Smoking habit of children and adolescents: an overview

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Abstract: Smoking represents one of the largest public health problems due to its detrimental effects on multiple organs of the human body and its association with a variety of chronic and/or lethal diseases. Most smokers start smoking in their youth when growth has not been yet completed and they are more susceptible to the harmful components of tobacco. Purpose of this review was to present current data about the extent of tobacco use in childhood and adolescence, the situations facilitating smoking initiation at an early age and the available policies aiming to prevent early age smoking and to promote smoking cessation in non-adult individuals. Data were collected from the international PubMed database and through research in Google Scholar. Smoking rates among children and adolescents are alarming. Health care specialists should be aware of the real reasons leading to early age smoking, which are mainly the influence of family and its economic status, social life and internet. However, psychological reasons contribute also to early smoking initiation. Interventions in these fields should be achieved in order to prevent children and adolescents from smoking. For those who unfortunately smoke many smoking cessation programs exist worldwide and can help young people to quit smoking. However their results are often controversial. The significant increase of smoking among children and adolescents should be dealt with well-designed national smoking prevention and cessation programs after analyzing thoroughly the causes of young people smoking initiation. Both of these programs, but mainly the one aiming to the prevention part, should be practiced with the cooperation of all social parts, while school should have a central role.

Keywords: Smoking; children; adolescents; therapy

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Introduction

Smoking is one of the largest public health problems since it is responsible for six million deaths annually worldwide (1). The leading causes of death are cancer (lung cancer being the most common), ischemic heart disease, chronic obstructive pulmonary disease (COPD) and stroke (2).

The majority of smokers start smoking at an early age. In the US 83% of smokers begin smoking before the age of 18 (3). Cigarette smoking in childhood and adolescence leads to short and long-term health problems. First of all, lungs are impaired and respiratory symptoms occur. Lung function and lung growth are reduced. Young people who smoke experience shortness of breath, lower physical endurance and sometimes wheezing. These patients are often mistreated for asthma. Moreover, smoking at a young age increases the risk for lung cancer and other smokingrelated cancers such as oropharyngeal, esophageal and bladder's. Smoking in adulthood is a known risk for heart disease and stroke. Early indications of these diseases, such as arteries' atherosclerosis, have been detected at young smokers. Lastly, smoking among young has been shown to increase the risk for marijuana use or other drugs as well as the risk to be engaged in fighting and other risky behaviors (4).

Many children and adolescents initiate smoking annually making the existing smoking epidemic worse. Starting smoking at a young age bears great danger. Young people are more susceptible to risks associated with smoking. Growth has not been completed and the harmful components of tobacco impair the organs of the young. It has been indicated that the younger the age the stronger the addiction. Moreover, the longer the organs are been exposed to smoke the greater the danger for the appearance of smoking related diseases such as COPD or lung cancer (4). Purpose of this study was to present current data about the extent of tobacco use by children and adolescents, the situations facilitating the initiation of smoking at an early age and the available policies aiming to prevent early age smoking and to promote smoking cessation in nonadult individuals.

Methods

Data were collected from the international PubMed database as well as Google Scholar. PubMed and Google Scholar were searched for articles referred to smoking in childhood and adolescence and its effects, for causes of initiation and for interventions/programs that aim to prevention or cessation of smoking in young.

Results

Extent of tobacco use in childhood and adolescence

Smoking among children and adolescents constitutes an international concern because of the harmful consequences and the addiction that smoking causes (5). The majority of smokers start smoking at an early age. In the US 83% of smokers begin smoking before the age of 18. In middle class American families children start smoking at the mean age of 8.5 with a range between 6 and 11 years old (3). In the US, in 2006, 6.8% of students aged 11-14 were smokers (6). In 2011, among 13-15-year-old boys the smoking prevalence was 7-15.9% (2). In 2013, 22.9% of high school students reported the use of one product of smoke, while 12.6% reported the use of two or more products of smoke (7). In Canada during 2004-2005, 1.7% of students aged 10-15 were smokers, while in 2011, smokers constituted 7-15% at ages 13 to 15 (3,6). At the same year [2011] similar proportion of boys (7-15.9%) at the age of 13-15 were smokers in the US, Germany, Turkey, Greece and Serbia. However, in the UK in the last two decades a decline in the smoking rate was observed. In 2011 the smoking prevalence was about 7% for both sexes (2).

Among the countries of the world there are great differences in the smoking prevalence between men and women. Generally more boys start smoking than girls worldwide, although in many west European countries the numbers are about the same for both sexes (2,8). In at least 25 countries the percentage of girls who smoke is higher than that of boys. This may indicate that in the future the number of women that smoke may become even larger (9). On the other hand, the prevalence among girls and boys at the ages of 13–15 does not differ a lot. However, after the age of 18 the smoking prevalence begins to differ (2,10). Such an example is the difference in smoking prevalence among male and female college students; among female college students this smoking prevalence fluctuation is higher (11).

