health examinations, health concerns and current state of health. The low rates of periodic health examinations even in a very highly educated sample of individual suggests that family physicians have more to do to increase the awareness levels of individuals and society about the benefits and importance of periodic health examinations.

References

1. McWhinney IR. *A textbook of family practice*. 2nd ed. New York–Oxford: Oxford University Press; 1997: 3–28, 37–103, 179–227.
2. Republic of Turkey Ministry of Health. *Course notes for family doctors.* 2004: 99–100 (in Turkish).
3. Virgini V, Meindl-Fridez C, Battegay E, at al. Check-up examination: recommendations in adults. *Swiss Med Wkly* 2015; 145: w14075, doi: 10.4414/smw.2015.14075.
4. Tengs TO, Adams ME, Pliskin JS, et al. Five-hundred life-saving interventions and their cost-effectiveness. *Risk Anal* 1995; 15(3): 369–390.
5. Republic of Turkey Ministry of Health. *Directorate of Primary Health Care Services. Global Adult Tobacco Survey Turkey Report 2010.* Ministry of Health Publication no: 803 (in Turkish).
6. Turkish Institude of Statistics. Global Adult Tobacco Survey 2012 [cited 8.01.2016]. Available from URL: http://www.tuik.gov.tr (in Turkish).
7. Republic of Turkey Ministry of Health. Directorate of Public Health. Turkey Burden of Disease Study 2004 [cited 8.01.2016]. Available from URL: http://ekutuphane. tusak. gov. tr/kitaplar/turkiye_hastalik_yuku_calismasi.pdf (in Turkish).
8. Republic of Turkey Ministry of Health. Directorate of Primary Health Care Services. Turkey Obesity Control Program [cited 8.01.2016]. Available from URL: http://karasudh.saglik.gov.tr/userfiles/file/turkiye_obezite_sismanlik_ile_mucadele_ve_kontrolprogrami_2010_2014.pdf (in Turkish).
9. World Health Organization. Global status report on alcohol and health 2014 [cited 8.01.2016]. Available from URL: http://apps.who.int/iris/bitstream/10665/112736/1/9789240692763_eng. pdf.
10. Turkish Institude of Statistics. Health Survey 2012 [cited 8.01.2016]. Available from URL: http://www.tuik.gov.tr/Start.do (in Turkish).
11. Turkish Institude of Statistics. Turkey Health Survey 2014 [cited 8.01.2016]. Available from URL: http://www.tuik.gov.tr/PreHaber-Bultenleri. do?id=18854 (in Turkish).
12. Turkish Institude of Statistics. Statistics for Causes of Death 2015 [cited 8.01.2016]. Available from URL: http://www.tuik.gov.tr/PreHaberBultenleri. do?id=21526 (in Turkish).
13. Republic of Turkey Ministry of Health. *Periodic Health Examinations and Screening Tests Guideline for Family Practice in Turkey 2015*. Publication no: 991 (in Turkish).
14. Zemheri E, Koyuncuer A. Pap Smear Test in early diagnosis of cervical cancers. *STED* 2005; 14: 1–4 (in Turkish).
15. Aydınlı MS, Kuzu A, Tekiner S. Preventive care and diagnosis of patients with colorectal cancer. Ankara University Faculty of Medicine 2011 [cited 12.01.2016]. Available from URL: http://acikarsiv.ankara.edu.tr/browse/29246/tez. pdf (in Turkish).
16. Hudson SV, Ferrante JM, Strickland PO, at al. Physician recommendation and patient adherence for Colorectal Cancer Screening. *J Am Board Fam Med* 2012; 25(6): 782–791.
17. CDC Database. Vital signs: Colorectal Cancer Screening Test use in United States 2012. *MMWR Morb Mortal Wkly Rep* 2013; 62(44): 881–888.
18. Cherrington A, Corbie-Smith G, Pathman DE. Do adults who believe in periodic health examinations receive more clinical preventive services? *Am J Prev Med* 2007; 45(4): 282–289.
19. Mossey JM, Shapiro E. Self-rated health: a predictor of mortality among the elderly. *Am J Public Health* 1982; 72(8): 800–808.
20. Idler EL, Angel RJ. Self-rated health and mortality in the NHANES-I Epidemiologic Follow-up Study. *Am J Public Health* 1990; 80(4): 446–452.
21. Sung NJ, Markuns JF, Park KH, at al. Higher quality primary care is associated with good self-rated health status. *Fam Pract* 2013; 30(5): 568–575.
22. Kepka D, Ayala GX, Cherrington A. Do Latino immigrants link self-rated health with BMI and health behaviors? *Am J Health Behav* 2007; 31(5): 535–544.
23. Baruth M, Becofsky K, Wilcox S, at al. Health characteristics and health behaviors of African American adults according to self-rated health status. *Ethn Dis* 2014; 24(1): 97–103.
24. Cathleen M, Shultz S. Lifestyle assesment. *Nurs Clin North Am* 1984; 19(2): 271–281.
25. Son KY, Lee CM, Cho B, at al. Effect of additional brief counselling after periodic health examination on motivation for health behaviour change. *J Korean Med Sci* 2012; 27(11): 1285–1291.
26. Republic of Turkey Ministry of Health. Directorate of Public Health. Health Statistics 2013 [cited 16.07.2016]. Available from URL: http://ekutuphane.sagem.gov. tr/kitaplar/saglik_istatistikleri_yilligi_2013.pdf (in Turkish).
27. Tyszko P, Nitsch-Osuch A, Minko M, et al. Primary health care tasks in implementing the main operations of public health. *Fam Med Prim Care Rev* 2016; 18(3): 394–397.

Address for correspondence:
Emrah Ersoy, MD
Cukurova University School of Medicine
Department of Family Medicine
Balcali 01330 Saricam, Adana, Turkey
Tel.: +90-553-48568 05, fax: +90-322-338 60 23
E-mail: dremrahersoy86@gmail.com