

Determining the Factors Affecting Elders' Smoking Habit: Estimation Through Logistical Regression Analyses

Yetişkinlerin Sigara Alışkanlığını Etkileyen Faktörlerin Belirlenmesi: Lojistik Regresyon Analiz ile Tahmin

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ABSTRACT Objective: Cigarette, which contains many substances that harm the human body, causes many lethal diseases such as cancer, heart and lung diseases. The Ministry of Health and some associations are struggling with smoking, and many scientific studies are carried out on the subject. In most of the studies adolescence, early youth and youth smoking are investigated. In this study, smoking habits of middle age and older age groups were investigated. **Material and Methods:** A questionnaire was applied to determine the factors affecting smoking. In addition to demographic questions, variables that may have an effect on smoking were investigated by using the logistic regression model by asking the respondents "do you believe that smoking causes cancer?" and "do you think smoking is a violation of your beliefs?" **Results:** Although the role of mother and father in smoking was higher in childhood and youth, they could not enter the model. Even the mother's smoking was found to be the most meaningless and the first removed variable from the model. This can be because of the study sample is too old to mimic mother and father. It was found that the siblings were more likely to smoke because they were more likely to affect each other. The variable with the greatest effect size is whether or not to believe that smoking causes cancer. The probability of smoking is 7.13 times higher for those who do not believe that smoking causes cancer. **Conclusion:** The rate of quitting smoking increases in diseases where smoking damage is more clearly seen. Approximately half of the patients who smoked and underwent pulmonary nodule follow-up quitted smoking when they learned about the risk of malignancy of the nodule. More impressive presentations can be prepared by relevant institutions by evaluating new research and findings on the subject.

Keywords: Logistic regression; smoking habit

ÖZET Amaç: İnsan vücuduna zarar veren çok sayıda madde içeren sigara kanser, kalp ve akciğer hastalıkları gibi birçok ölümcül hastalığa neden olmaktadır. Sağlık Bakanlığı ve bazı dernekler, sigarayla mücadele etmekte, konuyla ilgili birçok bilimsel çalışma yapılmaktadır. Çalışmaların çoğunda ergenlik, erken gençlik ve gençlik çağlarındaki sigara kullanımı araştırılmaktadır. Bu çalışmada orta yaş ve daha ileri yaş gruplarında sigara alışkanlığı incelenmiştir. **Gereç ve Yöntemler:** Sigara kullanımını etkileyen faktörleri saptamak için bir anket uygulanmıştır. Demografik soruların yanı sıra ankete katılanlara "sigaranın kanser yaptığına inanıyor musunuz?", "sigara içmeyi inançlarınıza aykırı buluyor musunuz?" soruları yöneltilerek sigara içmede etkisi olabilecek değişkenler lojistik regresyon modeli kullanılarak incelenmiştir. **Bulgular:** Sigara içmede anne ve babanın rolü çocukluk ve gençlik yıllarında fazla olmasına rağmen modele girememişlerdir. Hatta annenin sigara içmesi en anlamsız bulunmuş ve modelden ilk çıkan değişken olmuştur. Bunun nedeni çalışma yapılan örneklemin anne ve babayı taklit edecek yaşı geçmiş olmaları olabilir. Kardeşlerin sigara içme olasılıklarının daha fazla olduğu, çünkü birbirlerini etkileme olasılıklarının daha yüksek olduğu saptanmıştır. Etki büyüklüğü en fazla olan değişken ise sigaranın kanser yaptığına inanıp inanmama değişkenidir. Sigaranın kanser yaptığına inanmayanların sigara içme olasılığı 7,13 kat daha fazladır. **Sonuç:** Sigaranın zararlarının daha net görüldüğü hastalıklarda sigarayı bırakma oranı artmaktadır. Sigara kullanan ve pulmoner nodül izlemi yapılan hastaların yarısına yakını nodülün malignite riskini öğrendiklerinde sigarayı bırakmışlardır. Konuyla ilgili yeni araştırma ve bulgular değerlendirilerek ilgili kurumlar tarafından daha etkileyici sunumlar hazırlanabilir.

