

# Investigation of aggravating psychosocial factors on health and predictability of smoking and alcohol use in post adolescent students

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## Abstract

Purpose of this study is to explore those factors which affect the health of students in postadolescent age, focusing on smoking and alcohol use, especially in regard to ways of predicting adoption of this behavior and its frequency to detect future users of tobacco and alcohol use but also high-risk groups, *i.e.* those people who are led to abuses. On the basis of the research part is the Theory of Planned Behaviour, the axes of which are to be investigated. Specifically, the factors evaluated, except for population parameters, behavioral attitudes, *i.e.* attitudes towards the behavior of tobacco use and alcohol regulations subjective perceptions and perceptions of control, perceived behavioral control and self-efficacy. Intention is explored to continue or start using tobacco and alcohol in the future and evaluate the behavior. The sample consisted of 138 students of postadolescent age, 18-25 years of both sexes, all of the University of Peloponnese and the Technological Educational Institute of Kalamata, Department of Sparta, Greece. The results of a series of statistical analysis, via SPSS 21.0 statistical program revealed the predictive power of perceived behavioral control and subjective norms to the intention of interpreting 64% of the variance of the latter, of the attitudes toward alcohol in relation to intention that interpret 69% of the variance, of the normative beliefs toward smoking with 69% range of interpretation to the dependent variable, of the perceived behavioral control of smoking with 72% and of the attitudes toward smoking with 77% of interpretation. The results demonstrate the significance and application in universities and technological

educational institutes appropriate primary preventive interventions for students nonusers of tobacco and alcohol and appropriate programs of secondary and tertiary prevention in heavy users of tobacco and alcohol use and high-risk individual.

## Introduction

As mentioned by Triantafyllidou and Tsumakas review (2006),<sup>1</sup> in Greece, alcohol use and abuse by adolescents is an important problem, mainly in suburban and rural areas. In risk factors for starting drinking alcohol family, relations with peers, risky behaviors, genetic reasons and advertisements are included. Moreover, adolescents drink because of their attitudes that drinking is pleasant and makes them forget their problems. As far as alcohol use in adolescence concerns, research efforts have been directed toward the testing of models that hypothesize effects involving causal paths that connect risk and protective factors to alcohol use,<sup>2</sup> but also efforts to modifying adolescents' health behaviors and risky habits.<sup>3</sup> In the same way, research efforts to validation of susceptibility of which adolescents initiate to smoke,<sup>4</sup> such as experimentation, related beliefs and social norms,<sup>5</sup> depression and aggression as causal related factors in the purpose of prediction, prevention and cessation.<sup>6-8</sup>

The negative consequences of tobacco smoking are well documented and widely accepted.<sup>9</sup> Although alcohol can be beneficial to psychological health when used in small quantities, the quantity required to help prevent heart disease appears to be higher and the use of large quantities of alcohol causes cirrhosis of the liver.

But adolescents who use alcohol and tobacco get to youth. Is adulthood legalizes smoking and alcohol use and the risky factors disappear because of the age? Are there longitudinal studies concerning the heavy drinkers and smokers in adolescence and then the same in their adulthood or the interest stops in the end of adolescence? It is true that fewer research studies have taken place comparing alcohol and tobacco use in adolescence than in postadolescence.

The role of antismoking advertisements for youths has been examined.<sup>10</sup> In this way, the purpose is the research of advertisements methods that best influence youth for tobacco use prevention. Furthermore, cognitive factors such as attitudes, norms and self-efficacy about smoking among students have a main role in research practice,<sup>11-14</sup> so as for alcohol.<sup>15,16</sup> In the same way, *social smoking*, a pattern of smoking behavior related with social influence has been investigated.<sup>17</sup> Thereafter,

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intervention-prevention programs have been evaluated for their existence and effectiveness.<sup>18</sup> This is one of the main purposes of this study: to investigate research tools for alcohol and tobacco use in early adulthood and propose evaluated programs for intervention and prevention.

