ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية
2015

working paper series

HEALTH BEHAVIORS AND EDUCATION IN TURKEY

Aysit Tansel and Deniz Karaoglan

Working Paper No. 901

HEALTH BEHAVIORS AND EDUCATION IN TURKEY

Aysit Tansel and Deniz Karaoglan

Working Paper 901

January 2015

Send correspondence to:
Aysit Tansel
Middle East Technical University
atansel@metu.edu.tr

First published in 2015 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

This is the first study that provides empirical analysis of the variation in health behaviors for adult men and women in Turkey, a developing country. The health behaviors considered are: smoking, drinking, fruit and vegetable consumption, exercise and body mass index (BMI). We find that education is the most important factor that affects health behavior in Turkey. The results indicate that smoking is positively associated with education at all levels, with a decreasing effect per level of education, unlike in developed countries. This result indicates that smoking is a serious public health problem in Turkey at all levels of education. Furthermore, alcohol consumption and schooling are positively related and alcohol consumption increases with the level of education. Higher educated individuals clearly eat more fruits, vegetables and exercise more and their BMI levels are in the normal range, compared to their less educated and illiterate peers. We also highlight the importance of demographic factors, labor market status and household income. We refer to the Health Survey of Turkish Statistical Institute (TURKSTAT) for the years 2008, 2010 and 2012. This study will provide a baseline for further studies on the various aspects of health behaviors in Turkey.

JEL Classification: I10, I12, I19

Keywords: Health Behaviors, Education, Demographic Factors, Turkey

ملخص

تعد هذه الدراسة الأولى من نوعها والتي توفر التحليل التجريبي من التباين في السلوكيات الصحية للرجال والنساء البالغين في تركيا، وهي بلد نام. السلوكيات الصحية فيها هي: التدخين والشرب واستهلاك الفاكهة والخضار وممارسة الرياضة ومؤشر كتلة الجسم (BMI). نجد أن التعليم هو أهم العوامل التي تؤثر على السلوك الصحي في تركيا. وتشير النتائج إلى أن التدخين يرتبط بشكل إيجابي مع التعليم على جميع المستويات، مع وجود تأثير انخفاض مستوى التعليم، خلافا لما حدث في البلدان المتقدمة. هذه النتيجة تشير إلى أن التدخين هو مشكلة صحية عامة خطيرة في تركيا على جميع مستويات التعليم. وعلاوة على ذلك، فان استهلاك الكحول والتعليم يرتبطا بشكل إيجابي فاستهلاك الكحول يزيد مع مستوى التعليم. الأفراد الأعلى تعليما يتناولون المزيد من الفواكه والخضروات وممارسة الرياضة بشكل أكبر ومستويات BMI هى في معدلها الطبيعي، مقارنة مع أقرانهم الأقل تعليما والأميين. نقوم أيضا بتسليط الضوء على أهمية العوامل الديموغرافية، وحالة سوق العمل ودخل الأسرة. نشير إلى المسح الصحي من معهد الإحصاء التركي (TURKSTAT) للسنوات 2008 و 2010 و 2012. وهذه الدراسة توفر الأساس لمزيد من الدراسات على جوانب مختلفة من السلوكيات الصحية في تركيا.

1. Introduction

Grossman (1972) is one of the earliest economists who provides formal explanations for the observed differences in health behaviors by education. The importance of this topic is due to the fact that differences in health outcomes are mainly related to differences in health behaviors, although observed health behaviors do not explain all of the differences in health outcomes. Mokdad et al. (2004) estimate that almost half of adult mortality in the U.S. is ascribed to risky health behaviors. Cutler and Lleras-Muney (2008) and a number of studies focus on differences in life-expectancy by education in the US and the UK. Lleras-Muney (2005) examines the relationship between education and adult mortality in the US. Cutler and Lleras-Muney (2010) emphasize that health outcome differences by education need to be explained through health behavior differences by education. These differentials in health behaviors by education are studied mostly in developed countries. However, there is less evidence on this issue in developing countries. Thus, the purpose of this paper is to examine health behaviors by education in Turkey, a developing country. We will also highlight the differences in health behaviors through other indicators such as demographic factors, labor market status and household income.

Risky health behaviors negatively affect an individual's health. For instance, as the frequency of risky health behavior increases, people are more likely to report poor self-assessed health (SAH) (Brunello et al. 2011), which is a good predictor of mortality (Idler and Benyamini 1997). Risky health behavior also leads to serious diseases such as cardiovascular diseases, cancer, diabetes, etc… Some of the articles related to this are Cawley and Ruhm (2011), Hung et al. (2004) and Stewart et al. (2009) among others. Hence, it is important to determine the variations in risky health behaviors.

The health behaviors considered in this study are smoking, alcohol consumption, fruit and vegetable consumption, exercise and body mass index (BMI). Among these health behaviors, smoking and BMI are the ones that are examined most often in the literature. Example of these studies include Cutler et al. (2003), Cutler and Gleaser (2005), De Walque (2007), Chaloupka and Warner (2000), Mullahy (1997), Gruber and Frakes (2006) and Carbone et al. (2005). There are several studies which investigate the relationship between risky health behaviors and various educational and demographic factors that might influence them. Cutler and Lleras-Muney (2010) study this relationship in the US and the UK. An earlier study, Kenkel (1991) and Lantz et al. (1998 and 2001) also investigate this relationship in the US. Ettner (1996) examines the effect of socioeconomic status of an individual and alcohol consumption in the US. There are other studies that examine the relationship between risky health behaviors and education in developed countries other than the US. For instance, Kemptner et al. (2011) examines this relationship in West-Germany. They look at the association between education and smoking as well as obesity. Brunello et al. (2013) examine the relationship between schooling and obesity in 13 European countries. Webbink et al. (2010) examine the relationship between education and obesity in Australia (2010). It is important to note that these studies do not always indicate the expected negative association between risky health behavior and education. For instance, Kenkel (1991) finds in the US that although education positively and significantly affects the frequency of exercise and negatively and significantly affects smoking, its effect on alcohol drinking is positive. Similarly, another study, by Kemptner et al. (2011) finds that although a higher education level decreases the likelihood of being obese for both men and women in West-Germany, there is no significant link between education and smoking.

This is the first study that investigates the relationship between health behaviors and education in Turkey. Previous literature on the determinants of health behaviors in Turkey is very limited and mostly focuses on one health behavior at a time. For instance, Tansel (1993) examines tobacco consumption in Turkey. She finds a larger decrease in demand for tobacco if people are educated about the harmful effects of smoking than if there is an increase in tobacco prices.

In another study, Erem et al. (2004) investigate the determinants of obesity in Trabzon, a city located in the Black Sea Region of Turkey. Two of their main findings are that obesity increases with age and is more prevalent among women than among men. They also discuss the factors which affect BMI levels. Hatemi et al. (2003) study the relationship between hypertension and obesity in 11 different cities located in four different regions of Turkey. Other studies related to the determinants of health behaviors in Turkey include Metintaş et al. (1998), Erbaydar et al. (2005), Kocabaş et al. (1994) and Yumuk (2005).

In this paper, we examine the determinants of health behaviors for the adult population in Turkey using the Turkish Health Survey (THS) data set for the years 2008, 2010 and 2012. Probit models (OLS for BMI) are used to estimate determinants of health behaviors. We find that education has the strongest effect on all of the health behaviors considered. University graduates tend to smoke less, consume more fruits and vegetables, and exercise more frequently than less educated individuals. In addition, they have lower BMI levels compared to their less educated peers. Alcohol consumption is an exception to these findings. Our results indicate that highly educated people tend to consume more alcohol than less educated people.

This paper is organized as follows. Section 2 presents the theoretical framework. Section 3 provides a description of the Turkish Health Survey data used in this study. Section 4 describes the empirical specification used in estimation. Section 5 presents the empirical results using Turkish Health Survey data. Finally, concluding remarks are provided in Section 6.

2. Theoretical Framework

The first theoretical model for demand for health is developed by Grossman (1972). Grossman emphasizes that health is a durable capital stock that deteriorates with time. He argues that health capital is different from education in the sense that while education determines the individual's time productivity (such as wages), the stock of health determines the total amount of productive time an individual uses freely. The relationship between the two forms of human capital is examined in Grossman's (1972) model. In his model, health is determined as endogenous whereas education is taken as exogenous. He concludes that education is positively associated with health capital and negatively associated with expenditure on health care.

Demand for health also varies with the rate of depreciation of the stock of health, which is assumed exogenous. Grossman argues that the depreciation rate rises with age and falls with higher levels of education. As a result, demand for good health decreases and expenditure on medical care increases. The associations of wage rate with the demand for good health and healthcare are positive. Higher levels of education enhance the wage rate and wage rate improves the quality of an individual's health capital.

Bolin (2011) extends Grossman's (1972) model to continuous time. He solves the individual's utility maximization problem and derives predictions on how education, age and wage rate affect the individual's health level. He argues that education influences the demand for health in two ways. First, education enhances household production efficiency (the efficiency effect), second, education increases the cost of an individual's own time used in household production, since it increases market productivity and hence the wage rate (the time-price effect). Efficiency effect decreases the marginal cost of producing health capital, since fewer resources are used to produce a certain quantity of gross health investments. Therefore, the efficiency effect increases the demand for health. On the other hand, the time-price effect causes a decrease in health demand because marginal cost of health capital increases due to a higher unit cost of an individual's own time. However, the time-price effect cannot outweigh the efficiency effect, or the two effects cannot completely offset each other, since an individual's own time is not the only input in health production. In other words, the positive effect of education always dominates its negative effect. In Bolin's model a higher wage rate increases the value of available healthy time, therefore, as wage increases, the incentives for being

healthy strengthen. On the other hand, higher wage rate makes using an individual's own time for producing gross investments in health more expensive. A higher cost of an individual's own time will increase the marginal cost of health capital leading to a decrease in the demand for health. As in the education case, the positive effect of wage rate on health always dominates the negative effect of wage rate on health, since an individual's own time is not the only input that produces health. In Bolin's model as age increases, the possibility of having a certain level of health decreases. As the rate of depreciation increases over time, the model also predicts that health decreases with age. Because the rate of depreciation increases with age, the equilibrium amount of health (therefore the demand) for the old individual is lower than the health for the young individual.

