Original Article

Data concerning the correlation between tobacco, alcohol, Internet and sports results on a group of students from the Faculty of Physical Education and Sport Timisoara

GLIGOR ȘERBAN, PETRACOVSCI SIMONA

Faculty of Physical Education and Sport, West University Timișoara, Romania

Published online: September 21, 2012

(Accepted for publication August 23, 2012)

DOI:10.7752/jpes.2012.03048; <http://dx.doi.org/10.7752/jpes.2012.03048>

Abstract: The purpose of this paper is to emphasize the incidence of tobacco, alcohol and problematic use of Internet addictions among 1st and 3rd year students from the Faculty of Physical Education and Sport Timisoara, as well as the study of the correlations between these addictions and the results to certain courses taken by them (athletism, gymnastics and handball). The quota consisted of 61 students: 37 (60.66%) from 1st year and 24 (39.34%) from 3rd year, with an average age $\pm$ standard deviation of 21.11 ± 2.23 years (the age limits ranging between 19 and 33 years). The results indicate the fact that out of the three courses that were analyzed the best marks were obtained at handball (from 3rd year with an average of 7.95 ± 1.51), followed by those in gymnastics (7.78 ± 1.37) and track and field (6.51 ± 1.60) from 1st year. As far as the Internet addiction is concerned, the students represent a risk group. The incidence of tobacco addictions was 21.31% and 31.15% respectively, the majority of the students being males, while the alcohol addiction was 8.20% (the majority of the students being also the males). As a conclusion, the tobacco, alcohol and Internet use addiction degree was lower for the students taking part in our study case, probably due to the benefic effect on addiction occurrence of regularly practicing physical exercise.

Key words: addiction, students, sport, Internet, tobacco, alcohol.

Introduction

Addiction is defined as a behavioural process that produces pleasure or relief of an internal discomfort and is characterized by repeated failure in behavioural control, with continuity despite major negative consequences. (Goodman A., 1990, Rendi M. et al 2007). Addiction entails 6 criteria: salience, tolerance, mood change, withdrawal symptoms, personal conflict and relapse. (Brown RIF, 1993, Rendi M., et al, 2007) The term addiction also implies addiction, defined as a pathological state in which the organism is incapable to function from a psychic point of view without the consumption of the particular substance (Vanescon, 2005). The World Health Organization (WHO) defines addiction as being “a psychological and sometimes physical state, which is the result of interaction between a living organism and a substance characterized by behavioural or other responses pertaining to compulsive action to consume the product at regularly or periodically in order to benefit from psychological effects, and sometimes lack avoid discomfort (withdrawal). Tolerance may or may not present ". Tolerance implies the use of progressively larger doses of substances to achieve the desired effect. This is even faster and is even higher, as it is administered in higher doses at smaller.

The term alcoholism differs from occasional alcohol use and designates somatic alterations due to repeated and quasi-compulsive intoxication with ethanol made in a complex psychological and social situation. The notion of dependency for this addiction is based on clinical observation carried out in the case of abstinence from alcohol, which causes a syndrome characterized by physical and psychological state of illness called "withdrawal state" (Ades et al., 1996). The diagnostic criteria for alcoholism include compulsive use, outside self-control and with negative health consequences. In the case of alcohol addiction, the most affected organ is the brain, with the occurrence of depression, severe motor non coordination, dysphoria, coma, etc.. Other adverse effects include liver disease, arrhythmias, hypertension, cancer, neurological problems etc. (Goodman and Gilman, 2001)

Alcohol abuse is linked to negative social and economic situations, including domestic violence and car accidents. There is a strong correlation between alcohol and tobacco abuse, the persons who abuse of one of these substances being more likely to abuse the second substance as well. (Anthony JC, Echeagaray-Wager F., 2000)

Another frequent encountered addiction is that to tobacco. Tobacco addiction has severe effects on the body, the

most commonly affected systems being the cardiovascular system and respiratory systems. In the case of tobacco addiction on the one hand there is a stimulation of brain reward center, by increasing the concentration of dopamine in the nucleus accumbus, on the other hand the feeling of euphoria due to endorphin release (Goodman and Gilman, 2001).