Smoking becomes more systematic as a child grows older. In the US they smoke less frequent at the ages 13-15 (6.8%) than 15-18 (19.8%) (6,12). During their college studies it is possible that college students will become systematic smokers (13,14). In 2000, 45.7% of American

college students aged 18–24 smoked and one third of them reported to be regular smokers (15). During their college studies it is possible that students become dependent from nicotine for the rest of their life (15,16). However, during this time college students will also start their smoking cessation efforts (13). The highest smoking prevalence among college students has been detected in Greece, Italia, Portugal and Spain (11).

Situations facilitating smoking initiation at an early age

The reason why a child or an adolescent begins smoking varies and differs by gender, race and educational level (17). The exact age of beginning smoking also varies and is not the same in all populations (18). The risk of smoking initiation can be higher due to family and social causes in order to participate more easily in social groups; due to boredom or stress during their military service or during their stay in college; also, due to social beliefs that promote smoking (17).

Family and socioeconomic status (SES)

For students whose parents smoke is easier to start smoking (19,20). Until now it was believed that parents could do little to prevent their children from smoking initiation. If an adolescent's parent smokes, the adolescent himself also may become a smoker but also if an adolescent's parent has in the past quit smoking, himself won't start smoking so easily. In the US, adolescents who knew that both their parents would be opposed to smoking would not initiate smoking; also, parents themselves with their acts can prevent their children from initiating smoking (21-23).

A big concern is how the SES can affect children and adolescents in starting smoking. Worldwide the results were controversial. However for a young adolescent "Low parental socioeconomic status" (LSES parental) is considered to be associated with high risk of initiating smoking (24-29). Teenagers that face problems in their social or family life are more likely to initiate smoking. This may be due to personal or psychological characteristics that lead them finally to initiate smoking. In the US from 2005 to 2007 adolescents between 18 and 23 years old had greater risk of initiating smoking. The smoking behaviour of children and adolescents from LSES families was the same in France and Holland (25,27). On the other hand, children and adolescents that came from a higher economical background had more chances to initiate use of drugs or cannabis (30). In addition, the effect that can

have a smoker parent, brother, sister or friend on a child's or an adolescent's smoking initiation is higher in LSES families (26-28).

Substance abuse

Alcohol abuse and drugs have been related with smoking initiation. This relation can be bilateral; thus, a young smoker can easily become a social drinker (17,31,32).

Psychological problems

There is a true connection between anxiety, depression and smoking. Smoking exists in most people suffering from stress, anxiety and depression. People suffering from anxiety and depression have many possibilities of smoking initiation after suffering some stressful events. Moreover, smokers with depression and anxiety can easily become addicted to smoking. Tobacco use may also later lead to stressful actions (33-35).

However, it is a controversial issue whether the early initiation of smoking causes early stress or depression (36). Smoker college students have shown much more depressing symptoms than the non-smokers. Systematic college smokers can also show more frequently depression symptoms than non-smokers or non-systematic college smokers (37). In addition, adolescents who show depression signs and are regular or non-regular smokers have a higher chance of addiction in nicotine (38,39).

Social environment

Acceptance from friends and the other gender plays a significant role in smoking initiation in childhood and adolescence. A parent, brother, close relative or a friend who smoke will affect a child or an adolescent in his smoking initiation (40-42). A parent who smokes may affect his child in his smoking initiation, but in later adolescence he will not. As the young boy grows it will be more affected in initiating smoking by his close friends than his parents' smoking habits. In American colleges both low income students and high income students were affected by their college friends in initiating smoking (43,44).

Army

The newly recruited soldiers are also more vulnerable in smoking initiation (45). Soldiers in active duty and in combat zones will smoke two to three times more and have greater chance to start smoking (45,46). Many newly recruited soldiers start smoking when they start cooperating with their older colleagues. This could be explained by the

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fact that smoke is an old part of the military culture as a measure of pleasure, comfort and as a mean of exchange (47-49). So, smoking may lead a soldier to feel equal with his older colleagues (50). However, in the armies of the UK, France and the US the smoking rate was equal to that of their society (45,51).

Cinema movies

Smoking initiation in children and adolescents is also influenced by the promotion of smoking products in cinema movies. Despite the existence of limitations on smoking products in cinema movies, the placement of smoking products in movies still exists and affects children and adolescents (52-55). Many movie stars smoke in popular movies and the star is often linked with a cigarette brand (56,57). Negative results of smoking are also never shown in the movies and young men see only a positive aspect of smoking. As a result, favourable conditions for smoking initiation are created (54); a young man smoking is presented as more masculine, so young people are intrigued to start smoking.

Internet

An aspect of how the internet can influence young people to initiate smoking has not been studied briefly. In 2001 internet's effect raised smoking initiation about 6.9% and in 2005 that rate doubled. This influence of internet on smoking initiation is mostly seen through internet advertisements, e-mails and special web sites. There, children and adolescents can find cheap markets that sell cigarettes. Because the internet market and its effect on smoking initiation is not so clearly understood more research should be made to this direction (58-61).

Policies aiming to prevent early age smoking and to promote smoking cessation in non-adult individuals

Because of the seriousness of the smoking problem in children and adolescents many prevention and cessation programs have been proposed and implied. These efforts focus on interventions in school or in the community. Public education is also targeted through the mass media. Interventions are also based on restriction of cigarette advertisements, on raising cigarette taxes or even direct restriction of selling tobacco to children and adolescents. Moreover, many smoking cessation programs aim to individualized treatment to the young smoker (13,62,63).