The covariates, which explain the variations in health outcomes, discussed in previous paragraphs, are not health-related behaviors. In the literature, health-related behaviors are also used as inputs in health production. In Grossman's 1972 and 2000 health demand models, medical care is the only health input. However, as Grossman (2000) suggests, this is an oversimplification because other market goods and services, such as housing, diet, recreation, tobacco consumption and excessive alcohol use, also influence health. Grossman states that smoking and excessive alcohol consumption have negative marginal products in the production of health. However, they are purchased since these risky behaviors may have positive marginal products in producing some commodities such as "smoking pleasure."

3. Data

This study uses the results of THS for Turkey for the years 2008, 2010 and 2012. THS is a cross-sectional data set of individuals. It is prepared and conducted by the Turkish Statistical Institute (TURKSTAT). In this survey, health related questions are asked separately to 3 different age groups, 0-6, 7-14 and 15 or above. In this paper, we concentrate on the individuals who are 25 or above in order to analyze the determinants of health behaviors of adult men and women, who are assumed to have completed their schooling. Since we do not observe significant differences between their main results when we use the surveys separately, we pool the THSs of 2008, 2010 and 2012 in our analysis of the determinants of health behaviors in Turkey[1].

In THS, we are also able to observe the demographic factors of the respondents above 25, such as age, gender, education level, marital status, household income, region (urban/rural) and labor market status (employed, unemployed or out of labor force). In THS, age is given in six categories: "25-34, 35-44, 45-54, 55-64, 65-74 and 75+"[2]. We used mid-points of these age categories in our analysis. The marital status of respondents is classified into: married, single and widowed/divorced. The respondent is referred as widowed if his/her wife/husband is dead, or he/she is divorced, or if he/she is separated from his/her wife/husband legally. Since widowed and divorced individuals have similar histories (were married before but now live alone) we combine them in our analysis. We define the years of schooling in the following manner: If the individual is illiterate, his/her years of schooling is equal to 0. If an individual knows how to read/write, but he/she are not a graduate from any school then his/her years of schooling are equal to 2. The individual's years of schooling are equal to 5, 8 and 11 if he/she has completed primary, middle and high school respectively. Finally, the individual's years of schooling is equal to 15 if the individual has a university or higher degree. In addition, we also classify education into six groups: Illiterate, literate but is not graduate of any school (non-graduate), and graduates of primary school, middle school, high school and possess a university or higher degree. We test the effect of each education category on an individual's health

[1] Separate analysis of the 2008 ,2010 and 2012 surveys are available from authors upon request.

[2] 0-6, 7-14, and 15-24 age groups are also in the data set. We exclude them from the sample as we concentrate on adults, who complete their schooling, in this study.

behavior. Lastly, we considered three employment statuses of the individuals: employed, unemployed and inactive. The respondents who have a regular job are referred to as employed, whereas the individuals who are not working but are seeking a job are considered unemployed. The respondents who are seasonal workers, students, housewives, pensioners, and the individuals who are unable to work are considered inactive.

In this study, the health behaviors considered are smoking, alcohol consumption, fruit and vegetable consumption, exercise and the body mass index (BMI). With regards to smoking, the following question was asked:

"Were you a regular tobacco consumer and do you still consume tobacco?"

If the response is, *"Yes, everyday"* or *"Yes, sometimes,"* then the individual is considered a tobacco consumer. In the empirical model for smoking behavior the dependent variable is equal to 1 if the individual has been a regular tobacco consumer and is currently a regular smoker. It is equal to 0 if he/she does not smoke. Similarly, with regards to alcohol consumption the following question was asked:

"Did you consume alcohol regularly or occasionally and do you still consume alcohol?"

If the response is *"Yes, everyday"* or *"Yes, sometimes,"* then the individual is considered an alcohol consumer. In our empirical model for alcohol consumption behavior, the dependent variable is equal to 1 if the individual consumes alcohol regularly or occasionally and 0 if he/she does not consume alcohol.

In addition, the individual is considered to be a regular fruit and vegetable consumer if he/she states that he/she consumes fruits, vegetables and/or their juice at least once a week. In our analysis for fruit and vegetable consumption behavior, health behavior outcome is equal to 1 if the individual consumes fruits, vegetables and/or their juice at least once a week and 0 otherwise. In THS we also observe the respondent's frequency of exercise. In THS, body exercises are divided into 3 categories: High level exercise (such as aerobic exercise or working in the construction sector), medium level exercise (such as riding a bicycle or house work) and low level exercise (such as walking). The number of days in a reference week in which the respondent exercises under one of the above categories for at least 10 minutes gives the frequency of exercise in a week. In the empirical analysis for exercise behavior, health behavior outcome is equal to 1 if the individual exercises at a high level or medium level or low level for at least 10 minutes a week and 0 if he/she does not exercise in a given week. Lastly, in THS data set the respondent's self-reported height (in centimeters) and weight (in kilograms) are available. In order to calculate the BMI of an individual, we first convert the height into meters by dividing the reported height by 100, and then divide the reported weight of respondent (in kilograms) to the square of the height in meters. The resulting number gives the BMI used in our analysis.

4. Empirical Specification

The empirical specification of the model we estimate in this paper is as follows: Our health outputs are health related behaviors. They are smoking, alcohol consumption, fruit and vegetable consumption, exercise and individual's BMI level. We investigate the effect of input on each health related behaviors separately in five different models. Formally, we can write our health function as follows:

$$H = f(E, A, G, P, M, L, HI) \quad (1)$$

where H refers to health behavior. H is a function of education (E), age (A), gender (G) the place where the individual lives (P), marital status (M), labor market status (L) and the household Income (HI). Education is exogenous in our model. Grossman (2004) states that completion of formal schooling is the most important determinant of good health, whether the measure of good health is mortality, morbidity, self-evaluation of health or psychological

indicators of good health. In order to examine the effect of education on health behaviors accurately, we restrict our sample to individuals who are over 25-years-old in our analysis, since individuals complete their schooling in Turkey approximately around the of age 25. As the theory supports that education is positively associated with good health, we assume that health behaviors that improve the quality of an individual's health (fruit and vegetable consumption, exercise, and normal ranges of BMI) increase with education, whereas health behaviors that weakens the individual's health quality (smoking, alcohol consumption and high ranges of BMI) decrease with education. We add age in our model as the theory suggests that health is a capital that depreciates over time. Both Grossman (1972) and Bolin (2011) indicate that the rate of depreciation decreases with the level of education and increases with age. Therefore, other things being equal, we assume that H is increasing in A if the health behavior is risky when other factors remain constant. We do not observe an individual's wage rate in THS data set. Therefore, we include household income as a proxy for the individual income. We also include individual's employment status in our model as a proxy for the socioeconomic status (SES) of the individual. As the theory suggests that higher income levels lead to a better health status, we assume H is decreasing in HI if the health behavior is risky when other factors remain constant. We assume that the SES of the employed individuals is higher since employed individuals earn their own income and have more social networks than unemployed or inactive individuals. Cutler et al. (2011) state that low SES in occupation leads to psychosocial stress because of feelings of subordination and lack of control. They indicate that this stress causes deterioration in health. Hence, we assume that the occurrence of risky health behaviors decreases with a higher employment status. If we assume E is a number that increments if the individual finds a job or finds a better job, if he/she is already employed, then H is decreasing in E. Finally, we add gender, the place where the individual lives, and marital status as covariates that explain the variation in health related behavior. These covariates are empirically examined widely. The literature suggests that females have better health status than males (Case and Paxson 2005; Fuchs 2004). Hence, if we define "G" as 1 if the individual is male, and "0" if the individual is female, then we assume that H is increasing in G if H corresponds to risky health behavior. In addition, empirical studies conclude that people living in more-favored places have better health statuses than people living in less-favored places (Reijneveld 2002). In the THS data set we observe whether the individual lives in urban or rural areas. We assume that living in urban areas is more preferred by individuals. Hence, if we define P as 1 if the individual lives in an urban area, and 0 if the individual lives in rural area, then we assume that H is decreasing in P if H corresponds to risky health behavior. For marriage, the literature suggests that in general, married individuals are healthier than those who are not married since having a spouse is assumed to make a positive contribution to an individual's health (Fuchs 2004). Therefore, we assume health behavior is a function of marital status (M). Defining M as equal to 1 if the individual is married then H is decreasing in M if H corresponds to risky health behavior. Finally we include dummy variables for the years 2010 and 2012 in our pooled sample (only 2012 for smoking). The determinants of variation in health behaviors are analyzed using a probit model (OLS for BMI).

5. Empirical Results

In this section we present the effects of individual characteristics on each of the health behaviors separately. For the probit analysis, we present the marginal effects (in percentages). We run five different probit regressions (OLS for BMI) in the following manner: In the first regression, explanatory variables included are: years of schooling, square of years of schooling and gender dummy. In the second regression, we add age, square of age and a dummy that indicates whether the individual lives in an urban or rural area. Next, in the third regression, we add marital status dummies. In the fourth regression, we add dummies that show the labor market status of the individual. Lastly, in the fifth regression, we include the individual's household income (in logarithms). Here, our objective is to see whether the magnitude and

significance of the years of schooling variable changes when other controls are added into the regression. We observe that the magnitude of the years of schooling variable reduces slightly as new control variables are included in the regression, but its significance never changes, which is consistent with the findings of Cutler and Llearas-Muney (2010).

Next, we replicate the five regressions for each health behavior by adding five dummy variables, which indicate the education levels of the individuals in place of years of education. This is a flexible specification as suggested by the previous specification with years of schooling and its square. By doing this first, first, we aim to see if there would be a change in the interpretation of our findings. We observe that the neither the explanatory power nor the sign of other control variables do not change. Second, we aim to see how the health behaviors vary among different education groups. Indeed, unlike the previous studies, the THS data set enable us to see the variation of health behaviors among different education levels.

Year dummies for 2010 and 2012 are included in all of the regressions. For alcohol consumption, the coefficient of the 2010 year dummy is estimated as a positive indicating that compared to 2008 there has been an increase in alcohol consumption in 2010. On the other hand, the coefficient estimate of the 2012 year dummy is negative which implies that in 2012, compared to 2008, alcohol consumption decreased in Turkey. We also find that fruit and vegetable consumption decreased in 2010 and 2012 compared to 2008. The coefficient estimate of the year dummy for 2010 and 2012 are positive for exercise an and individual's BMI level, which indicates that in 2010 and 2012, compared to 2008, there has been an increase in the prevalence of exercise and BMI levels. For smoking, only the year dummy for 2012 is included in the regressions because smoking data is not available for 2008. We find that the coefficient estimate of the 2012 year dummy is negative. This suggests that in 2012, there has been an increase in smoking in Turkey, compared to 2010. In the rest of this paper we examine each health behavior separately.