Anahtar Kelimeler: Lojistik regresyon; sigara alışkanlığı

Smoking is the most common reason to be ill and to die for both smokers and passive inhalers. It is estimated that about 5 million people die because of illnesses caused by smoking and tobacco use. Unless some precautions are taken, it is foreseen that 10 million people would lost their lives due to smoking and tobacco use by 2020. It is pointed out that 6 substances in cigarette definitely cause cancer and other 30 ones may have possibility to cause it.¹⁻³

These factors should be cared to evaluate efforts against smoking and tobacco use: annual cigarette consumption, production, import-export, the educative programs for public health, campaigns, treatment opportunities, whether the taxes for smoking is high or not, direct or indirect ads about cigarette and tobacco use, promotions, whether the sponsorship for tobacco and cigarette is prohibited or not, the content and size of warning signs on cigarette packages, the definitions of places in which smoking is prohibited, and whether prohibitions are practiced well or not.²

CIGARETTE USE

Smoking is a problem for not only users but also passive inhalers like wives and children. Ministry of Health, in their Global Adult Tobacco Research 2012 (KYTA 2012) Report, reported that smoking has caused serious illnesses (94.8%), heart diseases (92.4%), low birth rate (78.9%) between 2008-2012.⁴ Some suggestions are offered by Ministry of Health and Ministry of Education and many other institutions and people to eliminate smoking problem which is a serious psychological problem.

World Health Organization accepted those rules MPOWER criterions to control tobacco use:

- It essential to observe tobacco use and preventing policies
- People should be protected from tobacco smog
- People who want to give up smoking should be supported

- Public should be warned about the hazards of tobacco

- The ads, promotions and sponsorship of tobacco should be prevented

- The taxes for tobacco should be increased

Tobacco use, common use, quitting and measures to decrease smoking has been reported in KYTA-2012.⁴

There are enough researches to eliminate cigarette use. Many activities, announcements, news are taking part in both visual and written media and also social media. The areas in which people can smoke are restricted. The sentences that tell the hazards of smoking are printed on the packages of cigarettes. However, despite all preventions and negative news, cigarette use rate is really high in our country. According to the reports of KYTA-2012, the frequency of smoking among people over the age of 15 is 27.1%. According to the gender distribution, males' rate is 41.5%, females' rate is 13.1%. Among current smokers, 23.8% use tobacco products every day, 3.3% use sometimes.⁴

Despite the budgetary damages of smoking, according to KYTA-2012 data, monthly expenditure for purchasing cigarettes between 2008 and 2012 increased by 46% for men and 71.6% for women by gender. According to age, there was an increase of 50,7% in the 25-44 age group and 49,6% in the 45-64 age group. According to settlement, 51.6% increase in urban areas and 39% increase in rural areas.⁴ Reports say that more research should be performed and public awareness should be ensured in order to make public quit smoking.

Çelik (2000) performed a research for high school students. Prinççi and Erdem (2005) and Pekşen (2005) performed a research for college students. Tanrıkulu (2009). Yüksel and Cücen (2012) and Özcebe (2014) performed a research for university students related to their cigarette use.⁵⁻¹⁰ Karlıkaya (2006) performed to show the hazards of smoking for public and the preventions of tobacco use.¹¹ Akçay D, and Akçay B, (2018) a study for the effects of media on teenagers on tobacco use.¹² Usually, adolescence, youngness periods have been investigated to analyze the tobacco use habit.

For teenagers, there are some variables like media that effect the cigarette use habit. His reported that increase in time that spent in front of screens increased the tobacco use.¹²

In this study, the cigarette use habit in people who had a wannabe period during their lives and who are already at middleage and even more is analyzed and a survey has been conducted to point out factors effecting cigarette use for those. Apart from demographical problems cognitive questions like “do you believe that cigarette makes cancer?” were asked to analyze variables that may effect smoking.