Interventions based on school-education

School is a place where a great number of young smokers exist. For this reason, school is an ideal place where smoking prevention and cessation programs could be practised; children can be informed about the harmful habit of smoking in order to prevent them from initiating and proper smoking cessation protocols could be promoted. In the same direction, teachers could also assist by taking proper training with special programs in order to convince students to abstain from smoking (62-66). However, the success of these anti-smoking programs that are based on schools is questioned (67,68). These school programs in order to be more successful should be combined with anti-smoking initiatives based on the community and the society. The combination of these initiatives may have as a result the cessation of smoking in 35-40% of young people (69,70). Moreover, the prevention and smoking cessation programs can be more effective if they are focused on specific student subgroups; aiming to each gender separately and assessing the educational direction (71). Low educational level is associated with a higher risk of smoking initiation in children and adolescents in the US and in North Europe (27,72-74). Lately the same risk exists also in South Europe (74). In Germany and in India, students with low educational level are at risk of becoming systematic smokers and of quitting smoking with great difficulty (75). For this reason, health care specialists who are dealing with anti-smoking programs should give greater concern to this population group (74-76).

Interventions based on society

Many social antismoking efforts have been developed the last thirty years that aim to children and adolescents. These efforts have been made from the family, the community and the mass media. The support of each community to these programs is clearly understandable that is essential (62,64,69,77). However, the results have been controversial. It seems that in order to be effective these programs should be combined with school anti-smoking programs or at least to be based at the same time on school (77).

Interventions targeted on each person

The design of the smoking cessation efforts should also be based on the smoker himself, which is often forgotten by the antismoking policy designers. In this way, the treatment of each child or adolescent should be based on individualized social standards and needs as well as on the

difficulties that he/she faces. In this procedure psychological support or pharmaceutical therapy from specialists should also be considered when it is needed. In all circumstances young smoker should be given all the attention needed by a specialist (64,78,79).

Interventions based on the mass media or the public education

Worldwide, the mass media have been used intensively for the public briefing about the dangers of smoking, because a great proportion of children and adolescents make an intense use of them. Despite the importance of the information these means of intervention provide, the results that they have had are not so enthusiastic (62,77). In the US, for example, the radio and the television have been used for the information of the children and adolescents, but their results did not satisfy the scientific community. It has been observed that these informative programs if they are not combined with anti-smoking programs in the school environment are not so effective (62,77,80). In addition, the effectiveness of the information campaigns that are associated with the traditional mass media has to be reconsidered. Many adolescents do not use any more television for their information and many also avoid commercial and informative messages when they do watch. For this reason, the designers of the anti-smoking programs should consider these aspects when they design these programs (80).

Interventions that restrict the access of young men to tobacco products

The promotion of cigarettes through advertisement and free disposal from smoking companies and generally the accessibility of cigarettes and smoking products by young men and children have been targeted from the anti-smoking programs because they can easily influence young people to initiate smoking (62,81-84). Harmfulness of smoking should always be reminded in every smoking commercial (84). However, the occasional young smokers usually become systematic smokers when they have access in buying cigarettes (85). For this reason, many anti-smoking programs have as a target to restrict access of children and adolescents to cigarettes and tobacco products. In addition, the controls in smoking selling places should be more strict and frequent. This may lead to further restriction on young people buying cigarettes and smoking products (62). The State of Massachusetts has taken additional measures for smoking products' disposal in places where they are sold. As a result, control was also primed by the central government and became more intense and effective (85,86).

Increase cigarette taxes

The general view that exists in many states of the world is that the increase of taxes in cigarettes can decrease the rate of smoking at children and adolescents or the rate of their smoking initiation. The increase of cigarette taxes can also lead many smokers to reduce their smoking frequency. Many modern states have been undertaking these measures, having often some success. However, the effect of these measures can be controversial (62,87,88). In New Zealand, these measures had a positive effect on decreasing the smoking rate at young people (89). Positive were also the results in the US, where relatively to race the biggest decrease was observed at black smokers (88). However the increase of cigarette prices is usually small, about one dollar/euro rise, and its effectiveness is often questioned (62); regarding mainly the long-term smokers (90).

Conclusions

In summary, tobacco use by children and adolescents is a significant global health problem. The differences of smoking habit among children and adolescents can be based on the geographical, national, financial and social differences of each state; also on the family, school and state's policy against smoking; as well as on the gender and the exact age (91-96). Since tobacco related diseases have a high health cost, antismoking cessation policies should be a priority in the health agenda. The constant briefing of young people about smoking's harmful consequences in order to prevent them from starting as well as about the cessation programs is necessary. Many young people are not even aware of the existence of such programs while it has been observed that high school students show no interest in participating in them. Health professionals should act by informing thoroughly young students, parents and teachers in order to prevent smoking or help young people cease this harmful addiction (62).

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Footnote

Conflicts of Interest: The authors have no conflicts of interest

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to declare.

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