5.1 Smoking

OECD (2010) Health Data set reports that 25.4% of Turkey's adult population are regular smokers, the second highest rate after Estonia (26.2%) among OECD countries. Smoking is one of the most harmful health behaviors. Regular smokers are in great risk for cardiovascular disease, chronic lung disease and several types of cancer (Stewart et al. 2009; Chalupka and Warner 2000). In the THS data set, smoking does not imply tobacco consumption only. It also includes other types of tobacco products such as cigars. We define an individual as smoker if he/she reports that he/she has been a regular smoker and he/she currently smokes. Table 1a presents the descriptive statistics for smoking for the pooled 2010 and 2012 survey[3]. We observe that years of schooling are higher among smokers than nonsmokers. Nevertheless, the prevalence of smoking is the highest among middle school graduates. We also note that among males the percentage of smokers is larger than nonsmokers. The fraction of smokers is higher in urban areas than in rural areas. When we compare the married, single and widowed/divorced we see that the proportion of smokers is highest among singles. Regarding employment status, we see that the percentage of smokers among those unemployed is higher than among those employed and inactive. Finally, we see that household income is slightly higher among smokers.

Table 1b reports the marginal effects (in percentages) from probit estimation results. We observe that probability of smoking increases by 0.0384 percentage points when schooling increases by a year. The positive association between years of schooling and smoking in our study contradicts previous studies such as Cutler and Learas-Muney (2010), Kenkel (1991) and Lantz et al. (2001). They all find a negative and significant relationship between years of

[3] Smoking data is available only for 2010 and 2012.

schooling and smoking in the US and the UK, which are developed countries. Turkey is considered as a developing country. For this reason, the relationship between education and smoking may differ in Turkey from that in developed countries. Indeed, the coefficient estimate of the years of schooling squared indicated that smoking and years of schooling has an inverted U-shaped relationship. This implies that the probability of smoking decreases among the highly educated. Table 1c reports the marginal effects (in percentages) (see also Figure 1) of probit estimation results where education dummies are used as education control variables instead of years of schooling. These results support our previous findings. We again find a positive relationship between smoking and education level, with smoking declining with education levels. For instance, the probability of smoking is lower for the individual with a college or higher degree than that of the middle school graduate. The probability of smoking increases by 0.1727 percent for middle school graduates and by 0.0542 percent for college graduates relative to an illiterate individual. Hence, we conclude that individuals who have college degree are better informed about adverse health effects of smoking than their lower educated peers.

The results for the other covariates are similar in Tables 1b and 1c. We comment on them briefly. We find that men are more likely to smoke than women. Smoking and age have a concave relationship. Moreover, as it is expected, urban residents tend to smoke more than rural residents. Next, we see that married and single individuals are less likely to smoke than those who are widowed/divorced. Furthermore, we note that the probability of an unemployed person smoking (0.1099) is twice as high as the probability of an employed person smoking (0.0536) relative to inactive. This result can be attributed to the stressful work life of employed individuals, and to being anxious while looking for a job for the unemployed. Finally, we find that household income does not significantly affect individual's smoking behavior. Cutler and Llearas-Muney (2010) also include labor market status along with other main covariates. They suggest that the inclusion of labor market status variables reduces the education coefficient by 10 percentage points. In our case inclusion of all other covariates reduces the coefficient of years of schooling by almost half (Table 1b, model 1 and model 5).

5.2 Alcohol consumption

According the OECD (2010) Health Data set, only 1.5 per cent of adult population in Turkey consumes alcohol. This amount is very low compared to other OECD countries. The low percentage of alcohol consumption in Turkey is most probably due to religious traditions which prohibit alcohol consumption. Similarly, in the THS the proportion of daily alcohol drinkers is very low, less than 1% (0.5%, 0.4% and 0.2% in 2008, 2010 and 2012 respectively). In order to capture the variation in alcohol consumption, we combine the daily and occasional alcohol drinkers and call them "alcohol drinkers" in our analysis. Table 2a reports the descriptive statistics for alcohol consumption. We refer to an individual as an alcohol drinker if he/she states that they currently consume alcohol regularly or occasionally. We see that the average years of schooling is higher among alcohol drinkers (9.63 years) than among non-alcohol consumers (6.14 years). The occurrence of alcohol consumption increases as the level of education increases and it is highest among university or higher graduates. The percentages of alcohol drinkers is higher among males than among females. Alcohol consumers are younger than non-alcohol consumers and the urban residents consume more than the rural residents. Regarding marital status, we note that the percentage of alcohol drinkers is higher among singles than the married and widowed/divorced. The fraction of alcohol drinkers among employed and unemployed are equal and significantly higher than that of the inactive. Lastly, household income is significantly higher among alcohol consumers.

Table 2b presents the marginal effects (in percentages) from probit estimation results. Our results indicate that there is a positive relationship between education level and alcohol consumption. We find that the probability of alcohol consumption increases by 0.0236% when schooling increases by one year. We replicate our model by adding education dummies in place

of years of schooling. The marginal effects (in percentages) (see also Figure 1) from this regression are reported in Table 2c. Table 2c shows that the probability of alcohol consumption increases with education level. It increases by 0.0564% for non-graduates, 0.1259% for primary school graduates, 0.1691% for middle school graduates, 0.1795% for high school graduates and 0.2091% for the individuals with a university or higher degree, compared to illiterates. This result can be attributed to two facts: First, highly educated people participate in social activities more than their low educated peers due to their having larger social networks and they tend to consume more alcohol during social activities. Second, as Kenkel (1991) suggests, more educated people may know that some drink is good for health, hence they drink more than the others.

We next consider the rest of the covariates. We see that males tend to consume more alcohol than females. Like in the case of smoking, the relationship between alcohol consumption and age is an inverted U-shaped one. Alcohol consumption increases with age and roughly at age 48, alcohol consumption reaches a peek, after which it starts to decrease. The urban dwellers consume significantly more alcohol than the rural ones, albeit this loses its significance when we control for income. The probability of alcohol consumption for married and single people is significantly less than that of widowed/divorced. Moreover, being in the labor force also positively and significantly affects the probability of alcohol consumption. The probability of alcohol consumption increases by approximately 0.04% and 0.06% for the employed and unemployed respectively, compared to inactive persons. This finding may again be attributed to larger social networks for the employed and the anxiety/stress of the unemployed. Finally, we find that an increase in log of household income leads to a 0.0390% increase in the probability of alcohol consumption.

In short, our results are consistent with Kenkel (1991) as well as Ettner (1996) who suggest higher probability of light drinking among higher socioeconomic groups. However, Cutler and Llearas-Muney (2010) find a negative association between the probability of someone being a heavy alcohol drinker and education. It is important to note that the number of heavy drinkers in our data set is very small for a separate analysis. Thus, our results mostly explain the variations in light alcohol consumption by education and other determinants like Kenkel and Ettner.

5.3 Fruit and vegetable consumption

Fruit and vegetables are necessary for healthy life. Sufficient daily consumption of fruit and vegetables could prevent several kinds of diseases, such as cardiovascular diseases, certain cancers and diabetes (Hung et al. 2004). Hence, it is important to investigate the variation in fruit and vegetable consumption. We define an individual as a regular fruit and vegetable consumer if the individual reports that he/she consumes fruits, vegetables and/or their juice at least once a week. Table 3a presents the descriptive statistics. We observe that years of schooling is higher among fruit and vegetable consumers than non-consumers. The prevalence of regular fruit and vegetable consumption is the highest among individuals who have a university or higher degree compared to other education groups. Fruit and vegetable consumption is higher among males. Fruit and vegetable consumers are younger, and urban residents consume more fruits and vegetables than rural ones. Singles consume more fruits and vegetables than those who are married and widowed/divorced. Fruit and vegetable consumption is similar among the employed, unemployed and inactive. Finally, household income is somewhat higher among regular fruit and vegetable consumers.

Table 3b presents the marginal effects (in percentages) from probit estimation results. We find that fruit and vegetable consumption is positively and significantly associated with education level. We observe that the probability of fruit and vegetable consumption increases by 0.0142% when years of schooling increase by a year. We re-estimate the regression by dropping years

of schooling and including education level dummies in place. Marginal effects (in percentages) (see also Figure 1) from these probit estimation results are reported in Table 3c. We again find a positive relationship between fruit and vegetable consumption and education level. the probability of alcohol consumption increases with education level. It increases by 0.0358% for non-graduates, 0.0595% for primary school graduates, 0.0812% for middle school graduates, 0.0856% for high school graduates and 0.0881% for the individuals with a university or higher degree, compared to illiterates. We can conclude that people with higher levels of education are better informed about the benefits of fruit and vegetable consumption.

We now consider the rest of the covariates. We observe that males are more likely to consume fruits and vegetables than females. The probability of fruit and vegetable consumption and age has a U-shape relationship indicating an initial decline up to age 56 and an increase afterwards. Urban residents tend to consume more fruit and vegetables than rural ones. Singles tend to consume more fruits and vegetables than the widowed/divorced while the marginal effect for the married is not significantly different from the latter group. The probability of consuming fruit and vegetables for employed and unemployed individuals is significantly smaller than that of inactive individuals. Finally, as household income increases the probability of consuming fruits and vegetables also increases.

5.4 Exercise

Regular physical activity is an important factor that improves an individual's health. It could prevent many diseases such as heart disease and stroke, high blood pressure, diabetes, obesity, back pain, osteoporosis and can improve the psychological condition of the individual (Fletcher et al. 1996). Therefore, it is important to examine the variation in physical activity of the individuals. In THS we observe the respondent's frequency of exercise, divided into three categories: High level exercise (such as aerobic exercise or working in construction sector), medium level exercise (such as riding a bicycle or house work) and low level exercise (such as walking). If the individual does not experience one of these activities at least 10 minutes in the reference week, then we assume that individual does not exercise regular physical activity. Table 4a presents the descriptive statistic for exercise behavior. Individuals who exercise regularly have higher years of schooling and prevalence of exercise is higher among males and university graduates. Individuals who exercise regularly are younger. Urban residents exercise slightly more than rural ones. Married and single individuals exercise more than the widowed/divorced. Employed people exercise more than the unemployed and the inactive. Finally, average household income is slightly higher among individuals who exercise regularly.

