

## USE OF VALERIAN DRUG PREPARATIONS IN DENTAL PRACTICE

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### ABSTRACT

A Valerian is a popular drug among the population. It can be used against anxiety, fear and tension. Our purpose was to study to what a degree it is included in the practice of the doctors of dental medicine against the stress from the dental treatment. A direct anonymous group inquiry among 296 doctors of dental medicine in the whole country was carried out. From the received information we established that 77,7% from the investigated doctors have positive attitude toward applying valerian and its derivatives in affecting the stress from the dental treatment. The most of them report on decrease of anxiety by the patients, others - on hypotensive effect and some of them - on lack of effect.

**Key words:** valeriana, anxiety, dental practice

### INTRODUCTION

In the last few years stress has become inseparable part of our daily routines, caused by various factors and affecting one's personal and social life. For many people, a visit to the dentist gives rise to unpleasant emotions, which can vary in power – casual restlessness, anxiety, fear, and phobia. There are different methods and means to overcome these states. Most often a medicine influence with healing procedures is used on the patients. For this purpose a wide variety of medicines is applied with different purposes.

A traditional medicine used to reduce anxiety is the Valerian (***Valeriana officinalis***), administered in the form of tincture and tablets, individually or as a compound part of different products. For medical purposes the roots and rhizomes of the plant are used which contain up to 3.5 percent ethereal oil, isovalerian acid, borneol, borneol ethers from formic, oil and vinegar acids, sesquiterpenes, a number of alkaloids (Valerin), glycoside compounds (Valerosoids), tanning extracts and others. The therapeutic effect is characteristic for the whole complex of substances in the plant. It has been researched multi-directional, experimentally on animals, as well as clinically on people. Yan CS and co-authors (9) experimented with rats and determined that Valerian operates upon the receptors of the gamma-aminobutyric acid in the brain. They concluded that an interaction between it and the applied general anesthetics is possible, as well as potentiation of their effect if used before surgery. This gives reason to some authors

to suggest complications in cases of incompetent application of herbal preparations in perioperative patient care (1). Another experiment, of Sakamoto T and associates (7), on mice, also shows the effect of Valeriana in the CNS and the possibility the preparation to be used as an anti-depressant. Its spasmolytic and hypotensive effect is introduced by Gilani AH and associates (4) after an experiment with rabbits. The main reason for the popularity of that herb is its positive effect upon anxiety and insomnia (5), as well as the cardiovascular system (3). In a clinical research of 2007, Bhattacharyya D and associates (2) examined the pharmacological effect of valerian on stress. The study was conducted on 33 patients (20 men and 13 women) with stress disorders residing in a clinic. For assessment of their state Hamilton's Brief Psychiatric Rating Scale /BPRS/ was used. Medication included capsules of 500 mg twice a day after meal for 30 and 60 days. The authors concluded that not only stress and anxiety in patients were significantly reduced, but also that depression ameliorated and their desire to adjust increased. Memory, attention and concentration in the volunteers remained unchanged.

Valerian stimulates the processes of bile-secretion and secretion functions of the stomach and pancreas. It is used in spastic conditions of the gastrointestinal tract. In combination with other herbs healing properties can be enhanced (6,8). In recent years the pharmaceutical industry offers a wide range of herbal preparations with different orientation.

The Bulgarian specialized dental literature lacks data on the use of valerian preparations in order to influence anxiety in dental care. We set the objective to investigate their application in dental practice.

### MATERIAL AND METHODS

Subject of study are 296 dental practitioners throughout the country. Data are collected through direct group anonymous survey conducted in June 2007. The designed questionnaire contains seven questions, each with three possible answers. It includes questions about: sex, work experience, specialty; whether medicated means are used to reduce stress in patients, use of valerian preparations, use of valerian tincture as a means for immediate effect, how to evaluate the effect of administration

of valerian tincture. In the statistical processing of results variational (results are presented as mean arithmetic±standard error - mean±SEM) and alternative (results are presented by share in percent error - Sp) analyses are used, respectively, in quantitative and qualitative measurement terms t - test of Student. For analysis of the relationship between the investigated indicators is used  $\chi^2$  criterion. For equation to the importance of the zero hypothesis is accepted  $P < 0.05$ . Statistical data processing is performed using the statistical software package SPSS v.11.0.