SMOKING IS A DISPENSABLE HABIT

In order to prevent this habit, people should inspired young people and should not smoke or quit smoking.¹³

Many addict are aware of the hazards of this habit and also they are trying to give up. However, many of those attempts fail. A professional help and treatment may be useful to overcome this failure.¹⁴

According to the KYTA statistics of Ministry of Health, rate of people who considered to quit smoking was 9.9% in 2008 and 12.9% in 2012. The rate of people considering to quit smoking in future is increased to 22.5% from 17.8%. Also, the the rate of people who consider to give up in any time after a year was 25.2% in 2008 and 19.7% in 2012 and the rate of the people who have no idea about this was 4.6% in 2008 and 2.8% in 2012. There was no change for the frequency of the people who did not consider to give up smoking between 2008-2012.⁴

Quittin smoking at first step is dependt to peoples' own will, decision and command. However, the environment is influential for giving up smoking as well. For that reason, advices of the people that influence the society are important in period of personality development. Meanwhile, especially people who can be a role model for public should give up smoking and advise it.^{11,15}

Doctors and nurses have an important role to convince people to give up smoking due to their

jobs. It is thought that if this job is performed intentionally not only formally, process may be more effective.^{11,14} The percentage of giving up smoking only with the help of the doctor advice is only 5-10%. This role can not be ignored, but there are not too many doctors who advise quitting smoking. The reason of this, doctors who are smokers are unwilling to do it. This rate in Turkey is 45.4% and 50.5%.¹⁶

Whether teachers smoke or not effects students. Even more, this situation is more important than the informations given in classroom. According to researches, the schools with moore smoking teachers have students who have tendency to smoke.¹⁷

Habitual use, psychological and physical addiction are important in tobacco use.^{11,13} Many methods have been developed to prevent tobacco use.

Though the methods are different, in view of their succes for this task, their aims overweigh physical and psychological addiction arose from this habit. Nevertheless, more success may be achieved with the help of both spiritual and medical treatment.¹¹

MATERIAL AND METHODS

While analyzing categorical statistics, models like linear possibility model, probit model were used. One of those models was logistical regression.¹⁸

Logistical regression analysis is divided into two categories: full and steps method. The difference of methods is the way of choosing independent variables that are involved in the model. The choiced the method differs according to researches' decisions. Full method is useful to analyze variables that effect together. In establishing a model studies, like survey study, steps method is more useful.¹⁹

Also smoking is an example for categorical statistics. In this study, whether people smoke or not is used as dependent variable and in SPSS program, backward method which is a Steps method of regression analysis is used. 12 dependent variables that may effect smoking and possible answers were

given below. For the study, 217 administrative personnels were assigned in the survey.

- Gender: Male/Female
- Age: Mean 38 years (range: 20-63 years)
- Marital Status: Married/Single
- The Position in Workplace: Manager or Above-Clerk-Company Personnel
- Family Monthly Income: Average 2640 TL, is range is 800 TL-6000 TL.
- Accomodation: Village/Town Centre/City Centre
- Mother Smokes: Yes/No
- Father Smokes: Yes/No
- Brothers or Sisters Smoke: Yes/No
- Whether he finds the news that tell smoking leads cancer true or not: Yes/No
- Accepting that smoking is against to their religious beliefs: Yes/No
- They see smoking as an disrespectful behaviour among other who are non smokers: Yes/No

STATISTICAL ANALYSIS

In this study, logistic regression analysis was used. Backward elimination method of selected analysis was applied. At last step, the variables that can be included in model are; gender, cigarette makes cancer statement, smoking is against beliefs, brothers and sisters' smoking habit, accepting smoking among others who are non smokers as an disrespectful behaviour. The variables which are taken from model by using backward eliminating method are mothers' tobacco use, occupation, age, fathers' smoking, income, residence, marital status.

RESULTS

At last step, the variables that can be included in model are; gender, cigarette makes cancer statement, smoking is against beliefs, brothers and sisters' smoking habit, accepting smoking among others who are non smokers as an disrespectful behaviour.

If the individual is a female, the possibility of smoking is 0.27 ($p < 0.05$) males' possibility. The smoking possibility of people who are not believe that smoking cause cancer is 7.13 ($p < 0.05$) times of people who believe this statement. The smoking possibility of people who are not think that smoking is against to their beliefs is 2.15 ($p < 0.05$) time of people who think that smoking is against to their beliefs. The smoking possibility of people whose siblings don't smoke is 0.50 ($p < 0.05$) times of the ones whose siblings smoking. The smoking possibility of people who are unaccept smoking as disrespect to non-smoking people is 1.93 ($p < 0.10$) times of people who accept smoking as disrespect to non-smoking. According to the table, the variables which are taken from model by using backward eliminating method are mothers' tobacco use, occupation, age, fathers' smoking, income, residence, marital status.