Table 4b shows the marginal effects (in percentages) from probit estimation results for exercise behavior. We find that regular exercise is positively and significantly associated with education level. The probability of exercise increases by 0.0265% when years of schooling increase by a year. We re-estimate the regression by dropping years of schooling and including education level dummies in place. Marginal effects (in percentages) (see also Figure 1) from these probit estimation results are reported in Table 4c. We again find a positive relationship between exercise and education level. The probability of exercise increases with education level. It increases by 0.0880% for non-graduates, 0.1157% for primary school graduates, 0.1494% for middle school graduates, 0.1510% for high school graduates and 0.1557% for the individuals with a university or higher degree, compared to illiterates. Our results are consistent with previous literature findings. For instance, the studies for developed countries such as Kenkel (1991) and Lantz et al. (2001) in the US also find a positive relationship between schooling and exercise.

We now consider the rest of the covariates. Males tend to exercise more than females. The probability of exercise and age has a concave relationship: Individuals are more likely to exercise as they get older, but roughly at age 46 probability of exercise starts to decrease. Rural

residents tend to exercise more than urban ones. The probability of exercise is significantly higher for the married people than for the widowed/divorced, whereas the exercise behavior of single individuals does not significantly differ from that of the widowed/divorced. Employed individuals tend to exercise significantly more than inactive individuals, while the exercise behavior of the unemployed is not significantly different from that of the inactive. The probability of exercise increases by 0.0411% if the individual is employed. These results are consistent with our expectations, since employed people are physically more active than the unemployed or the inactive. Finally, our results suggest that household income does not significantly affect the exercise behavior of the individual.

5.5 Body Mass Index (BMI)

Obesity is an increasing health problem in Turkey. It is important to analyze the determinants of obesity as it is a major source of certain diseases such as cardiovascular diseases, diabetes, and joint problems (Stewart et al. 2009). OECD (2010) Health Data indicates that 21% of females and 13.2% of males in Turkey were obese in 2010. The World Bank (2008) reported that the adoption of Western diets high in refined carbohydrates, saturated fats and sugars and a more sedentary lifestyle are major contributors to the increase in overweight and chronic diseases in Turkey. BMI is used as a tool for determining if an individual is overweight or obese. An individual is considered obese if his/her BMI is greater than 30, overweight if his/her BMI is greater than 25 and underweight if his/her BMI is under 18.5, according to World Health Organization (WHO) criteria. The BMI in our study is computed from the self-reported height (in centimeters) and weight (in kilograms) in the THS. We calculate an individual's BMI by dividing the self-reported weight of a respondent (in kilograms) to the square of the self-reported height in meters.

There are few studies that examine the determining factors of obesity in Turkey. These studies include Erem et al. (2004) and Hatemi et al. (2003). Erem et al. suggest that demographic factors such as marital status, number of births, household income and giving up smoking and alcohol consumption lead to higher BMI levels. On the contrary, they find that level of education, tobacco use, and higher physical activity is positively associated with lower BMI. Finally, they find that hypertension also promotes obesity. Hatemi et al. (2003) conclude that frequency of being obese or overweight is very high in Turkey and there is a positive relationship between higher BMI and blood pressure for both men and women. Yumuk (2005) concludes that men tend to be overweight more than women, however, women are more likely to be obese than men.

Table 5a presents the descriptive statistics for five different BMI groups as well as the statistics for BMI for the whole sample. Per the statistics, average years of schooling are lower among obese individuals. The prevalence of obesity is higher among illiterate and non-graduate individuals. Females are more obese than males and males are more overweight than females. Obese individuals are slightly older. There is no difference in the weight ranges of urban and rural residents. The occurrence of being overweight is higher among married individuals and prevalence of obesity is higher among widowed/divorced individuals. Prevalence of being obese is higher among inactive individuals. Lastly, we observe that household income is slightly higher among overweight individuals.

Table 5b presents the OLS estimation results where the dependent variable is the individual's BMI. We find that an increase in years of schooling results in normal BMI ranges. This result is similar to the results of previous literature such as Kemptner et al. (2011), Brunello et al. (2011), Webbink et al (2010), Cutler and Llearas-Muney (2010) and Lantz et al. (2001). We find that a one year increase in years of schooling leads to a 0.11 unit decrease in an individual's BMI level. Table 5c reports OLS estimation results where we drop years of schooling and add dummy variables for education levels instead (see also Figure 1). Our results suggest that BMI

levels of illiterate and non-graduate people do not significantly differ from each other when we add logarithms of household income into our analysis. For other education groups, we observe that as education level increases, the individual's BMI level decreases. The BMI level decreases even more (by 1.72 units) if the individual has a university or higher degree. This result suggests that more educated people are better informed about the risks of being overweight or obese.

We now consider the rest of the covariates. Females have significantly higher levels of BMI than males. However, when we add the logarithm of household income into our analysis, we see that BMI levels of males and females do not significantly differ from each other. BMI level increases with age at a decreasing rate. Urban residents have higher BMI levels than rural ones. Our results indicate that the BMI levels of married and single individuals are significantly lower from those of widowed/divorced people. Next, we find that both employed and unemployed individuals have lower BMI levels than inactive individuals. This may be due to the more sedentary life-styles of inactive people. Finally, we find that as household income increases so does BMI.

6. Conclusion

This paper investigates the determinants of health behaviors in Turkey, in particular, with respect to education. This is the first paper that analyzes the variations in health behaviors in Turkey in a single study. The health behaviors considered are smoking, alcohol consumption, fruit and vegetable consumption, exercise and an individual's BMI. We took into account education and demographic factors, such as gender, age, the region where the individual lives (urban/rural), the employment status of the individual and their household income. In conclusion, education is found to be an important factor that could reduce the probability of risky health behaviors in Turkey. Unlike in previous studies on developed countries, the probability of smoking increases with education. However, the effect of university or higher education is smaller than the effect of lower levels of schooling. Thus the results indicate that smoking is positively associated with education at all levels, with a decreasing effect with the level of education. This result indicates that smoking is a serious public health problem in Turkey at all levels of education. Policy makers must pay attention to this problem. Higher educated individuals clearly eat more fruits and vegetables compared to the less educated and illiterate. We also find that higher educated individuals exercise more. Next, we observe that higher educated individuals clearly have BMI levels in the normal range compared to the less educated. The only exception is that alcohol consumption is higher among educated individuals, who tend to consume more alcohol in Turkey than the less educated.

As a result we can say that higher education may be a factor that heightens sensitivity towards adverse effects of risky behaviors, with the exception of alcohol consumption. Thus, policy makers should pay more attention to increasing education levels. Furthermore, it is worthy to note that while income does not significantly influence tobacco consumption and does not affect the probability of exercise, it significantly increases alcohol consumption, fruit and vegetable consumption and BMI. Males tend to consume more tobacco and alcohol than females. They are also more likely to consume fruits and vegetables and exercise more than females. Finally, the BMI of females is higher than that of males.

References

Bolin, K. (2011). Health Production. *Oxford Handbook of Health Economics.* Ed. S. Glied and P.C. Smith. New York: Oxford University Press, 95-123. Print.

Brunello, G., D. Fabbri, and M. Fort (2013). The Causal Effect of Education on Body Mass: Evidence from Europe. *Journal of Labor Economics,* 31(1):195-223.

Brunello, G., M. Fort, N. Schneeweis and R. Winter-Ebmer (2011). The Causal Effect of Education on Health: What is the Role of Health Behaviors? *CEPR Discussion Paper* No. DP8707.

Carbone, J. C., S. Kverndokk, and O. J. Røgeberg (2005). Smoking, Health, Risk, and Perception. *Journal of Health Economics,* 24(4): 631-653.

Case, A. and C. Paxson (2005). Sex Differences in Morbidity and Mortality. *Demography,* 42(2): 189-214.

Cawley, J., and C. J. Ruhm (2011). The Economics of Risky Health Behaviors," *Handbook of Health Economics,* 2: 97-153.

Chaloupka, F. J., and K. E. Warner (2000). The Economics of Smoking. *Handbook of Health Economics,* 1: 1539-1627.

Cutler, D. M., E. L. Glaeser, and J. M. Shapiro (2003). Why Have Americans Become More Obese? *The Journal of Economic Perspectives,* 17(3): 93-118.

Cutler, D. M., and E. L. Glaeser (2005). What Explains Differences in Smoking, Drinking, and Other Health-Related Behaviors? *The American Economic Review,* 95(2): 238-242.

Cutler, D. M., Lleras-Muney, A. (2008). Education and Health: Evaluating Theories and Evidence. In: James, S.H., Schoeni, R.F., Kaplan, G.A., Pollack, H. (Eds), *Making Americans Healthier: Social and Economic Policy as Health Policy*. Russel Sage Foundation, New York.

Cutler, D. M. and A. Lleras-Muney (2010). Understanding Differences in Health Behaviors by Education. *Journal of Health Economics.* 29(1):1-28.

Cutler, D. M., A. Lleras-Muney, and T. Vogl (2011). Socioeconomic Status and Health: Dimensions and Mechanisms. *Oxford Handbook of Health Economics*. Ed. S. Glied and P.C. Smith. New York: Oxford University Press, 124-163. Print.

De Walque, D. (2007). Does Education Affect Smoking Behaviors? Evidence Using the Vietnam Draft as an Instrument for College Education. *Journal of health economics,* 26(5): 877-895.

Erem, C., et al. (2004). Prevalence of Obesity and Associated Risk Factors in a Turkish Population (Trabzon City, Turkey). *Obesity Research.* 12(7): 1117-1127.

Erbaydar, T., et al. (2005). Influence of Social Environment in Smoking among Adolescents in Turkey. *The European Journal of Public Health,* 15(4): 404-410.

Ettner, S. L. (1996). New Evidence on the Relationship between Income and Health. *Journal of Health Economics,* 15(1): 67-85.