## RESULTS AND DISCUSSION

In Table 1 are presented the main characteristics of the interviewed dental practitioners. Statistically, the interviewed women significantly dominate - 194 (65.54%), 102 are men (34.46%) ( $t = 7.96$ ,  $P < 0.001$ ). Years of work experience are divided into four groups: up to 10 years, 11-20 years, 21-30 years, and over 30 years. Average duration of work experience in total is  $16.04 \pm 0.53$ , which is statistically significantly greater in women ( $16.95 \pm 0.62$ ) than in men ( $14.29 \pm 0.95$ ) ( $t = 2.34$ ,  $P < 0.05$ ). The highest is the number of respondents with work experience between 21-30 years - 101 (34.12%). Of these, 72.3 percent are women and 27.7 percent are men. It is clear that experienced dentists with over 10 years of work experience dominate. The number of respondents with work experience of over 30 years is small and therefore, for convenience, in further calculations these will be transferred into the group with more than 20 years of experience.

Regarding attained specialty, results show that more than half of the respondents are with one or more specialties. With no specialty are 134 (45.3%) dentists.

**Table 1.** - Characteristics of the investigated contingent

Characteristics	Number	%	Sp
<b>N=296</b>			
<b>Sex</b>			
Men	102	34.46	2.76
Women	194	65.54	2.76
<b>Work Experience</b>			
< 10 yrs	94	31.76	2.71
11-20 yrs	94	31.76	2.71
21-30 yrs	101	34.12	2.76
> 30	7	2.36	0.88
<b>Average Work Experience (yrs)</b>			
Mean ± SEM	16.04 ± 0.53		
Rank	1 - 35		
<b>Specialty</b>			
Without Specialty	134	45.27	2.89
With One Specialty	145	48.99	2.91
With Two or More Specialties	17	5.74	1.35

In the analysis of two-dimensional distribution by sex and attained specialty we found statistically significant difference ( $\chi^2 = 8.75$ ,  $P < 0.05$ ). Greater is the proportion of women with specialty, which indicates that regardless of their family commitments, Bulgarian female dental practitioners make endeavors to a better qualification as well (Table 2).

**Table 2.** Distribution of the investigated contingent by sex and attained specialty

SEX	SPECIALTY						TOTAL	
	Without		One		Two or More			
Men	56	54,9%	38	37,3%	8	7,8%	102	100,0%
Women	78	40,2%	107	55,2%	9	4,6%	194	100,0%
TOTAL	134	45,3%	145	49,0%	17	5,7%	296	100,0%

One of the questions from the survey involves the taking of sedative drugs: "Do you use medicated means to reduce tension caused by the forthcoming  $\chi^2 = 8.75$ ,  $P = 0.01$  treatment of your patients?" Answers are: 'yes', 'no', 'sometimes'. Most have responded with 'sometimes' - 199 (67.2%), then come those who answered 'no' - 57 (19.3%) and 'yes' - 36 (12.2%).

**Diagram 1.**

Distribution by sex for the answers of the question "Do you use medicated means to reduce tension caused by the forthcoming treatment of your patients?"