## Theory of planned behavior

The Theory of Planned Behavior of Ajzen (1991, 1988, 1980) argues that behavior can be predicted by the intention of the people for adoption of that.<sup>19-21</sup> Furthermore, to the formation of intention contribute three fundamental dimensions: attitudes toward the specific behavior, subjective rules of the environment and the perceived behavioral control of the person to carry out the behavior. Attitudes are the evaluations of the individual toward a behavior, subjective norms, embodying the dimensions of normative beliefs on the beliefs of significant others for such behavior, while perceived behavioral control includes the dimensions of perceived controllability and ease adopting an attitude and self-efficacy is associated with a person's beliefs about the extent of the capabilities to express this behavior. A series of studies have taken place on the base of this model in risky health behaviors and substance use of young adults.<sup>22-26</sup> In Greek literature there is a lack of researches according to alcohol and tobacco use in students using the Theory of Planned Behavior.

## Materials and Methods

For the purposes of the research process two questionnaires were constructed, one for alco-

hol use and one for smoking, conducted in Greek student population aged 18-25, according to the Theory of Planned Behavior (Figure 1) and study of international literature.<sup>9,23-29</sup> Research tools-questionnaires taken into consideration, after permission, for the construction of ours were that of Cooke, Sniehotta & Schuz,<sup>24</sup> Jamison & Myers,<sup>26</sup> McMillan & Conner,<sup>9</sup> Norman, Bennetti & Lewis.<sup>26</sup> Firstly, two pilot studies took places as follows: the first included five students of various departments, who have raised issues about tobacco and alcohol use that recorded. Then we constructed the questions, according to the first pilot study and the guide of constructing a tool based on the Theory and Behavior and the study of other investigations.<sup>30</sup> Followed by a second pilot study involving twenty students from different departments of the University of Peloponnese and The Technological Educational Institute of Kalamata, where two questionnaires were included. All the comments and questions of the participants were recorded and a first statistical analysis of data and corrections took place. The research tool is presented in Appendix.

Thereafter, a third pilot study followed evaluating the research tool as follows: The survey involved 138 people, of 18-25 years old, the period between June and September 2012 from various faculties of the University of Peloponnese and of The Technological Educational Institute of Kalamata (Table 1). The 72.6% were women and 27.4% men: 17.9% of the sample in the first year, 19.6% in the second year, 23.2% in the third year and the remaining 39.3% in the fourth or higher year. The 81.5% are students of the University of Peloponnese, while 18.5% studying at TEI of Kalamata.

alcoholic beverages, to an extent they can not keep their balance by walking, can not speak well, vomit or could not remember what had happened, the following were found: The 75.8% of students has drunk so much up to 5 times throughout his life. The 94.6% had drunk so much as 2 times during the last month. The 88.0% of the students have drunk so much up to 5 times in the last year.

The results on the number of times within the last year (12 last month so far) happened to students some negative events because of alcohol use, show the following: The vast majority of students said that never happened

any of these events. Important of course is the percentage of students (16.2%) due to the alcohol they neglected their studies 1 to 2 times.

It then observed that 81.2% of students in an exit, consume 1 to 3 alcoholic beverages, 13.0% from 4 to 6 drinks, no drink 5.1% and only 0.7% consumed 7 or more alcoholic drinks.

The 89.8% of students said that most or all of their friends drink alcohol. The 90.6% of friends drinking alcohol from 1 to 4 times in a typical week while 97.1% of friends consume from 1 to 6 drinks in a typical exit. The 82.6% of students said that visiting a bar from 1 to 4 times a week. 52.1% spend from 3 to 4 hours at