Fletcher, G. F., et al. (1996). Statement on Exercise: Benefits and Recommendations for Physical Activity Programs for All Americans A Statement for Health Professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on Clinical Cardiology. American Heart Association. Circulation 94(4): 857-862.

Fuchs, V. R. (2004). Reflections on the Socio-Economic Correlates of Health. *Journal of Health Economics,* 23(4): 653-661.

García, V. J., and C. Quintana-Domeque (2009). Income and Body Mass Index in Europe. *Economics & Human Biology,* 7(1): 73-83.

Grossman, M., (1972). On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy,* 80(2): 223-255.

Grossman, M. (2000). The Human Capital Model. *Handbook of Health Economics.* Vol.1. Ed. A.J. Culyer and J.P.Newhouse. Amsterdam: Elsevier, 348-408. Print.

Grossman, M., (2004). The Demand for Health, 30 Years Later: A Very Personal Retrospective and Prospective Reflection. *Journal of Health Economics* 23(4): 629-636.

Gruber, J., and M. Frakes (2006). Does Falling Smoking Lead to Rising Obesity? *Journal of Health economics,* 25(2): 183-197.

Hatemi, H., et al. (2003), Prevalence of Overweight and Obesity in Turkey. *Metabolic Syndrome and Related Disorders,* 1(4): 285-290.

Hung, H.C., et al. (2004). Fruit and Vegetable Intake and Risk of Major Chronic Disease. *Journal of the National Cancer Institute,* 96(21): 1577-1584.

Idler, E. L. and Y. Benyamini (1997). Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies. *Journal of Health and Social Behavior,* 38(1): 21-37.

Kemptner, D., H. Jürges and S. Reinhold (2011). Changes in Compulsory Schooling and the Causal Effect of Education on Health: Evidence from Germany. *Journal of Health Economics,* 30(2):340-354.

Kenkel, D. S. (1991). Health Behavior, Health Knowledge, and Schooling. *Journal of Political Economy,* 99(2): 287-305.

Kocabas, A., et al. (1994). Smoking Patterns at Different Medical Schools in Turkey. *Tobacco Control,* 3(3): 228-235.

Lantz, P. M., et al. (1998). Socioeconomic Factors, Health Behaviors, and Mortality. *JAMA: The Journal of the American Medical Association,* 279(21): 1703-1708.

Lantz, P. M., et al. (2001). Socioeconomic Disparities in Health Change in a Longitudinal Study of US Adults: The Role of Health-Risk Behaviors. *Social Science & Medicine,* 53(1): 29-40.

Lleras-Muney, A., (2005). The Relationship between Education and Adult Mortality in the U.S. *Review of Economic Studies,* 72(1): 189-221.

Metintaş, S., et al. (1998) "Smoking Patterns of University Students in Eskişehir, Turkey," *Public Health* 112(4): 261-264.

Mokdad, A. H., J. S. Marks, D. F. Stroup, and J. L. Gerberding (2004). Actual Causes of Death in the United States 2000. *Journal of American Medical Association,* 291(10): 1238-1245.

Mullahy, J. (1997). Instrumental-Variable Estimation of Count Data Models: Applications to Models of Tobacco Smoking Behavior. *Review of Economics and Statistics,* 79(4): 586-593.

Organization for Economic Cooperation and Development (OECD) (2010) Health Data Set (http://stats.oecd.org)

Reijneveld, S. A. (2002). Neighbourhood Socioeconomic Context and Self Reported Health and Smoking: a Secondary Analysis of Data on Seven Cities. *J Epidemiol Community Health,* 56: 935-942.

Stewart, S. T., D. M. Cutler, and A. B. Rosen (2009). Forecasting the Effects of Obesity and Smoking on US Life Expectancy. *New England Journal of Medicine,* 361(23): 2252-2260.

Tansel, A. (1993). Tobacco Demand, Health Scares and Education in Turkey. *Applied Economics,* 25(4): 521-529.

Webbink, D., N. G. Martin and P. M. Visscher (2010). Does Education Reduce the Probability of Being Overweight? *Journal of Health Economics,* 29(1):29-38.

World Bank (2008). World Bank Report. (http://siteresources.worldbank.org/NUTRITION/Resources/281846-1271963823772/Turkey.pdf)

Yumuk, V. D. (2005). Prevalence of Obesity in Turkey. *Obesity Reviews,* 6(1): 9-10.

Figure 1: Marginal Effects (x100) (For BMI, the OLS Coefficients) by Education Level

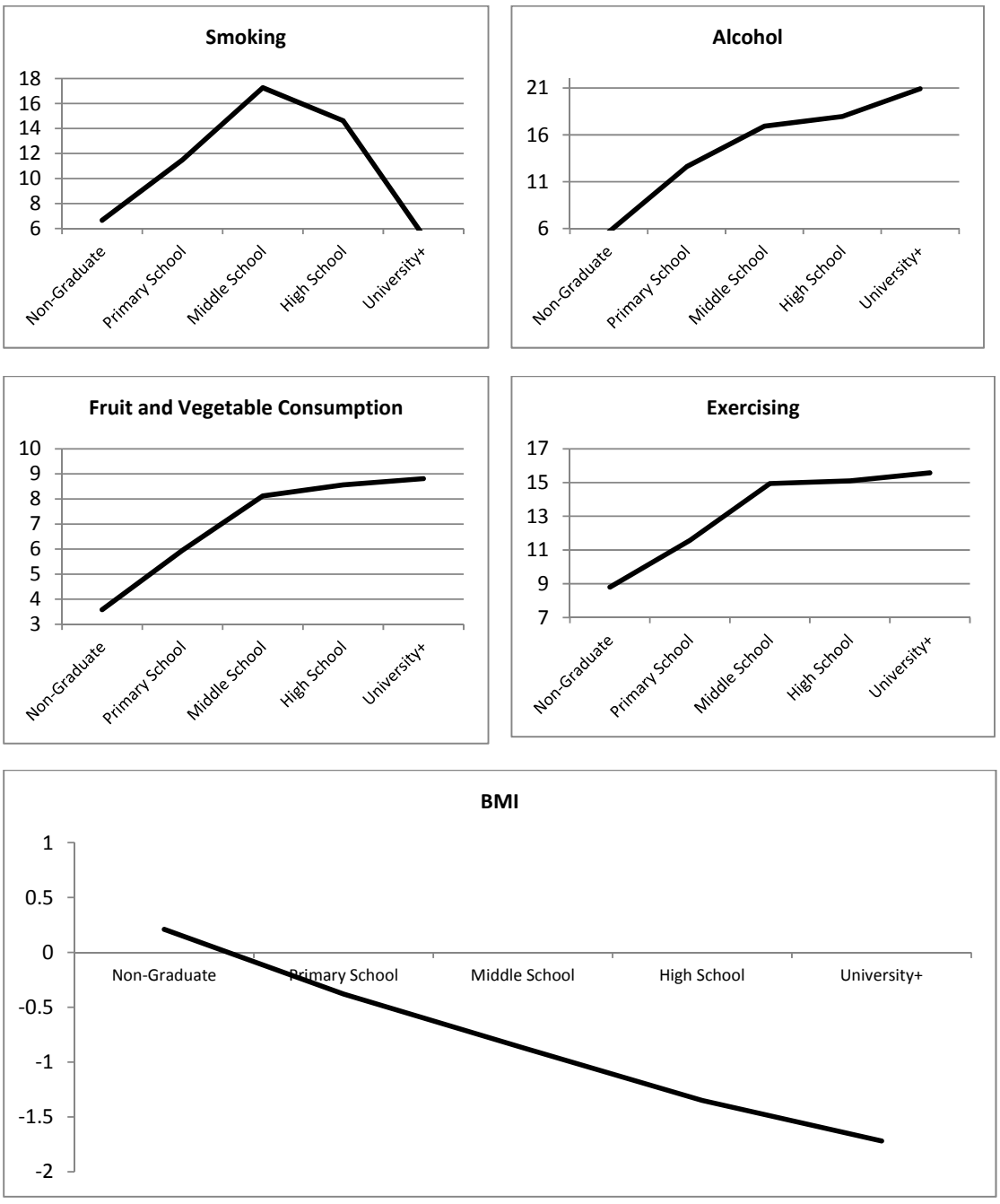

Table 1a: Descriptive Statistics for Smoking

Variable	Smoker	Non-Smoker	Total
Male*	0.43	0.57	1.00
	(0.49)	(0.49)	
Female*	0.17	0.83	1.00
	(0.38)	(0.38)	
Age (Years)	43.32	49.51	47.74
	(12.04)	(15.47)	(14.83)
Age-Squared	2022	2690	2499
	(1169)	(1638)	(1549)
Urban*	0.31	0.69	1.00
	(0.46)	(0.46)	
Rural*	0.22	0.78	1.00
	(0.42)	(0.42)	
Marital Status			
Married*	0.29	0.71	1.00
	(0.45)	(0.45)	
Single*	0.36	0.64	1.00
	(0.48)	(0.48)	
Widowed/Divorced*	0.20	0.80	1.00
	(0.40)	(0.40)	
Education			
Years of Schooling	7.78	6.21	6.66
	(4.00)	(4.58)	(4.48)
Years of Schooling-Squared	76.57	59.69	64.51
	(70.75)	(72.23)	(72.21)
Illiterate*	0.08	0.92	1.00
	(0.27)	(0.27)	
Non-Graduate*	0.16	0.84	1.00
	(0.36)	(0.36)	
Primary School*	0.29	0.71	1.00
	(0.45)	(0.45)	
Middle School*	0.42	0.58	1.00
	(0.49)	(0.49)	
High School*	0.40	0.60	1.00
	(0.49)	(0.49)	
University+*	0.30	0.70	1.00
	(0.46)	(0.45)	
Labor Market Status			
Employed*	0.41	0.59	1.00
	(0.49)	(0.49)	
Unemployed*	0.51	0.49	1.00
	(0.50)	(0.50)	
Out of Labor Force*	0.18	0.82	1.00
	(0.39)	(0.39)	
Log Household Income (TL)	7.05	6.97	7.00
	(0.58)	(0.60)	(0.60)
Number of Observations in 2010	3469	8311	11780
Number of Observations in 2012	6446	16490	22936
Total Observations	9915	24801	34716

Notes: (1)*indicates a dummy variable. (2) The numbers in the parenthesis are standard deviations.
Source: 2010 – 2012 Turkish Health Survey