The pharmacological action of nicotine is complex and includes both excitatory and inhibitory effects on many systems of the body (Goodman and Gilman, 2001). Nicotine is a potent vasoconstrictor that contributes to the occurrence of hypertension and strokes for smokers. Another component of the cigarette smoke, carbon monoxide, increases the blood level of LDL cholesterol, thereby participating in the formation of the atherom plaques and heart attack. Psychologically speaking nicotine is one of the most addictive substances, which means that quitting smoking syndrome has symptoms such as: anxiety, irritability, depression, agitation, and difficulty in concentrating, increased appetite with weight gain, decreased heart rate and urge for tobacco (Goodman and Gilman, 2001).

In addition to alcohol and tobacco addiction, an addiction becoming more widespread is the problem related to the Internet use, due to the fast growing evolution of IT technology and its increasing use at work, at home or at school. Young K.S. describes people that are addicted to the Internet as being those people who spend on average 38 hours / week at the computer with non-educational and non-work reasons, while those without Internet addiction spend an average of 8 hours / week at the PC (Rendi M., Szabo A, Szabo T., 2007). Like any addiction, it shows signs of psychological, sociological, spiritual and biological manifestations. The psychological manifestations of Internet addiction imply tolerance (the need to use the computer for increased periods of time), the occurrence of a psychological distress in the absence of browsing the Internet, compulsive use of it (for online browsing video games, gambling, pornography, chat, etc.). In addition to psychological manifestations, in the case of excessive Internet use, physical signs and symptoms such as headache, migraine, depression, dry eye, feeling of emptiness, irritability, neglect of personal hygiene, etc. may appear. Also, other social problems may appear such as neglecting family and friends, absence of a real social life, problems with school or university activities, which may lead to expulsion. Studies have shown that Internet addiction is accompanied by a number of psychiatric disorders such as mood changes, anxiety, eating and psychotic disorders, substance abuse, impulse control related disorders etc.. (Shapira et al 2000) Research has revealed a number of Internet addiction predictors, including increasing hours of daily use of the Internet, increasing hours of visiting chat room sites, pages with sexual content, blogs, along with male, divorced status, accessing the Internet outside home, etc. (Frangos Christos C., Frangos Constantinos C., Kiohos AP, 2010).

Regular physical activity represents a positive behavior that helps maintain health and prevent disease, also having benefic cognitive and psychological effects (Rende M., Szabo A, Szabo T., 2007). The literature data suggests a positive effect of physical exercise, even if mild, on the symptoms that appear with smoking cessation, on the smoker behavior and the persistent need to smoke cigarettes. (Taylor AH, Ussher MH, et al., 2007) These manifestations decrease rapidly during exercise and maintain such a time between 10 and 50 minutes after the exercises, with 2-3 times increase of time until the next cigarette smoked. However, no differences were found in the outcome when they compared two different intensities of physical exercise. (Taylor et al, 2007)

The students of the Faculty of Physical Education and Sport in Timisoara, as future specialists in physical education and sport performance, have some experience, being elite athletes, practitioners of leisure sports or unsportsmanlike. They, in addition to the performance objectives are role models, being trainers and educators to athletes and students. In sports environment there is consumption of potentially addictive substance (alcohol, tobacco, caffeine, medicine, drugs) with different purposes: to improve sports performance, to diminish the negative effects of socio-sports, for a euphoric purpose and for socializing purposes. It is assumed that practicing sports requires life rules that exclude alcohol and tobacco among athletes, but many studies show that there is a link between alcohol and tobacco among youth and sport (Frintner & Robinson, 1993; Rayney et al, 1996; Werch et al, 2003; Lorente et al, 2004). Some studies show that between engaging in team sports and alcohol consumption is a connection (Grossbard et al, 2009, Mays & Thompson, 2009) and others show that practicing sports during adolescence prevent alcohol and tobacco consumption (Wichstrøm & Wichstrøm, 2009). The relationship between consumption of different potentially addictive toxins and the sports activity of individuals has been studied by several authors. Thus, Peretti-Watel P. et al. studied the relationship between alcohol, tobacco, soft drugs (cannabis) addictions and sports activities of young adults and found an increased prevalence (2-3 times than the rest of young adolescents in the study) of addiction for sports students. They also noted a positive association of consumption of these potentially addictive substances and certain sports, more specifically team sports were associated with alcohol consumption, more and sliding sports with the use of cannabis and alcohol. (Peretti Watel P., et al, 2003)