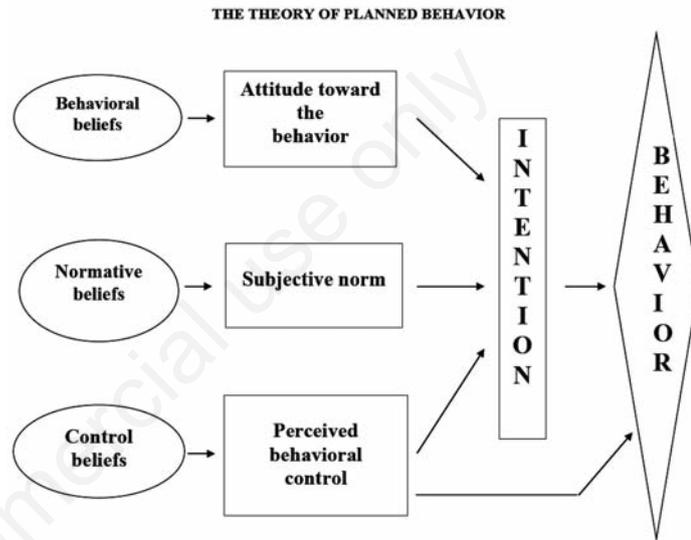


Figure 1. The components of the Theory of Planned Behavior. Purpose of this study is to explore the mentioned components of the Theory of Planned Behavior regarding to the intention of smoking and alcohol use in students.

## Results

The statistic program used was SPSS 21.0. In relation to the last week's behaviour of participants, 91.9% consumed up to 5 times beer. The 96.2% consumed more than 2 times ouzo or raki. The 96.9% consumed more than 2 times a packaged alcoholic beverage. The 97.1% consumed up to 5 times wine. The 95.4% consumed up to 5 times whiskey, vodka, brandy or similar drink. The 98.4% consumed up to 9 times shots. The 96.2% consumed more than 2 times cocktail with alcohol.

The 81.2% of students said that in his family drink from moderate to none. What observed in all cases is that the father consumed greater amounts of alcohol than the mother except packaged alcoholic beverages and cocktails with alcohol. In all cases, students feel that men are allowed to consume more alcohol.

In relation to the number of times drunk

Table 1. Students' data.

|                    | Students                            | Frequency | %    |
|--------------------|-------------------------------------|-----------|------|
| Sex                | Woman                               | 85        | 72.6 |
|                    | Man                                 | 32        | 27.4 |
| Year of study      | First                               | 20        | 17.9 |
|                    | Second                              | 22        | 19.6 |
|                    | Third                               | 26        | 23.2 |
|                    | Fourth or higher                    | 44        | 39.3 |
| University         | Of Peloponnese                      | 97        | 81.5 |
|                    | TEI of Kalamata                     | 22        | 18.5 |
| Personal statement | Without relationship                | 63        | 46.0 |
|                    | In brief relationship               | 24        | 17.5 |
|                    | In longterm relationship            | 44        | 32.1 |
|                    | Married                             | 2         | 1.5  |
|                    | Divorced                            | 4         | 2.9  |
| Born in Greece     | No                                  | 11        | 8.0  |
|                    | Yes                                 | 127       | 92.0 |
| State of residence | Accommodation with parents          | 61        | 44.5 |
|                    | I live alone                        | 60        | 43.8 |
|                    | I live with my husband/wife/partner | 6         | 4.4  |
|                    | I rent house with roommate          | 10        | 7.3  |

a bar with friends, 22.2% spend more than 5 hours, 21.4% spend 1 to 2 hours while the remaining 4.3% spend less than an hour.

Only 2 students (1.4%) said they do not drink alcohol. Of the students who drink alcohol, 4.4% always drink alone, the 41.5% drink with a friend, the 72.6% drink with 2 or 3 friends, 61.5% drink with a group of four or more friends and drink at 26.7% home with the family.

In relation to the degree of agreement between students and some proposals concerning alcohol consumption the records are as follows: 52.2% of students agree more or less completely that his/her friends would have endorsed the drink. The 18.4% are neutral. The 57.8% agree to some of his friends that absolutely would expect to drink when they go out.

In relation to the family, however, 56.3% disagree a little bit to absolutely that his/her family would approve drinking. Few students are split on whether the family would expect to drink when they go out.

The scales related to self-efficacy beliefs and control showed: The 94.8% of students agree a little bit to strongly that if they drink alcohol is mostly under control. Nonetheless, 58.2% agree completely that is easy to drink more than usual when drinking with friends, although a number of students (56.7%) disagree more or less entirely to have control over the amount of drinking when drinking with friends. The 76.5% disagree more to absolutely that would be drinking the same number of drinks as his/her friends in an outlet, if they would believe that is what they should be doing. The 79.4% disagree enough to completely that usually tries to drink the same number of drinks that his/her friends drink. The 76.3% disagree a little bit to completely that his friends would encourage him/her to drink the same number of drinks in an exit as they drink.