Table 1b: Marginal Effects from Probit Estimation Results for Smoking with Years of Schooling (%)

Variable	(1)	(2)	(3)	(4)	(5)
Years of Schooling	6.05***	3.72***	3.82***	3.87***	3.84***
	(0.20)	(0.21)	(0.21)	(0.21)	(0.21)
Years of Schooling Square	-0.30***	-0.21***	-0.21***	-0.22***	-0.22***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Male	20.60***	22.90***	23.92***	20.83***	21.00***
	(0.43)	(0.43)	(0.43)	(0.53)	(0.53)
Age($x10^{-1}$)		8.77***	9.53***	8.60***	8.56***
		(1.18)	(1.21)	(1.19)	(1.21)
Age Square($x10^{-3}$)		-13.96***	-15.32***	-13.55***	-13.59***
		(1.18)	(1.21)	(1.20)	(1.21)
Urban		5.42***	5.13***	5.59***	5.61***
		(0.52)	(0.53)	(0.53)	(0.55)
Marital Status					
Married			-10.96***	-10.07***	-10.28***
			(0.86)	(0.86)	(0.86)
Single			-11.57***	-11.52***	-11.78***
			(1.19)	(1.19)	(1.21)
Labor Force Status					
Employed				5.43***	5.31***
				(0.58)	(0.59)
Unemployed				11.05***	10.97***
				(1.31)	(1.34)
Log Household Income					0.36
					(0.47)
Dummy12	-2.38***	-2.31***	-2.36***	-2.28***	-2.35***
	(0.48)	(0.47)	(0.47)	(0.47)	(0.48)
Pseudo R2	0.09	0.12	0.12	0.13	0.13
(-) Log-Likelihood	18802	18240	18163	18102	17916
N	34716	34716	34716	34716	34350

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2010-2012 Turkish Health Survey.

Table 1c: Marginal Effects from Probit Estimation Results for Smoking with Education Levels (%)

Variable	(1)	(2)	(3)	(4)	(5)
Education					
Non-Graduate	8.50***	6.27***	6.75***	6.84***	6.66***
	(1.34)	(1.33)	(1.32)	(1.31)	(1.32)
Primary School	20.16***	10.98***	11.71***	11.67***	11.50***
	(0.91)	(0.94)	(0.95)	(0.94)	(0.95)
Middle School	29.45***	17.20***	17.81***	17.62***	17.27***
	(1.09)	(1.14)	(1.14)	(1.14)	(1.16)
High School	28.08***	14.74***	15.34***	14.99***	14.63***
	(1.01)	(1.08)	(1.08)	(1.08)	(1.12)
University+	19.47***	6.29***	7.11***	5.89***	5.42***
	(1.07)	(1.14)	(1.14)	(1.15)	(1.22)
Male	20.61***	22.90***	23.90***	20.79***	20.96***
	(0.43)	(0.43)	(0.43)	(0.53)	(0.53)
Age($x10^{-1}$)		9.41***	10.05***	9.15***	9.09***
		(1.18)	(1.20)	(1.19)	(1.20)
Age Square($x10^{-3}$)		-14.59***	-15.83***	-14.08***	-14.10***
		(1.18)	(1.21)	(1.20)	(1.21)
Urban		5.30***	5.04***	5.49***	5.51***
		(0.53)	(0.52)	(0.53)	(0.54)
Marital Status					
Married			-10.76***	-9.85***	-10.07***
			(0.86)	(0.86)	(0.86)
Single			-11.49***	-11.43***	-11.70***
			(1.19)	(1.19)	(1.20)
Labor Force Status					
Employed				5.48***	5.36***
				(0.58)	(0.58)
Unemployed				11.07***	10.99***
				(1.31)	(1.34)
Log Household Income					0.39
					(0.46)
Dummy12	-2.42***	-2.34***	-2.38***	-2.31***	-2.37***
	(0.48)	(0.47)	(0.47)	(0.47)	(0.48)
Pseudo R2	0.10	0.12	0.13	0.13	0.13
(-) Log-Likelihood	18791	18227	18152	18091	17905
N	34716	34716	34716	34716	34350

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2010-2012 Turkish Health Survey.

Table 2a: Descriptive Statistics for Alcohol Consumption

Variable	Alcohol Consumer	Non-Alcohol Consumer	Total
Male*	0.20	0.80	1.00
	(0.40)	(0.40)	
Female*	0.04	0.96	1.00
	(0.21)	(0.21)	
Age (Years)	43.52	47.91	47.41
	(12.00)	(15.06)	(14.81)
Age-Squared	2038	2522	2466
	(1150)	(1577)	(1541)
Urban*	0.13	0.87	1.00
	(0.34)	(0.34)	
Rural*	0.08	0.92	1.00
	(0.27)	(0.27)	
Marital Status			
Married*	0.11	0.89	1.00
	(0.32)	(0.32)	
Single*	0.20	0.80	1.00
	(0.40)	(0.40)	
Widowed/Divorced*	0.06	0.94	1.00
	(0.25)	(0.25)	
Education			
Years of Schooling	9.63	6.14	6.54
	(4.16)	(4.33)	(4.45)
Years of Schooling-Squared	110.11	56.35	62.52
	(81.60)	(67.17)	(71.08)
Illiterate*	0.01	0.99	1.00
	(0.07)	(0.07)	
Non-Graduate*	0.02	0.98	1.00
	(0.15)	(0.15)	
Primary School*	0.08	0.92	1.00
	(0.28)	(0.28)	
Middle School*	0.16	0.84	1.00
	(0.37)	(0.37)	
High School*	0.18	0.82	1.00
	(0.39)	(0.39)	
University+*	0.27	0.73	1.00
	(0.45)	(0.45)	
Labor Market Status			
Employed*	0.20	0.80	1.00
	(0.40)	(0.40)	
Unemployed*	0.20	0.80	1.00
	(0.40)	(0.40)	
Out of Labor Force*	0.05	0.95	1.00
	(0.22)	(0.22)	
Log Household Income (TL)	7.19	6.88	6.92
	(0.60)	(0.61)	(0.62)
Number of Observations in 2008	1338	10439	11777
Number of Observations in 2010	1495	10285	11780
Number of Observations in 2012	2500	20436	22936
Total Observations	5333	41160	46493

Notes : (1)*indicates a dummy variable. (2) The numbers in the parenthesis are standard deviations
Source: 2008,2010,2012 Turkish Health Survey.

Table 2b: Marginal Effects from Probit Estimation Results for Alcohol Consumption with Years of Schooling (%)

Variable	(1)	(2)	(3)	(4)	(5)
Years of Schooling	2.93***	2.44***	2.47***	2.57***	2.36***
	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)
Years of Schooling Square	-0.08***	-0.06***	-0.06***	-0.07***	-0.07***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Male	12.69***	12.93***	13.24***	11.11***	11.60***
	(0.29)	(0.30)	(0.30)	(0.35)	(0.35)
Age($x10^{-1}$)		7.58***	9.09***	8.45***	7.64***
		(0.73)	(0.75)	(0.74)	(0.75)
Age Square($x10^{-3}$)		-8.54***	-10.04***	-8.66***	-8.07***
		(0.74)	(0.76)	(0.75)	(0.76)
Urban		1.11***	1.07***	1.41***	0.40
		(0.33)	(0.33)	(0.33)	(0.34)
Marital Status					
Married			-4.63***	-4.20***	-4.75***
			(0.56)	(0.56)	(0.57)
Single			-1.70***	-1.40**	-2.10***
			(0.72)	(0.72)	(0.73)
Labor Force Status					
Employed				4.37***	3.96***
				(0.36)	(0.37)
Unemployed				4.74***	5.92***
				(0.73)	(0.75)
Log Household Income					3.91***
					(0.28)
Dummy10	1.22***	1.30***	1.26***	1.23***	0.64*
	(0.38)	(0.38)	(0.38)	(0.38)	(0.38)
Dummy12	-1.42***	-1.37***	-1.44***	-1.50***	-2.76***
	(0.33)	(0.33)	(0.33)	(0.33)	(0.35)
Pseudo R2	0.15	0.16	0.16	0.17	0.17
(-) Log-Likelihood	13984	13883	13836	13761	13537
N	46493	46493	46493	46493	46024

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 2c: Marginal Effects from Probit Estimation Results for Alcohol Consumption with Education Levels (%)

Variable	(1)	(2)	(3)	(4)	(5)
Education					
Non-Graduate	5.85***	5.58***	5.91***	5.98***	5.64***
	(1.37)	(1.36)	(1.35)	(1.35)	(1.35)
Primary School	15.57***	13.31***	13.78***	13.82***	12.59***
	(1.05)	(1.06)	(1.06)	(1.06)	(1.06)
Middle School	21.23***	18.62***	18.92***	18.91***	16.91***
	(1.11)	(1.13)	(1.13)	(1.13)	(1.14)
High School	23.25***	20.46***	20.72***	20.62***	17.95***
	(1.08)	(1.11)	(1.11)	(1.11)	(1.12)
University+	28.21***	25.43***	25.60***	24.83***	20.91**
	(1.08)	(1.11)	(1.11)	(1.11)	(1.14)
Male	12.59***	12.84***	13.16***	11.06***	11.56***
	(0.29)	(0.30)	(0.30)	(0.35)	(0.35)
Age($x10^{-1}$)		7.31***	8.80***	8.18***	7.38***
		(0.73)	(0.76)	(0.75)	(0.75)
Age Square($x10^{-3}$)		-8.24***	-9.74***	-8.38***	-7.82***
		(0.75)	(0.77)	(0.76)	(0.76)
Urban		1.15***	1.12***	1.44***	0.44
		(0.33)	(0.33)	(0.33)	(0.34)
Marital Status					
Married			-4.78***	-4.35***	-4.90***
			(0.57)	(0.57)	(0.57)
Single			-1.80***	-1.51***	-2.21***
			(0.73)	(0.72)	(0.73)
Labor Force Status					
Employed				4.30***	3.89***
				(0.36)	(0.37)
Unemployed				4.67***	5.85***
				(0.73)	(0.75)
Log Household Income					3.90***
					(0.28)
Dummy10	1.22***	1.30***	1.25***	1.22***	0.63*
	(0.38)	(0.38)	(0.38)	(0.38)	(0.38)
Dummy12	-1.44***	-1.39***	-1.46***	-1.52***	-2.77***
	(0.33)	(0.33)	(0.33)	(0.33)	(0.35)
Pseudo R2	0.16	0.16	0.17	0.17	0.18
(-) Log-Likelihood	13961	13867	13818	13746	13523
N	46493	46493	46493	46493	46024