DISCUSSION

Acceptance of smoking as a habit for males but not for females may effect gender distribution of smoking habit.^{2,13,20} Though it is a wrong cultural approach, it is similar to the belief that vulgar language is only for males not for females.^{21,22} The same situation can be found in question: "do you think that smoking among non smokers is disrespectful?" In our society, smoking among elders is considered as disrespectful.²³ This situation can be a psychological condition from childhood. Concealing this habit from elders when they are children or teenager may be imbedded in their subconscious.

Although the role of parents is substantial for smoking in childhood and teenage years, they are not included in the model.^{13,24} Even the mother's smoking was found to be the least significant and it was the first variable excluded from the model. This may be related to the age of the participants of the study. Unlike adolescents, they will not emulate the parents and they are too old to look for models for themselves.

Those who are in the same generation affect each other more. In similar researches, starting smoking in childhood and youngness is common

due to being influenced by friends.^{13,24} In this study, while being influenced by mother and father is found insignificant, being influenced from brothers and sisters is found significant. This situation is similar to their affection from friends. Brothers and sisters grow up in the same period and cultural effect.

The belief that wastage and health-damaging substances are sin may have made the "contrary to belief" variable significant. Take care of their own health is one of the 5 issues that all religions support.²⁵ Also, the wastage that effects social life with social and economical perspective is prohibited in all religions.²⁶

The smoking probability of people who are not believe that smoking causes cancer is about 7 fold higher than people who believe that smoking causes cancer. Despite this clear difference, the reason for the people continue to smoke is that its effects can't be seen early. Because when people realize the adverse effects of smoking, the possibility of smoking decreases. The half of the smoking patients who were experienced pulmonary nodule gave up smoking when they learned malignite risk. 92% of them gave up smoking in a year.²⁷

Although manager and upper status, civil servant and company workers are included in the survey, employment is not included to model. Therefore we can say that there is no significant relationship between smoking and workplace. This is consistent with the fact that smoking does not have a biologically stress-reducing effect, therewithal it is also compatible with the human emotional aspect. Smoking in both happy and sad moments shows contrast in base.²⁸ It is also a contrast example that while people suffering from economical crisis, they also continue to smoke.

Also, peoples' income which is included in the survey is really different. Income rate is not found significant. Namely, income is not important for smoking. From this perspective, people think that smoking is a necessity for them and they find cigarettes with reasonable prices.

In this study, age variable is not found significant. But the age variable is not the starting age of smoking. In this study, a significant age group in which smoking was intensified in an average adult population could not be determined. Age variable may be significant in researches that is related to the starting age of smoking. In the researches, it is found that the age at which people begin to smoke is really low. The rate of smoking of the individuals who did not smoke during their childhood or youth decreases and it is pointed out that elder smokers' children start to smoke before 18 years of age.²⁴ So, it is important to ensure elders quit smoking to prevent young people.

In this study, no significant relationship is found between living in urban and rural place.

Marital status also is not found significant. The habit that occurred in childhood makes person addicted in time.²⁴ The reasons of hardship in quitting smoking is its addictive characteristic. Marriage may not cause quitting. The increase in womens' smoking may be based on from couples both smoking.⁴ This hinders quitting smoking with the help of partners' warnings. Quitting smoking due to children may be developed. This matter is a different study area.

CONCLUSION

It is challenging to see that smoking rate is high and it is inceasing in years. Then, we can think that negative news about smoking is not effective. Legal regulations are not applied regularly and poeple don't have adequate conscious to quit.¹

In this study, the most effective variable is whether smoking causes cancer or not. It may be really important to make people believe that smoking causes cancer. Public service ads are really beneficial to create awareness. However, there are also findings that indicate that public service ads don't help much.²⁹ By analyzing new findings and researches about the topic, related institutions may prepare more influential presentantions.

Other Ministiries' text messages such as the one that warn people about confidence game may be also beneficial for Ministry of Health as well.

The Ministry of Family, Work, Social Services may exclude illnesses that are caused from smoking from public insurance may be another effective way.

According to the results of this study, the thought that smoking is not proper among others who are non smokers can be studied by emphasizing passive inhalers. The importance of this topic can be highlighted by Ministry of Education in the curriculum.

New regulations can be done to prevent purchasing cheap cigarettes. Although the government can't shut down those places, Ministry of Finance may prepare some regulations to get higher taxes from those places.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

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