The 83.7% disagree a little bit to completely that sometimes feel pressured to drink when going out with friends.

Related to self-efficacy, the 68.9% disagree a little bit to completely that when he/she confronts a problem drinking will make him/her to forget. The 16.3% are neutral. In contrast with the records of the previous paragraph, the 53.75% agree a little bit to completely that when he/she is bought a drink, it is hard to say no. The 59.8% disagree a little bit to absolutely that the shop serves non-adulterated drinks makes him/her drinking more. The 59.1% agree a little bit to completely that during celebrations they usually drink more; 11.8% are neutral. The 64.7% disagree a little bit to absolutely that the size of the group can affect the amount of drinking.

In relation to the socio-economic circumstances and self-efficacy, 84.5% disagree a lit-

tle bit to absolutely that at this time the crisis makes him/her drinking more than usual. The 85.8% disagree more to absolutely that the fear of unemployment makes him/her drinking or drinking more than usual.

By studying the intention in relation to social influence, students are split on whether they intend to drink alcohol in the next week, if a friend requests, 53% disagree a little bit to absolutely that intend to drink alcohol when his/her friends drink alcohol.

On a scale of attitudes towards alcohol consumption, 75.0% of students are either neutral or agreed that drinking is enjoyable. The 81.5% of students are either neutral or agreed that drinking is enjoyable. The 89.7% are either neutral or disagree that alcohol consumption is safe. The 91.7% are either neutral or disagree that alcohol is favorable. The 86.8% are either neutral or disagree that alcohol is good. The 92.0% are either neutral or disagree that alcohol is beneficial. The 81.4% disagree that alcohol is valuable. The 75.7% are either neutral or agrees that drinking alcohol is relaxing.

Overall, only 3 students (2.2%) said they do not drink alcohol. 39.3% of those who drink combining drink with food, with snacks 47.4%, 74.1% with the music, 34.3% with smoking.

As regards to smoking behavior, Table 2 shows the following: the 65.9% of students said that they smoke. Of the students who do not smoke, the 69.2% did not smoke before. The 34.8% smokes in average 11 to 20 cigarettes a day, 30.4% smokes 6 to 10 cigarettes, 28.3% smokes 1 to 5 cigarettes while the remaining 6.5% smokes more than 21 cigarettes a day. During the past month, 36.2% of students smoked on average 11 to 20 cigarettes, 29.8% smoked 1 to 5 cigarettes, 23.4% smoked 6 to 10 cigarettes, while the remaining 10.6% smoked more than 21 cigarettes. The average number of cigarettes they intend to smoke in the next month is 257.80 ( $\pm 279.17$ ) cigarettes.

The 29.8% of students started smoking out of curiosity. 10.6% started smoking because

their friends smoked, 17.0% because they thought it would be loosen, 48.9% for no apparent reason and 12.8% for another reason.

The 8.0% of students said that no member of his family smokes. The 50.0% said that the mother smokes while 77.5% said that the father smokes. The 35.0% said that his/her siblings smoke. The average number of siblings who smoke has been found equal to 1.19 ( $\pm 0.45$ ).

The 54.0% of students said that most of their friends smoke.

Further, in relation to normative beliefs, 58.8% of students disagree enough to completely that his best friend believes that it is negative in smoke. The 91.1% disagree enough to completely that his/her father believes it is not negative in smoke. The 88.8% disagree enough to completely that his/her mother believes that it is negative to smoke. The 80.0% disagree a little bit to completely that his/her partner believes that it is negative in smoke. The 60.9% disagree a little bit to absolutely that people who smoke believe that it is negative to smoke. 87.2% disagree a little bit to absolutely that his/her siblings think it is negative to smoke. The 62.7% disagree a little bit to absolutely that people around him/her indoors (e.g. cafes, bars) believe that it is bad to smoke.

What concerns the intention of the students, 75.8% of the students who do not smoke said there was no possibility to smoke in the future. 19.8% said that they might smoke in the future while 4.4% said they'd smoked in the future. Of those who said they would or might smoke to smoke in the future, a percentage of 9.1% will do it because their friends smoke, a rate of 27.3% believing that they will loose a percentage of 45.5% for no apparent reason and a percentage of 22.7% for another reason.

