

Correspondence: Carmen UDREA
Clinical Psychiatric Hospital "Al. Obregia"
Ward IX, "Alexandru Obregia" st, no. 10 – 12, Bucharest, Romania
Tel.: +40 722 319 099
E-mail: carmenbizdoaca@yahoo.com
Date of Submission: March, 29, 2012 / **Acceptance:** June, 18, 2012

PSYCHOLOGICAL FACTORS INVOLVED IN THE USE OF SPICE

Carmen UDREA, Claudia DAMIAN

Carmen UDREA – M. D., Ph. D., Assistant Professor Department of Psychiatry, University of Medicine and Pharmacy "Carol Davila", Bucharest; Senior Psychiatrist, Clinical Psychiatric Hospital "Al. Obregia", Bucharest, Romania

Claudia DAMIAN – Resident in psychiatry, Clinical Psychiatric Hospital "Al. Obregia", Bucharest, Romania

ABSTRACT:

Introduction. Drugs known as ethnobotanical / spice were recently introduced on the drug market in Romania. So far, there is only one national report which sketches the spice consumer's profile. However, existing studies do not report personality dimensions that may help to highlight a distinct profile of spice consumer, and even more there are not presented statistical data which could establish common or uncommon features for spice consumers, female vs. male.

Objectives. The present research has proposed two purposes: 1. Quantification of a broad set of personality features and establish differences between spice consumers vs. other categories of drugs, based on these features, 2. Identifying differences between men and women consuming spice, for each personality dimension.

Methods. Personality dimensions were measured by well-known psychological scales. Averages recorded for these dimensions were compared by criterion type of drug (spice vs. other types of drug) and the criterion gender (male vs. female) by applying more "t" tests for independent samples.

Results. Statistical tests found that 5 dimensions of all the 14 dimensions of personality, differentiate statistically significant the sample of spice consumers from other types of drug consumers. It was also found that among spice consumers, males significantly score higher at 5 of personality dimensions compared with the females, while the females score significantly higher than male, in 7 of the 14 personality dimensions investigated.

Conclusions. Spice consumers report statistically significant moderate differences in personality factors profile, compared with other drug users. Women who use spice drugs have personality characteristics, relative different in magnitude, compared with men who use these drugs.

Keywords: spice, personality dimensions, gender differences

REZUMAT:

Introducere. Drogurile denumite generic *etnobotanice* / *spice* au fost relativ recent introduse pe piața consumului din România. Până în prezent, există un singur raport național care creionează profilul consumatorului de etnobotanice. Cu toate acestea, studiile existente nu raportează dimensiuni de personalitate care ar putea contribui la reliefaarea unui profil distinct al consumatorului de etnobotanice și cu atât mai mult, nu sunt prezentate date statistice care să stabilească punctele comune și cele necomune pentru consumatorii de etnobotanice de sex feminin vs. masculin.

Obiective. Cercetarea de față și-a propus două scopuri: 1. cuantificarea unui set larg de factori de personalitate și stabilirea diferențelor dintre consumatorii de etnobotanice vs. alte categorii de droguri, la nivelul acestor factori; 2. identificarea diferențelor existente între bărbații și femeile consumatoare de etnobotanice, pentru fiecare dimensiune de personalitate.

Metode. Dimensiunile de personalitate au fost cuantificate prin intermediul unor scale psihologice consacrate. Medii obținute pentru aceste dimensiuni au fost comparate după criteriul tipului de drog (etnobotanice vs. alte tipuri de drog) și după criteriul gen (masculin vs. feminin) prin aplicarea mai multor teste „t” pentru eșantioane independente.