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 3a: Descriptive Statistics for Fruit and Vegetables (FV) Consumption

Variable	Consume FV Regularly	Not Consume FV	Total
Male*	0.59	0.41	1.00
	(0.49)	(0.49)	
Female*	0.57	0.43	1.00
	(0.49)	(0.49)	
Age (Years)	46.72	48.34	47.40
	(14.68)	(14.93)	(14.81)
Age-Squared	2398	2559	2466
	(1516)	(1571)	(1541)
Urban*	0.60	0.40	1.00
	(0.49)	(0.49)	
Rural*	0.54	0.46	1.00
	(0.50)	(0.50)	
Marital Status			
Married*	0.58	0.42	1.00
	(0.49)	(0.49)	
Single*	0.65	0.35	1.00
	(0.48)	(0.48)	
Widowed/Divorced*	0.54	0.46	1.00
	(0.50)	(0.50)	
Education			
Years of Schooling	6.85	6.11	6.54
	(4.46)	(4.39)	(4.45)
Years of Schooling-Squared	66.80	56.68	62.55
	(72.81)	(68.19)	(71.08)
Illiterate*	0.50	0.50	1.00
	(0.50)	(0.50)	
Non-Graduate*	0.54	0.46	1.00
	(0.50)	(0.50)	
Primary School*	0.57	0.43	1.00
	(0.50)	(0.50)	
Middle School*	0.60	0.40	1.00
	(0.49)	(0.49)	
High School*	0.62	0.38	1.00
	(0.48)	(0.48)	
University+*	0.64	0.36	1.00
	(0.48)	(0.48)	
Labor Market Status			
Employed*	0.59	0.41	1.00
	(0.49)	(0.49)	
Unemployed*	0.57	0.43	1.00
	(0.49)	(0.49)	
Out of Labor Force*	0.57	0.43	1.00
	(0.49)	(0.49)	
Log Household Income (TL)	6.93	6.89	6.92
	(0.61)	(0.62)	(0.62)
Number of Observations in 2008	9665	2089	11754
Number of Observations in 2010	6074	5696	11770
Number of Observations in 2012	11199	11731	22930
Total Observations	26938	19516	46454

Notes: (1)*indicates a dummy variable. (2) The numbers in the parenthesis are standard deviations.
Source: 2008,2010,2012 Turkish Health Survey.

Table 3b: Marginal Effects from Probit Estimation Results for Fruit and Vegetable Consumption with Years of Schooling (%)

Variable	(1)	(2)	(3)	(4)	(5)
Years of Schooling	1.87***	1.76***	1.77***	1.74***	1.42***
	(0.16)	(0.17)	(0.17)	(0.17)	(0.17)
Years of Schooling Square	-0.05***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Male	-0.16	0.11	-0.09	1.25**	1.94***
	(0.45)	(0.46)	(0.47)	(0.54)	(0.55)
Age($x10^{-1}$)		-3.02***	-2.19**	-2.04**	-3.34***
		(1.01)	(1.04)	(1.04)	(1.05)
Age Square($x10^{-3}$)		3.02***	2.44**	1.99**	3.02***
		(0.97)	(1.00)	(1.01)	(1.01)
Urban		4.64***	4.71***	4.47***	3.01***
		(0.50)	(0.50)	(0.50)	(0.51)
Marital Status					
Married			1.01	0.63	-0.21
			(0.78)	(0.79)	(0.79)
Single			4.89***	5.03***	4.09***
			(1.16)	(1.16)	(1.17)
Labor Force Status					
Employed				-2.42***	-3.01***
				(0.57)	(0.58)
Unemployed				-6.33***	-4.52***
				(1.36)	(1.38)
Log Household Income					5.85***
					(0.44)
Dummy10	-32.25***	-32.30***	-32.30***	-32.28***	-33.13***
	(0.59)	(0.59)	(0.59)	(0.59)	(0.59)
Dummy12	-35.23***	-35.34***	-35.35***	-35.38***	-37.29***
	(0.51)	(0.51)	(0.51)	(0.50)	(0.52)
Pseudo R2	0.07	0.07	0.07	0.08	0.08
(-) Log-Likelihood	29298	29251	29240	29225	28854
N	46454	46454	46454	46454	45990

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 3c: Marginal Effects from Probit Estimation Results for Fruit and Vegetable Consumption with Education Levels (%)

Variable	(1)	(2)	(3)	(4)	(5)
Education					
Non-Graduate	4.53***	4.27***	4.22***	4.11***	3.58***
	(1.05)	(1.05)	(1.05)	(1.05)	(1.06)
Primary School	8.12***	7.75***	7.78***	7.73***	5.95***
	(0.68)	(0.73)	(0.74)	(0.73)	(0.75)
Middle School	12.21***	11.06***	10.96***	10.97***	8.12***
	(0.95)	(1.02)	(1.02)	(1.02)	(1.04)
High School	14.02***	12.56***	12.35***	12.45***	8.56***
	(0.83)	(0.92)	(0.92)	(0.92)	(0.97)
University+	16.27***	14.58***	14.12***	14.63***	8.81***
	(0.88)	(0.97)	(0.98)	(0.99)	(1.08)
Male	-0.18	0.08	-0.11	1.23**	1.92***
	(0.45)	(0.46)	(0.47)	(0.54)	(0.55)
Age($x10^{-1}$)		-3.07***	-2.24***	-2.11**	-3.37***
		(1.02)	(1.05)	(1.05)	(1.06)
Age Square($x10^{-3}$)		3.07***	2.49***	2.04**	3.05***
		(0.98)	(1.01)	(1.01)	(1.02)
Urban		4.65***	4.72***	4.48***	3.02***
		(0.49)	(0.50)	(0.50)	(0.52)
Marital Status					
Married			0.98	0.58	-0.24
			(0.78)	(0.79)	(0.79)
Single			4.86***	5.00***	4.06***
			(1.16)	(1.16)	(1.17)
Labor Force Status					
Employed				-2.44***	-3.02***
				(0.57)	(0.58)
Unemployed				-6.33***	-4.51***
				(1.36)	(1.38)
Log Household Income					5.85***
					(0.44)
Dummy10	-32.26***	-32.32***	-32.32***	-32.30***	-33.15***
	(0.59)	(0.59)	(0.59)	(0.59)	(0.59)
Dummy12	-35.24***	-35.35***	-35.36***	-35.39***	-37.30***
	(0.51)	(0.51)	(0.51)	(0.51)	(0.53)
Pseudo R2	0.07	0.07	0.07	0.08	0.08
(-) Log-Likelihood	29297	29250	29239	29224	28853
N	46454	46454	46454	46454	45990

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 4a: Descriptive Statistics for Exercise

Variable	Exercise Regularly	Not Exercise Regularly	Total
Male*	0.71	0.29	1.00
	(0.45)	(0.45)	
Female*	0.63	0.37	1.00
	(0.48)	(0.48)	
Age (Years)	46.21	50.07	47.50
	(13.84)	(16.33)	(14.83)
Age-Squared	2326	2774	2475
	(1405)	(1757)	(1546)
Urban*	0.67	0.33	1.00
	(0.47)	(0.47)	
Rural*	0.66	0.34	1.00
	(0.47)	(0.47)	
Marital Status			
Married*	0.68	0.32	1.00
	(0.47)	(0.47)	
Single*	0.69	0.31	1.00
	(0.46)	(0.46)	
Widowed/Divorced*	0.54	0.46	1.00
	(0.50)	(0.50)	
Education			
Years of Schooling	7.00	5.78	6.60
	(4.36)	(4.48)	(4.44)
Years of Schooling-Squared	68.18	53.56	63.31
	(72.66)	(67.69)	(71.37)
Illiterate*	0.48	0.52	1.00
	(0.50)	(0.50)	
Non-Graduate*	0.61	0.39	1.00
	(0.49)	(0.49)	
Primary School*	0.68	0.32	1.00
	(0.46)	(0.46)	
Middle School*	0.72	0.28	1.00
	(0.45)	(0.45)	
High School*	0.72	0.28	1.00
	(0.45)	(0.45)	
University+*	0.73	0.27	1.00
	(0.44)	(0.44)	
Labor Market Status			
Employed*	0.73	0.27	1.00
	(0.44)	(0.44)	
Unemployed*	0.69	0.31	1.00
	(0.46)	(0.46)	
Out of Labor Force*	0.62	0.38	1.00
	(0.49)	(0.49)	
Log Household Income (TL)	6.95	6.87	6.93
	(0.61)	(0.62)	(0.61)
Number of Observations in 2008	7029	4078	11107
Number of Observations in 2010	7673	3118	10791
Number of Observations in 2012	14366	7341	21707
Total Observations	29068	14537	43605

Notes: (1)*indicates a dummy variable. (2) The numbers in the parenthesis are standard deviations.
Source: 2008, 2010, 2012 Turkish Health Survey.