The 41.4% agree a little bit to completely that the cost of cigarettes/tobacco permits to buy them. Students are divided as to whether they smoke more than usual when they have

**Table 2. Smoking habits of students.**

| Question  | Answer | Frequency               | %    |
|---|--------|-------------------------|------|
| Do you smoke?   | No     | 91                      | 65.9 |
|   | Yes    | 47                      | 34.1 |
| If you do not currently smoke, never smoked in the past?                    | No     | 63                      | 69.2 |
|   | Yes    | 28                      | 30.8 |
| On average, about how many cigarettes do you smoke a day?                   | 1-5    | 13                      | 28.3 |
|   | 6-10   | 14                      | 30.4 |
|   | 11-20  | 16                      | 34.8 |
|   | +21    | 3                       | 6.5  |
| How many cigarettes did you smoke on average per day during the past month? | 1-5    | 14                      | 29.8 |
|   | 6-10   | 11                      | 23.4 |
|   | 11-20  | 17                      | 36.2 |
|   | +21    | 5                       | 10.6 |
| How many cigarettes do you intend to smoke next month?                      |        | 257.80 ( $\pm 279.17$ ) | -    |

much work to do. The 57.9% agree totally that more or smoke more than usual when they are in a bad mood. The 46.4% disagree quite a bit to that when it's in a good mood smoke more than usual. Important is the rate of around 17.1% agreeing while. The 82.9% agree a little bit to completely that just to go out makes him/her smoking more than usual. The 80.5% agree a little bit to completely that just to have anxiety makes him/her smoking more than usual.

The 87.5% agree a little bit to absolutely that when he/she drinks his/her coffee smokes more than usual. The 90.2% agree a little bit to absolutely that he/she smokes when he drinks alcohol more than usual. The 56.1% agree a little bit to absolutely that if he/she quits smoking you will eat more. Important is the 26.8% who disagrees quite up perfectly. The 75.0% agree a little bit to absolutely that they are going to smoke after eating. The 63.4% agree a little bit to completely that just to feel lonely makes him/her smoking more than usual. The 56.2% disagree a little bit to absolutely that to stop eating a cigarette while 24.4% agreed more to absolutely. The 53.7% agree a little bit to absolutely that just listening to the music that he/she likes, makes him/her smoking more than usual. The 75.0% agree a little bit to absolutely that during stressful periods such as examination periods, makes him/her smoking more than usual. The 65.0% agree enough to completely that if there was a heartbreak in his/her life would make him/her to smoke more than usual. The 46.3% disagree enough to completely that the fear of unemployment would make him/her starting smoking or smoking more than he/she used while a percentage of 34.2% agrees a little bit to enough. The 61.0% disagree a little bit to absolutely that economic crisis made him/her to start smoking or smoke more than usual. The 22.0% is neutral.

In relation to the view of students and those who already smoke may smoke in the future about their attitudes to smoke for the next month, we observe: The 42.5% of students consider that it would be little to absolutely pleasant, 20.0 % being neutral and approximately 20.0% felt that it would be a little embarrassing. Few students are split on whether it is fun. The 84.6% felt that it was safe while 12.8% are neutral. The 78.9% felt that it would be beneficial while 18.4% are neutral. The 86.8% felt that it was good while 10.5% are neutral. The 69.2% felt that it would be relaxing while 17.9% are neutral.

## Discussion and Conclusions

The reliability of the scales of the questionnaires used by a reliability coefficient of

Cronbach and factor analysis (factor analysis), as listed in Tables 3 and 4.

The reliability coefficient for the scale to the degree of agreement between students and some proposals concerning alcohol consumption (Table 3) is 0.895. This means that the items of the scale have high internal consistency as to what count. *I.e.* the items of the scale are highly correlated elements as a group.

The audit of the Bartlett sphericity have a proof that the variables are correlated with each other ( $X^2=1212.577$ ,  $P<0.001$ ) while the modulus of the Kaiser-Meyer-Olkin equals 0.835, which is considered high. These two elements suggest that our data is properly analyzed with multivariate technique of factor analysis.