Rezultate. Testele statistice au descoperit că cinci din totalul celor 14 dimensiuni de personalitate diferențiază semnificativ statistic eșantionul consumatorilor de etnobotanice comparativ cu cel al consumatorilor altor tipuri de droguri. De asemenea, s-a descoperit că, în grupul consumatorilor de etnobotanice, persoanele de sex masculin scorează semnificativ mai înalt la cinci dintre dimensiunile de personalitate comparativ cu persoanele de sex feminin, în timp ce persoanele de sex feminin scorează semnificativ statistic mai înalt decât cele de sex masculin la șapte dintre cele 14 dimensiuni de personalitate investigate.

Concluzii. Consumatorii de etnobotanice prezintă diferențe medii semnificative statistic în profilul factorilor de personalitate comparativ cu consumatorii altor tipuri de droguri. Femeile care consumă droguri etnobotanice au caracteristici de personalitate relativ diferite ca magnitudine, în comparație cu bărbații care consumă astfel de droguri.

Cuvinte-cheie: *etnobotanice, diferențe de personalitate*

INTRODUCTION

In recent years, on the drug market, have emerged a new series of drugs, in Europe, called spice and in Romania, ethnobotanical. These drugs have been rapidly developed, so that today there are a variety of products, such as: *Spice Silver*, *Spice Gold*, *Spice Diamond*, *Spice Arctic Synergy* and *Spice Tropical*. There are also many herbal products which have similar effects; from this category, we exemplify *Yucatan Fire*, *Sence*, *Chill X* etc. (1).

Initially, it was considered that they were totally extracted from natural plants, which would have less harmful effects on consumers (compared to illegal drugs), being considered legal drugs. Later, as a result of symptoms presented by consumers, of the alarming number of spice consumers which required emergency hospitalization and also, because of acts committed with legal implications, the medical community began to seriously investigate the content of these types of drugs. In addition, in many European countries, the “legal” status of these drugs has been revised, so that now, they are considered illegal drugs.

Several independent researches managed to identify, during the years 2007 – 2010, substances collected under the generic term spice. It was found that among them is *JWH-018*, a synthetic agonist of cannabinoid receptor (CB), respectively a naftoilindol belonging to aminoalkylindole family. (2, 3) C8 homologue of synthetic cannabinoid *CP 47, 497* was also found in spice products. (4, 5) Other potent synthetic cannabinoids discovered in these products were coded as *HU-210*, *JWH-073*, *JWH-398*, *JWH-250*. (6)

In Romania, official data on the use of spice was provided by The National Agency Anti-drug (NAA), only in 2011. (7) In this report, *spice* drugs listed above were now included in the phrase *New Substances with Psychoactive Properties* (NPS).

ANA-UNICEF report in 2011 was conducted on a population aged 15 – 64 years, indicating a prevalence of drug use over the life of 4.3 %. This includes all illegal drugs and psychoactive substances marketed under the *ethnobotanical, spice or legal drugs label*. If we compare this indicator with the 1.7 % recorded in 2007, for the same range of age, the consumption trend becomes self evident. (7) Prevalence for *spice drugs / NPS* consumption, for 2010, for population aged 15 – 64 years is 1.9 %. Prevalence index for spice is by far the highest index recorded, if we compare with 1.6 % for cannabis, 0.7 % for ecstasy, 0.3 % for heroin and 0.3 % for cocaine.

At the moment, the international and national studies on the factors involved, or possibly explain and even predict the spice consumption is under-represented. ANA-UNICEF's report in 2011 provided a profile of the spice consumer in Romania. (8) According to this study, key elements that would articulate the typical profile would be: male, age 29 years (77.4 %), low education (43.7 % have completed more than secondary education), unemployed (54.3 %) or high school student / student (16.6 %), age of onset below 30 years [ie onset < 19 years (21.5 %), 20 – 24 years (28.8 %) and 25 – 29 (28.3 %)], consume spice / NPS daily (60 %) prefer injection and oral administration. Beyond this information, the vast majority are from socio-demographic and professional point of view, there are no empirical studies to identify psychological factors that complete the psychological profile of those using spice.