Similar issues have been highlighted by other authors who have studied the evolution of tobacco, alcohol and cannabis use of adolescents and young Norwegian adults, who practiced various sports (Wichstrom T.,

Wichstrom L., 2009). They emphasized a positive association of alcohol consumption with team sports, but also, endurance sports were associated with less alcohol and tobacco consumption. Also, practicing team and endurance sports have decreased subsequent use of tobacco and cannabis.

Training in physical education and sports requires in addition to theoretical study a sufficient number of practice hours, where without a good physical condition one cannot thoroughly learn the performance elements of the respective sports. Furthermore, the student's lifestyle can affect both physical training and participation in practical work curriculum. But since the age of onset of higher education is 18 years, appropriate age of majority and end of family guardianship, it also entails some excessive behavior.

Therefore, we intend to study how alcohol and tobacco consumption, as well as Internet use influence the results of the practical courses. Spending free time by staying in front of the computer or other "leisure" and fun activities also involve alcohol and tobacco consumption without maintaining a proper rest schedule, which affects the biorhythm, the participation in practical courses and thus their grading.

The purpose of this paper is to emphasize the presence of tobacco, alcohol and problematic use of Internet addictions among 1st and 3rd year students from FPES Timisoara, as well as the study of the correlations between these addictions and the results to certain courses taken by them.

The hypothesis of the paper assumes that physical activity (within an organized framework or not) has a benefic influence on the addictive behaviour to various substances and to the problematic use of Internet. The low addiction rate among students in this particular field causes a minimal influence on their assessment.

Methods and Materials

For this purpose we used a group of 61 students from FPES Timisoara, 37 (60.66%) in the 1st year and 24 (39.34%) in the 3rd year, with an average age $\pm$ standard deviation of 21.11 ± 2.23 years (the age limit ranging between 19 and 33 years).

In what concerns the 1st year students recruited for this study, the majority were male (45.90%), and in what concern the 3rd students, half were female (12 students, 19.67%). Over half of the students in the study group were male (65.57%). The students were evaluated at the following practical courses: athletics and gymnastics (the 1st year of study) and handball (3rd year). The lessons were held during one semester of the university year (outdoor) during 4 hours per week (2 hours per day) in gymnastics and athletics and 2 hours per week in handball. Samples for students' evaluations were the follows: 1500m running (men), 800m running (women), long jumping in athletics, floor exercise in gymnastics and technical trail in handball.

Identifying issues related to the consumption of alcohol, tobacco and problematic Internet use was done based on questionnaires: IAT ("Internet Addiction Test"), AUDIT ("The Alcohol Use Disorders Identification Test"), CAGE (the first letter acronyms keyword - Cut down, annoyed, Guilty, Eye-opener - Early morning drink) and Fagerström.

The IAT questionnaire (Widyanto L., McMurran M., 2004) has 20 items and scores between 20 to 100 points, scores between 40 to 69 indicate common issues related to Internet use, and those between 70 to 100, signify the existence of important issues concerning Internet use. A score of 20-39 indicates a complete control over Internet use.

To highlight the issues related to alcohol two tests were used: CAGE and AUDIT. The AUDIT questionnaire has 10 items, was developed by WHO (Saunders JB, Aasland OG, Babor TF, et al, 1993), has a score between 0 and 4 for the first 8 questions and 0, 2 or 4, for the last 2 questions. A score ≥ 8 (for men) and ≥ 4 (for women) indicates dangerous or hazardous alcohol consumption. Alcohol addiction is indicated by a score ≥ 15 in men and ≥ 13 in women.