Table 4b: Marginal Effects from Probit Estimation Results for Exercise with Years of Schooling (%)

Variable	(1)	(2)	(3)	(4)	(5)
Years of Schooling	3.82***	2.64***	2.60***	2.66***	2.65***
	(0.16)	(0.17)	(0.17)	(0.17)	(0.18)
Years of Schooling Square	-0.17***	-0.11***	-0.10***	-0.11***	-0.11***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Male	4.67***	5.43***	5.27***	3.46***	3.53***
	(0.46)	(0.46)	(0.47)	(0.55)	(0.55)
Age($x10^{-1}$)		16.07***	15.22***	14.97***	14.83***
		(1.00)	(1.04)	(1.04)	(1.05)
Age Square($x10^{-3}$)		-18.01***	-17.15***	-16.49***	-16.37***
		(0.96)	(0.99)	(1.00)	(1.00)
Urban		-4.44***	-4.44***	-3.94***	-3.82***
		(0.51)	(0.51)	(0.51)	(0.53)
Marital Status					
Married			1.94**	2.29***	2.10***
			(0.78)	(0.78)	(0.78)
Single			-0.29	0.12	-0.09
			(1.14)	(1.15)	(1.15)
Labor Force Status					
Employed				4.06***	4.11***
				(0.58)	(0.58)
Unemployed				0.37	0.18
				(1.37)	(1.39)
Log Household Income					0.21
					(0.45)
Dummy10	7.78***	8.24***	8.26***	8.23***	8.22***
	(0.62)	(0.62)	(0.62)	(0.62)	(0.62)
Dummy12	2.13***	2.64***	2.66***	2.64***	2.76***
	(0.53)	(0.53)	(0.53)	(0.53)	(0.55)
Pseudo R2	0.02	0.03	0.04	0.04	0.04
(-) Log-Likelihood	27092	26783	26777	26752	26486
N	43605	43605	43605	43605	43206

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 4c: Marginal Effects from Probit Estimation Results for Exercise with Education Levels (%)

Variable	(1)	(2)	(3)	(4)	(5)
Education					
Non-Graduate	10.21***	8.89***	8.78***	8.96***	8.80***
	(1.06)	(1.06)	(1.06)	(1.06)	(1.06)
Primary School	16.80***	11.77***	11.56***	11.64***	11.57***
	(0.68)	(0.73)	(0.74)	(0.74)	(0.75)
Middle School	20.26***	15.29***	15.19***	15.11***	14.94***
	(0.96)	(1.03)	(1.03)	(1.03)	(1.05)
High School	20.56***	15.59***	15.55***	15.26***	15.10***
	(0.83)	(0.92)	(0.93)	(0.93)	(0.97)
University+	21.49***	16.82***	16.90***	15.82***	15.57***
	(0.88)	(0.97)	(0.98)	(0.99)	(1.08)
Male	4.58***	5.35***	5.21***	3.40**	3.47***
	(0.46)	(0.46)	(0.47)	(0.55)	(0.55)
Age($x10^{-1}$)		15.88***	15.07***	14.83***	14.69***
		(1.01)	(1.04)	(1.04)	(1.05)
Age Square($x10^{-3}$)		-17.84***	-17.03***	-16.38***	-16.26***
		(0.97)	(1.00)	(1.00)	(1.01)
Urban		-4.41***	-4.38***	-3.92***	-3.81***
		(0.51)	(0.51)	(0.51)	(0.53)
Marital Status					
Married			1.81**	2.16***	1.97**
			(0.78)	(0.78)	(0.78)
Single			-0.43	-0.01	-0.21
			(1.14)	(1.15)	(1.15)
Labor Force Status					
Employed				4.06***	4.11***
				(0.58)	(0.58)
Unemployed				0.38	0.18
				(1.37)	(1.39)
Log Household Income					0.20
					(0.45)
Dummy10	7.74***	8.20***	8.22***	8.19***	8.17***
	(0.62)	(0.62)	(0.62)	(0.62)	(0.62)
Dummy12	2.13***	2.64***	2.66***	2.64***	2.76***
	(0.53)	(0.53)	(0.53)	(0.53)	(0.55)
Pseudo R2	0.02	0.04	0.04	0.04	0.04
(-) Log-Likelihood	27076	26773	26767	26741	26476
N	43605	43605	43605	43605	43206

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis. (3) Marginal effects are computed at the means of the variables.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.

Table 5a: Descriptive Statistics for BMI

Variable	Underweight (BMI<18.5)	Normal Weight (18.5<=BMI<=24.99)	Overweight (25<=BMI<30)	Obese (BMI>=30)	Total
Male*	0.01	0.37	0.45	0.17	1.00
	(0.10)	(0.48)	(0.50)	(0.38)	
Female*	0.02	0.38	0.34	0.26	1.00
	(0.15)	(0.48)	(0.47)	(0.44)	
Age (Years)	42.57	43.77	47.47	50.51	46.65
	(16.79)	(14.96)	(13.94)	(13.08)	(14.44)
Age-Squared	2093	2139	2447	2722	2385
	(1759)	(1534)	(1443)	(1385)	(1489)
Urban*	0.02	0.37	0.39	0.22	1.00
	(0.13)	(0.48)	(0.49)	(0.41)	
Rural*	0.02	0.37	0.39	0.22	1.00
	(0.14)	(0.48)	(0.48)	(0.41)	
Marital Status					
Married*	0.01	0.35	0.41	0.23	1.00
	(0.12)	(0.48)	(0.49)	(0.42)	
Single*	0.05	0.62	0.25	0.08	1.00
	(0.23)	(0.49)	(0.44)	(0.26)	
Widowed/Divorced*	0.02	0.35	0.35	0.28	1.00
	(0.14)	(0.48)	(0.48)	(0.45)	
Education					
Years of Schooling	7.73	7.56	6.99	5.81	6.96
	(4.82)	(4.54)	(4.30)	(4.02)	(4.39)
Years of Schooling-Squared	82.87	77.77	67.39	49.98	67.78
	(80.44)	(76.78)	(71.75)	(61.99)	(72.65)
Illiterate*	0.02	0.34	0.34	0.30	1.00
	(0.14)	(0.47)	(0.48)	(0.46)	
Non-Graduate*	0.02	0.31	0.37	0.30	1.00
	(0.12)	(0.46)	(0.48)	(0.46)	
Primary School*	0.01	0.34	0.40	0.25	1.00
	(0.11)	(0.47)	(0.49	(0.43)	
Middle School*	0.02	0.40	0.40	0.18	1.00
	(0.14)	(0.49)	(0.49)	(0.38)	
High School*	0.02	0.44	0.39	0.15	1.00
	(0.14)	(0.50)	(0.49)	(0.36)	
University+*	0.02	0.47	0.38	0.13	1.00
	(0.16)	(0.50)	(0.49)	(0.33)	
Labor Market Status					
Employed*	0.02	0.41	0.41	0.16	1.00
	(0.13)	(0.49)	(0.49)	(0.37)	
Unemployed*	0.03	0.53	0.35	0.09	1.00
	(0.17)	(0.50)	(0.48)	(0.28)	
Out of Labor Force*	0.02	0.34	0.38	0.26	1.00
	(0.14)	(0.47)	(0.48)	(0.44)	
Log Household Income (TL)	6.88	6.95	6.98	6.95	6.96
	(0.64)	(0.63)	(0.59)	(0.59)	(0.61)
Number of Observations in 2008	209	3998	3764	1943	9914
Number of Observations in 2010	201	3844	3928	2317	10290
Number of Observations in 2012	322	7570	8331	4647	20870
Total Observations	732	15412	16023	8907	41074

Notes: (1)*indicates a dummy variable. (2) The numbers in the parenthesis are standard deviations.
Source: 2008, 2010, 2012 Turkish Health Survey.

Table 5b: OLS Estimation Results for BMI with Years of Schooling

Variable	(1)	(2)	(3)	(4)	(5)
Years of Schooling	-0.13***	-0.07***	-0.08***	-0.09***	-0.11***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Years of Schooling Square	-0.003**	-0.003***	-0.001***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Male	-0.22***	-0.41***	-0.36***	-0.13***	-0.08***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Age($x10^{-1}$)		5.11***	4.73***	4.76***	4.64***
		(0.10)	(0.10)	(0.10)	(0.10)
Age Square($x10^{-3}$)		-4.50***	-4.20***	-4.28***	-4.19***
		(0.10)	(0.10)	(0.10)	(0.10)
Urban		0.46***	0.44***	0.40***	0.30***
		(0.05)	(0.05)	(0.05)	(0.05)
Marital Status					
Married			-0.12	-0.19**	-0.25***
			(0.09)	(0.09)	(0.09)
Single			-1.55***	-1.52***	-1.60***
			(0.12)	(0.12)	(0.12)
Labor Force Status					
Employed				-0.41***	-0.44***
				(0.05)	(0.05)
Unemployed				-1.12***	-0.96***
				(0.11)	(0.11)
Log Household Income					0.43***
					(0.04)
Dummy10	0.41***	0.31***	0.32***	0.32***	0.27***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Dummy12	0.57***	0.44***	0.44***	0.44***	0.29***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
R2	0.03	0.10	0.10	0.10	0.11
Adjusted R2	0.03	0.10	0.10	0.10	0.11
N	41074	41074	41074	41074	40699

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis.
Source: Authors' computations using 2008, 2010 and 2012 Turkish Health Survey.

Table 5c: OLS Estimation Results for BMI with Education Levels

Variable	(1)	(2)	(3)	(4)	(5)
Education					
Non-Graduate	0.20	0.24*	0.25*	0.23*	0.21
	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)
Primary School	-0.33***	-0.22**	-0.25***	-0.26***	-0.38***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Middle School	-1.19***	-0.69***	-0.67***	-0.67***	-0.87***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
High School	-1.76***	-1.15***	-1.09***	-1.08***	-1.35***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)
University+	-2.12***	-1.55***	-1.40***	-1.32***	-1.72***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)
Male	-0.24***	-0.42***	-0.37***	-0.14***	-0.09
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Age($x10^{-1}$)		5.07***	4.71***	4.73***	4.61***
		(0.10)	(0.10)	(0.10)	(0.11)
Age Square($x10^{-3}$)		-4.46***	-4.18***	-4.26***	-4.16***
		(0.10)	(0.10)	(0.10)	(0.10)
Urban		0.46***	0.45***	0.41***	0.30***
		(0.05)	(0.05)	(0.05)	(0.05)
Marital Status					
Married			-0.14	-0.21**	-0.27**
			(0.09)	(0.09)	(0.09)
Single			-1.56***	-1.54***	-1.62***
			(0.12)	(0.12)	(0.12)
Labor Force Status					
Employed				-0.41***	-0.45***
				(0.05)	(0.05)
Unemployed				-1.12***	-0.96***
				(0.11)	(0.11)
Log Household Income					0.43***
					(0.04)
Dummy10	0.42***	0.31***	0.32***	0.32***	0.26***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Dummy12	0.58***	0.44***	0.44***	0.44***	0.29***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
R2	0.03	0.10	0.10	0.10	0.11
Adjusted R2	0.03	0.10	0.10	0.10	0.10
N	41074	41074	41074	41074	40699

Notes: (1)*** indicates 1% level of significance, **indicates 5% level of significance, *indicates 10% level of significance. (2) Robust standard errors are shown in parenthesis.
Source: Authors' computations using 2008-2010-2012 Turkish Health Survey.