In this context, our research aimed at quantifying some personality features and determining differences in their level of expression to people who use spice vs. other drugs. A secondary objective was to identify differences between men and women consuming spice for each of these dimensions of personality.

MATERIALS AND METHODS

The sample. Research was conducted on a sample of 198 people who were hospitalized in psychiatric no. XVI and XVII wards of the Psychiatric Hospital “Dr. Alexandru Obregia”. The research included only those for which there was a definite diagnosis of *drug abuse* or *drug addiction*. The diagnosis was made based on criteria provided by DSM-IV-TR or ICD-10. Of the total sample 149 (75.25 %) persons were male and 49 (24.75 %) female. The ratio between men and women, all drug consumers included in the survey sample, was approximately 3:1.

Tools. In the present study, we assessed a wide range of personality dimensions of the person, regarding self-perceived issues about: skills, generalized expectations, personal value, emotional and temperamental mood, stress and social support. For measuring self-efficacy, we used *Self-efficacy Perceived Scale* (9), for self-esteem, we used *Self-esteem Scale* (10) and for the generalized expectations, we used *Locus of Control Scale*. (11) To assess the dimensions: anxiety, irritability, depression, impulsivity, it was used *Neuroticism Scale* from the *NEO-PI-R* instrument. (12) To quantify dimensions: worry, tension, unhappiness, we used *Perceived Stress Questionnaire*. (13) The temperamental dimension of seeking sensations was measured with *Seeking of Sensations Scale* (14).

Methods. Averages for the personality dimensions of spice consumers vs. other types of drug consumers and women vs. males were compared by means of the “t” test (Student) for independent samples. For differences, which showed significant thresholds, were calculated and reported effect size, using Cohen's *d* coefficient (15).

RESULTS

Average for the general sample (symbolized by the blue line) and of the consumers of spice (symbolized by the red line) are shown in Figure 1. Note that the setting up of psychological variables, for both samples, record the same sense of evolution, however several values are different in magnitude. To check whether these differences are statistically significant, we have calculated a series of “t” tests for independent samples. In these tests, each psychological dimension was considered variable tested, while the type of drug (spice vs. other drugs) was the grouping variable.

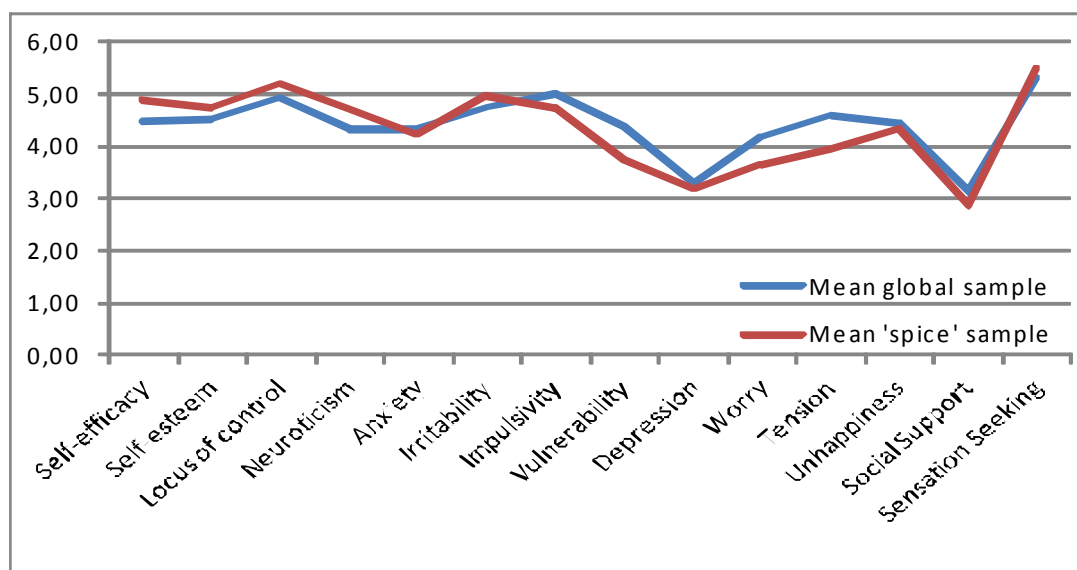


Fig. 1. Sample averages for psychological dimensions of spice vs. other drugs consumers