The other questionnaire used in the research, CAGE, has 4 items, and is a simple means of screening the signs of alcoholism; each "Yes" answer is considered a point. (Erwing JA, 1994) A total score ≥ 2 is considered clinically significant for alcohol consumption related problems, with a sensitivity of 93% and a specificity of 76%. The probability of alcohol consumption problems increases from 25% (for 1 "Yes" answer), 50% (for 2 "Yes" answers), 75% (for 3 "Yes" answers) and 95% for "Yes" answer to all questions.

To highlight tobacco addiction the Fagerström questionnaire was used; it has 6 items, with a score between 0 and 3 points (Fagerström KO, Schneider NG, 1989). A total score between 0 and 3 (not 0) indicates a minimum addiction, these people not needing our help to stop smoking. A score between 4 to 6 indicates moderate addiction (which requires cognitive-behavioral therapy and even specialist medical care) and a score between 7 to 10 indicates a high addiction to tobacco.

Results

Of the three courses analyzed (handball, gymnastics and athletics), the best marks obtained by the students in case were at handball (3rd year, with an average of 7.95 ± 1.51), followed by those in gymnastics (7.78 ± 1.37) and athletics (6.51 ± 1.60) from the 1st year.

The averages of the scores obtained by the students in case in the four addiction questionnaires are presented in table no. 1.

Table 1 – Averages of the scores obtained by the students in the addiction questionnaires $\pm$ standard deviation

	IAT	CAGE	FAGERSTRÖM	AUDIT
1st Year Students	22.37 ± 13.16	0.27 ± 0.45	3.02 ± 2.95	3.56 ± 3.64
3rd Year Students	22.25 ± 15.34	0.12 ± 0.33	0.62 ± 1.63	2.62 ± 3.01
1st + 3rd Year Students	22.32 ± 13.93	0.21 ± 0.41	2.08 ± 2.77	3.19 ± 3.41

The results obtained after using the Fagerström questionnaire indicates a majority of males with a tobacco addiction (19 students, 31.15%), 9.84% of the students having a minimum addiction, 21.31% a moderate addiction and 9.84% a high addiction. The majority of subjects with addictions had a moderate addiction (21.31%), followed by those with a minimum and high addiction.

Another questionnaire used for the identification of tobacco addiction was the CAGE questionnaire; after using this questionnaire 13 students (21.31%) were identified with an addiction (10 1st years and 3 3rd years), the majority (14.75%) being males.

As far as the problematic use of Internet is concerned, with the help of the IAT questionnaire 10 students (16.39%) were distinguished with a light addiction (frequent problems concerning the use of Internet, the average score being 46.6 ± 4.11), the majority (17.75%) being males.

The use of the AUDIT questionnaire to evaluate the alcohol addiction identified 5 students (8.20%) with an alcohol addiction (4 1st years), all males.

The use of the Pearson correlation coefficient between the marks obtained by the students at athletics, gymnastics and handball and the result of the addiction questionnaires showed the absence of any correlation, with the exception of the correlation between the marks at athletics and the CAGE questionnaire results, that showed a faint positive correlation ($r = 0.3398$). (Table 2)

Table 2 – the correlation between the marks at gymnastics, athletics, handball and the results of the addiction questionnaires

	IAT	CAGE	FAGERSTRÖM	AUDIT
Gymnastics marks	- 0.0612	0.2760	- 0.0053	- 0.3737
Atletism marks	- 0.1352	0.3398*	0.2829	- 0.1601
Handball marks	0.2880	- 0.1590	- 0.2341	- 0.4176

Note: * - faint positive correlation

By comparing with the help of the t Student test the marks obtained by the students at the three courses statistically significant p values were obtained when comparing the mark at athletics with those at gymnastics and handball ($p < 0.01$, $p_1 = 7.3655 \times 10^{-5}$ and $p_2 = 0.000843$).

Also, by comparing the marks obtained at gymnastics with those at handball are statistically insignificant ($p > 0.05$, $p_3 = 0.6512$).