Factor analysis resulted in a statistically significant 5 factors explain 64.0% of the original variance.

The reliability coefficient for the scale on the characterization of drinking alcohol equals Cronbach  $a=0.834$ . This means that the data in the original scale have good internal consistency as to what count. *I.e.* the items of the scale are highly correlated elements as a group.

The audit of the Bartlett sphericity have a proof that the variables are correlated with each other ( $x^2=517.372$ ,  $P<0.001$ ) while the modulus of the Kaiser-Meyer-Olkin equals 0.783, which is considered high. These two elements suggest that our data is properly analyzed with multivariate technique of factor analysis.

Factor analysis resulted in two statistically significant factors that explain 69.0% of the original variance.

The reliability coefficient for the scale on whether other people believe that it is negative in smoking students equals Cronbach  $a=0.813$ . This means that the data in the original scale has high internal consistency as to what count. *I.e.* the items of the scale are highly correlated elements as a group.

The audit of the Bartlett sphericity have a proof that the variables are correlated with each other ( $x^2=447.293$ ,  $P<0.001$ ) while the modulus of the Kaiser-Meyer-Olkin equals 0.777, which is considered high. These two elements suggest that our data is properly analyzed with multivariate technique of factor analysis.

Factor analysis resulted in 3 statistically significant factors that explain 69.0% of the original variation .

The reliability coefficient for the scale to the way in which students work on smoking equals Cronbach  $a=0.850$ . This means that the data in the original scale has high internal consistency. The audit of the Bartlett sphericity have a proof that the variables are correlated with each other ( $x^2=379.017$ ,  $P<0.001$ ) while the modulus of the Kaiser-Meyer-Olkin equals 0.510, which is considered moderate. These two elements suggest that our data is properly analyzed with multivariate technique of factor analysis.

Factor analysis resulted in a statistically significant 6 factors explain 72.0% of the original variance.

The reliability coefficient for the scale on the view of students who already smoke to smoke and those who may in the future about what was to smoke next month equals Cronbach  $a=0.785$ . This means that the data in the original scale has high internal consistency.

**Table 3. The values of Cronbach alpha.**

| Scales  | Cronbach $a$ |
|---|--------------|
| 1. Perceived behavioral control and normative beliefs for alcohol consumption | $a=0.895$    |
| 2. Scale of attitudes toward alcohol consumption                              | $a=0.834$    |
| 3. Normative beliefs toward smoking   | $a=0.813$    |
| 4. Perceived behavioral control of smoking                                    | $a=0.850$    |
| 5. Scale of attitudes toward smoking  | $a=0.785$    |

**Table 4. Reliability of questionnaire**

| Scales  | Number of factors (variability) |
|---|---------------------------------|
| 1. Perceived behavioral control and normative beliefs for alcohol consumption | 5 (64.0%)                       |
| 2. Scale of attitudes toward alcohol consumption                              | 2 (69.0%)                       |
| 3. Normative beliefs toward smoking   | 3 (69.0%)                       |
| 4. Perceived behavioral control of smoking                                    | 6 (72.0%)                       |
| 5. Scale of attitudes toward smoking  | 2 (77.0%)                       |

cy as to what count. *I.e.* the items of the scale are highly correlated elements as a group.

The audit of the Bartlett sphericity have a proof that the variables are correlated with each other ( $\chi^2=161.974$ ,  $P<0.001$ ) while the modulus of the Kaiser-Meyer-Olkin equals 0.709, which is considered high. These two elements suggest that our data is properly analyzed with multivariate technique of factor analysis.

Factor analysis resulted in two statistically significant factors that explain 77.0% of the original variance.

The values of Cronbach a reliability coefficient of central scales for the two questionnaires are listed in Table 3, while values of analysis and scales of variability explained by these listed in Table 4.

### Factor analysis

The results demonstrate the significance and application in universities and technological educational institutes appropriate primary preventive interventions for students nonusers of tobacco and alcohol and appropriate programs of secondary and tertiary prevention in heavy users of tobacco and alcohol use and high-risk individual.

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