Perceived self-efficacy. For the entire sample, the average value of self-efficacy was 4.49 points, while the spice consumers sample average was 4.98, the difference between them being statistically significant: $t(196) = 2.16$, $p < .05$, $d = 0.31$. Thus, spice consumers perceive that they have a higher level of self-efficacy.

Self-esteem was found not significantly different in the two samples, the test is: $t(196) = 1.70$, $p > .05$. For *locus control*, the two samples showed no statistically significant differences: $t(196) = 1.57$, $p > .05$.

Neuroticism showed different mean values in the samples compared, statistical test was significant: $t(196) = 2.55$, $p < .05$, $d = 0.36$. Meaning the difference is positive, so people who use spice have an increased level of neuroticism.

The *anxiety* level of the people from the two subsamples is not statistically significantly different: $t(196) = -1.06$, $p > .05$. Among the sample of spice consumers and the consumers of other drugs, no statistically significant differences were found for *irritability* [$t(196) = 1.06$, $p > .05$] nor the *impulsivity* [$t(196) = -1.48$, $p > .05$].

The *vulnerability* was discovered that distinguish the people in the sample of spice consumers, in the sense that they have a lower level compared with other drug users: $t(196) = -3.36$, $p < .05$, $d = 0.48$.

The *depression* is relatively similar for the two samples of drug users, so the differences are not statistically significant $t(196) = -1.45$, $p > .05$.

Worry and tension are felt less intense by spice consumers than those who consume other types of drugs. The test showed statistically significant values both for concern $t(196) = -2.90$, $p < .05$, $d = 0.42$ and for tension $t(196) = -4.29$, $p < .05$, $d = 0.61$.

The level of *joy*, *the thrill of seeking sensations* and that of *social support* have failed to distinguish between the two subsamples. Values recorded in tests of significance were: $t(196) = -1.67$, $p > .05$ size fun, $t(196) = 1.26$, $p > .05$ for seeking sensations and $t(196) = -1.07$, $p > .05$ for social support.

For this sample, consisting of spice consumers, these dimensions of personality were investigated further to determine whether there are gender differences. Thus, spice consumers were divided into two groups formed on the basis of gender, then, for each psychological dimension, was calculated the values of "t" test for independent samples. Graphical representation of group mean values is shown in Figure 2. Notice that the two groups have obtained quite different values, mean values indicating different amplitudes.