Fig. 1 – The values obtained by the 3rd year kinesiology students on the IAT test

Fig. 2 – The values obtained by the 3rd year kinesiology students on the AUDIT test

Discussions

As far as the Internet addiction is concerned, the students represent a risk group, among the possible motives being the extensive free time periods, easy access to Internet, being away from the parental control, searching for new friendships, problems concerning the accommodation to student life, the attempt to escape the stress caused by the academic activity etc. On the other hand, teenagers and young adults are more likely to use various technological applications in IT. (Frangos CC, Frangos CC, Kiohos AP, 2010)

The data obtained by us regarding the incidence of tobacco, alcohol and problematic use of Internet addiction among students of the Faculty of Physical Education and Sport at the West University Timisoara have been much lower than those in the specialized literature, probably because of the benefic effect of physical exercise on the development of the addiction to such substances. Thus, by using the two tobacco addiction questionnaires (CAGE and Fagerström), we discovered an incidence of tobacco addictions of 21.31% and 31.15% with the majority of students being male.

In comparison, Webb E. and co. (1997) who have studied the consumption of tobacco, alcohol and illicit drugs among students from 10 universities from Great Britain (3699 students) have discovered an incidence of 36-39% for smoking students and of 10-23% for alcohol consumers. A high predisposition of smoking students was also emphasized in a study on students from 4 private universities in Beirut, Lebanon (40%) and Ankara, Turkey (36.7%) (Tamim H., et al., 2003 and Aslan D., et al., 2001). Furthermore, in the last study (in Turkey) a high predisposition of alcohol consumer students was noticed (52.3%).

Our results regarding alcohol addiction (8.20%, mostly male students) were lower than those in the literature.

As far as the addiction to Internet use is concerned, by using the IAT questionnaire we obtained a percentage of 16.39% of the students that had a mild form of addiction to Internet use, the majority being male. In comparison, in study case on 216 Taiwanese college students (132 males, 84 females), 40.28% (87 students, 65 males and 22 females) of the students were Internet addicts, the majority being males. Moreover, a lot of this college students had psychiatric comorbidities like social phobia, ADHD, dysthymic disorder, depressive disorder. (Ko Chih-Hung, et al., 2008) In another study case lead by Frangos Christos C. et al (2010) on 1876 Greek students aged between 18 and 27 years, using the "Young Diagnostic Test for Internet Addiction" (YDTIA), it showed a percentage of 11.6% of the addicted students, and 34.7% of students with problems concerning the use of Internet. Furthermore, it showed a larger proportion of male students addicted to the Internet and who at the same time had lower academic records than the rest of the students in the quota.

Conclusions

In the case of the case study students the tobacco, alcohol and Internet use degree of addiction was lower probably due to the benefic effect on addictions when practicing regular physical exercise. Most addicted students were male and in their first year of study. The highest percentage of addicted students was to tobacco (21.31% on the CAGE questionnaire and 31.15% on the Fagerström questionnaire) followed by those with an Internet use addiction (16.39%) and alcohol addiction (8.2%). No positive correlation between the marks at the three analyzed subjects and the results of the addiction questionnaires was found, with the exception of a weak positive correlation between the marks at athletics and the results of the CAGE questionnaire.