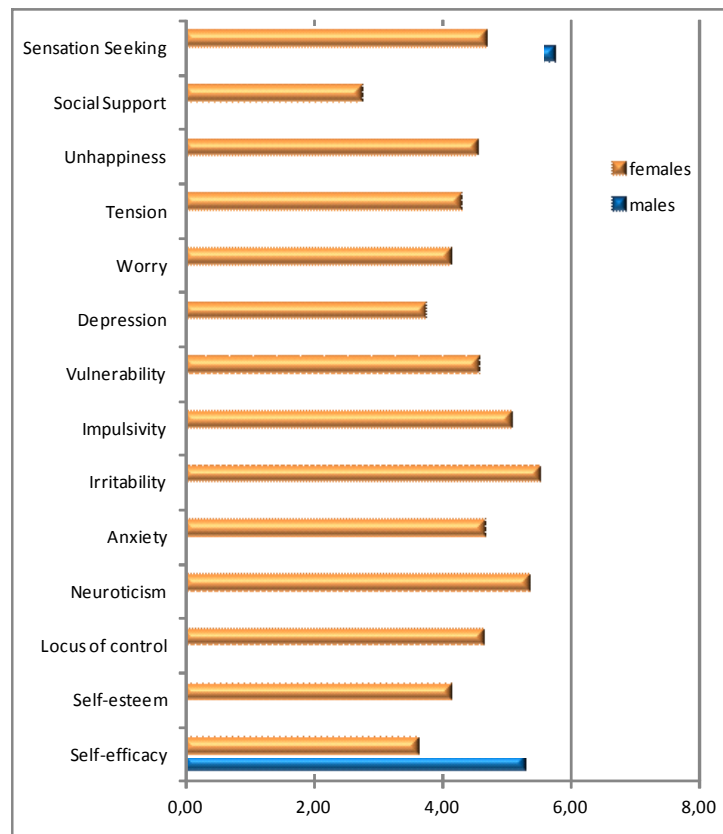


Fig. 2. Average differences between women vs. men who consumed spice

Male spice consumers perceive more *self-efficacy* than females. Self-efficacy perceived difference is statistically significant: $t(116) = 5.09$, $p < .01$, $d = 0.94$. Men believe they can handle unexpected situations and they are ready to face any situation, rather than how women consuming spice perceive it.

Self-esteem records higher values for men in the spice consumer group, compared with women of the same consumer group: $t(116) = 2.63$, $p < .05$, $d = 0.48$. Psychologically speaking, men who use spice perceive themselves at greater extent than women to be “valuable people”, are pleased with themselves and also consider that they have things to be proud of.

In the spice consumers sample, males have a greater degree, than the female, of a *place of internal control type*: $t(116) = 2.92$, $p < .01$, $d = 0.54$. This means a stronger belief that the performance plans of men and what they want in life is the result of their own actions and efforts.

Neuroticism dimension in females showed statistically significantly higher values than men: $t(116) = -3.54$, $p < .01$, $d = 0.66$. Psychologically speaking, females spice consumers have a more fluctuant mood, feel nervous, tense and worried. And *anxiety* lies women before men in the spice consumer group: $t(116) = -2.99$, $p < .01$, $d = 0.56$. From a psychological perspective, women feel that their mind is preoccupied with a multitude of things, that they are not calm, they can not adapt to new situations and feel afraid. Females who use spice also have an *irritability* level significantly higher than males: $t(116) = -2.56$, $p < .01$, $d = 0.48$. They tend to get angry more easily than men, become irritable and lose their temper and also have a bad mood.

Trait *impulsivity* showed no significant difference between women who consume spice and men $t(116) = -1.66$, $p > .05$.

Women who use spice have a higher level of *psychological vulnerability* than men of the same drug group: $t(116) = -3.66$, $p < .01$, $d = 0.70$. These people feel overwhelmed with emotions, unable to cope with stressful situations faced and unable to cope in difficult situations. The level of *depression* is significantly higher in women who consume spice, compared with men who use these

drugs: $t(116) = -2.83$, $p < .01$, $d = 0.53$. Females, experience a greater extent, that they are sad, unhappy and guilty most of the time, the future is hopeless for them and they can not expect anything good and that life is a big failure. *Concern* is another dimension that characterizes more women who use spice than men: $t(116) = -2.18$, $p < .05$, $d = 0.41$. These people are afraid of the future, they feel frustrated and seem to be busy all the time with problems. Also, for the females consumers, the *degree of tension* is significantly higher than for males: $t(116) = -2.45$, $p < .01$, $d = 0.47$. Psychologically, they appear to be mentally exhausted, unable to relax and be calm.

When it comes to the *degree of distress (joy reversed)* and *perceived social support*, were not identified significant differences between women vs. men who consumed spice, the test results: $t(116) = -1.66$, $p > .05$, respectively $t(116) = 1.20$, $p > .05$.

Sensation seeking is a personality dimension that, in the spice consumer group, lies men on a higher average value compared to women: $t(116) = -4.24$, $p < .01$, $d = 0.79$. So, men are characterized greater than women by frequently changing interests, by the pleasure of living exciting and intense sensations and do crazy things just for fun.

DISCUSSION

Our results in this research show that self-efficacy and neuroticism dimensions of personality are more prominent in spice consumers' profile. Instead, vulnerability, anxiety and tension are prominent personality dimensions in the profile of other type of drugs consumers, than spice.

Strictly for those who consume spice, it was found that, for males, the size of self-efficacy, self-esteem, internal place of control and sensation seeking is more prominent than in females.

For females spice consumers, neuroticism, anxiety, irritability, psychological vulnerability, depression, worry and mental tension are prominent dimensions comparative to men consumers.

Knowing these differences can facilitate psychological understanding of the different behavioral reactions between consumers of spice vs. other categories of drugs, or between males vs. females. Also, access to the different way of psychological structure of spice consumers, women vs. men, helps design the psychotherapeutic interventions, adjusted with the peculiarities identified in research.

ACKNOWLEDGMENTS AND DISCLOSURE

The authors declare that they have no potential conflicts of interest to disclose.

REFERENCES:

1. EMCDDA. Annual Report, 2008. Available at: <http://www.emcdda.europa.eu/events/2008/annual-report>.
2. Wiley, J. L., Compton, D. R., Dai, D. et al. Structure-activity relationships of indole- and pyrrole-derived cannabinoids. The Journal of Pharmacology and Experimental Therapeutics, 1998, 285: 995 – 1004.
3. Huffman, J. W. Cannabimimetic indoles pyrroles and indenenes: structure-activity relationships and receptor interactions. In: Reggio PH (Ed) The cannabinoid receptors. Totowa NJ: Humana Press, 2009.
4. Lambert, D., DiMarzo, V., The Palmitoylethanolamide and oleamide enigmas: are these two fatty acid amides cannabimimetic? Current Medicinal Chemistry, 1999, 6: 757 – 773.
5. Leggett, J. D., Aspley, S., Beckett, S. R.G. et al. Oleamide is a selective endogenous agonist of rat and human CB1 cannabinoid receptors. British Journal of Pharmacology, 2004, 141:253 – 262.
6. EMCDDA. Annual Report, 2009. Available at: <http://www.emcdda.europa.eu/publications/annual-report/2009>
7. „Raport național privind situația drogurilor în România: noi evoluții, tendințe și informații detaliate cu privire la temele de interes european” 2011. Available: http://www.anagov.ro/rapoartenationale/raport_ro_2011.pdf
8. „Raport național privind situația drogurilor în România: noi evoluții, tendințe și informații detaliate cu privire la temele de interes european” 2011. Available at: http://www.anagov.ro/rapoartenationale/raport_ro_2011.pdf
9. Jerusalem, M., Schwarzer, R. Self-efficacy as a resource factor in stress appraisal processes. In: Schwarzer, R. (Ed), Self-efficacy: Thought control of action (pp. 195 – 213). Washington, D.C.: Hemisphere, 1992.
10. Rosenberg, M. Self-concept from middle childhood through adolescence. In Suls, J., Greenwalds, A. G. (Eds), Psychological perspectives on the self, Hillsdale, NJ: Erlbaum, 1986.
11. Levenson, H. Multidimensional locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 1973, 41: 397 – 404.

12. Costa, P. T., McCrae, R. R. NEO PI-R professional manual. Odessa, F. L.: Psychological Assessment Resources, Inc., 1992.
13. Fliege, H., Rose, M., Arck, P., et al. The Perceived Stress Questionnaire (PSQ) Reconsidered: Validation and Reference Values From Different Clinical and Healthy Adult Samples, *Psychosomatic Medicine*, 2005, 67:78 – 88.
14. Zuckerman, M. The sensation seeking scale V (SSS-V): Still reliable and valid. *Personality and Individual Differences*, 2007, 43: 1303 – 1305.
15. Cohen, J. A power primer. *Psychological Bulletin*, 1992, 112: 155 – 159.