References

- Adès J, Lejoyeux M. (1996)- *Les conduites alcooliques et leur traitement*, Doin Editeurs, Paris
- Anthony, J. C., & Echeagaray-Wagner, F. (2000)- Epidemiologic analysis of alcohol and tobacco use – Patterns of co-occurring consumption and dependence in the United States. *Alcohol Research & Health*, 24, 201-208.
- Aslan D., Özvars SB, Esin C., Akn A. (2006) – *Smoking and alcohol consumption among a group of university students in Ankara: prevalence and determinants*, Erciyes Medical Journal, 28(4): 172-182
- Brown R.I.F. (1993) – *Some contributions of the study of gambling to the study of other addictions*, In W.R. Eadington & J.A. Cornelius (Eds.), *Gambling behavior and problem gambling*. Reno: University of Nevada Press
- Ewing JA (1984) – *Detecting alcoholism: The CAGE questionnaire*, JAMA, 252: 1905-1907
- Fageström K-O, Schneider NG (1989) – *Measuring nicotine addiction: a review of the Fagerström Tolerance Questionnaire*, Journal of Behavioral Medicine, Vol. 12, No. 2, 159-182
- Frangos Christos C, Frangos Constantinos C, Kiohos AP (2010) – *Internet addiction among Greek university students: demographic associations with the phenomenon, using the greek version of Young's Internet Addiction Test*, International Journal of Economic Sciences and Applied Research, 3(1): 49-74
- Frintner M., Rubinson L. (1993) - *Acquaintance rape: The influence of alcohol, fraternity membership, and sports team membership*, Journal of Sex Education & Therapy, Vol. 19(4), p. 272-284.
- Goodman & Gilman (2001) - *The Pharmacological Basis of Therapeutics*, Hardman JG, Limbird LE, eds, 10th Ed., New York, McGraw Hill
- Grossbard J., Hummer J., LaBrie J., Pederson E. & Neighbors C. (2009) - *Is substance use a team sport? Attraction to team, perceived norms, and alcohol and marijuana use among male and female intercollegiate athletes*, Journal of Applied Sport Psychology, Vol. 21, Issue 3, p. 247-261
- Goodman A. (1990) – *Addiction: definition and implications*, British Journal of Addiction, 85: 1403-1408
- Ko Chih-Hung, Yen Ju-Yu, Chen Cheng-Sheng, et al. (2008) – *Psychiatric comorbidity of Internet addiction in college students: An interview study*, CNS Spectr., 13(2): 147-153
- Lorente F., Souville M., Griffet J., Grélot L. (2004) - *Participation in sports and alcohol consumption among french adolescents*, Addictive Behaviors, Vol. 29, Issue 5, p. 941-946

- Mays D., Thompson N. (2009) - *Alcohol-related risk behaviors and sports participation among adolescents: An analysis of 2005 youth risk behavior survey data*, Journal of Adolescent Health, Vol. 44, Issue 1, p. 87-89
- Peretti-Watel P., Guagliardo P., Verger P., et al (2003)- *Sporting activity and drug use: alcohol, cigarette and cannabis use among elite student athletes*. Addiction 98, 1249-1256.
- Rendi M., Szabo A., Szabó T. (2007) – *Exercise and Internet addiction: communalities and differences between two problematic behaviours*, Int. J. Ment. Health Addiction, 5: 219-232
- Saunders JB, Aasland OG, Saunders, J. B., Aasland, O. G., Babor, T. F., dela Fuente, J. R. and Grant, M. (1993)- *Development of the Alcohol Use disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful alcohol consumption-II*, Addiction 88, 791–804.
- Shapira NA, Goldsmith TG, Keck PE Jr., et al. (2000) – *Psychiatric features of individuals with problematic Internet use*, Journal of Affective Disorders, 57: 267-272
- Tamin H., Terro A., Kassem H., et al. (2003) – *Tobacco use by university students, Lebanon, 2001*, Addiction, 98 : 933-939
- Taylor AH, Ussher MH, Faulkner G. (2007) – *The acute effects of exercise on cigarette cravings, withdrawal symptoms, affect and smoking behaviour: a systematic review*, Addiction, 102: 534-543
- Widyanto L., McMurrin M. (2004) – *The psychometric properties of the Internet Addiction Test*, CyberPsychology & Behavior, Vol. 7, No. 4, p. 443-450
- Webb E., Ashton H., Kelly P., Kamali F. (1997) – *Patterns of alcohol consumption, smoking and illicit drug use in British university students: interfaculty comparisons*, Drug and Alcohol Dependence, 47: 145-153
- Wichstrøm T., Wichstrøm L. (2009) - *Does sports participation during adolescence prevent later alcohol, tobacco and cannabis use?* Addiction, Vol. 104, Issue 1, p. 138–149
- Vanescon I. (2005). *Psychopathologie des conduites addictives, alcoolisme et toxicomanie*. Edition Belin