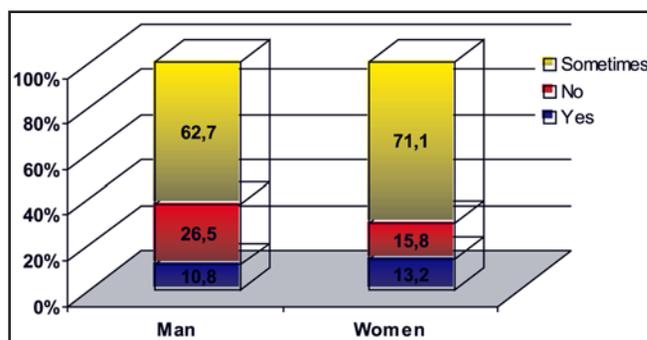
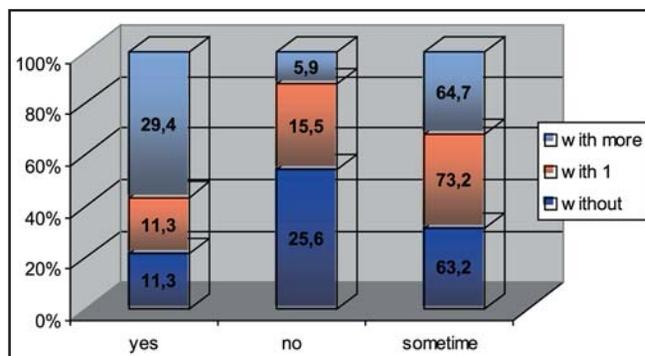


Diagram 1 shows that women in comparison to men, to some extent, are more likely to use drugs for the treatment of patients with tension. Small proportion of men categorically states that they use premedication and substantially a greater part of them, compared to women, does not use medication for that purpose ( $\chi^2 = 4.85, P > 0.05$ ).

Dental doctors with specialty, statistically significantly more frequently recourse to medical treatment of anxiety, although ‘sometimes’, in comparison to those without specialty (Diagram 2) ( $\chi^2 = 10.62, P < 0.05$ ).

**Diagram 2.** - Distribution depending on the number of specialties on the use of medication to reduce tension



It was found statistically significant correlation also between the work experience of dental doctors and the application of sedative drugs ( $\chi^2=13.85, P<0.05$ ). The graphical application of the results (Table 3) shows that the proportion of respondents with ‘no’ is the highest in the

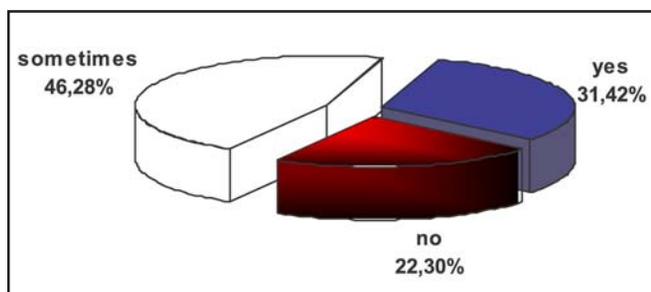
group with up to 10 years of work experience (31.2%). With the increasing years of practice the number of dentists who apply sedatives, considering that there is a need for treatment of stress, also increases.

**Table 3.** Distribution depending of the years of work

Work Experience	Yes		No		Sometime		Total	
Up 10yrs	10	10.8%	29	31.2%	54	<b>58.1%</b>	93	<b>100%</b>
10-20yrs	13	14.1%	9	9.8%	70	<b>76.1%</b>	92	<b>100%</b>
Over 20yrs	13	12.1%	19	17.8%	75	<b>70.1%</b>	107	<b>100%</b>
<b>Total</b>	<b>36</b>	<b>12..3%</b>	<b>57</b>	<b>19..5%</b>	<b>199</b>	<b>68.2%</b>	<b>292</b>	<b>100%</b>

The next question of the inquiry concerns the use of valerian and valerian preparations: “Do you use valerian and valerian preparations for the preliminary preparation of patients?”. The distribution of answers to this question – ‘yes’, ‘no’ and ‘sometimes’ is presented in Diagram 3. More than two thirds of the dental practitioners who responded use valerian preparations for the preliminary preparation of patients in their practice and that use does not depend statistically significantly on sex, work experience and attained specialty.

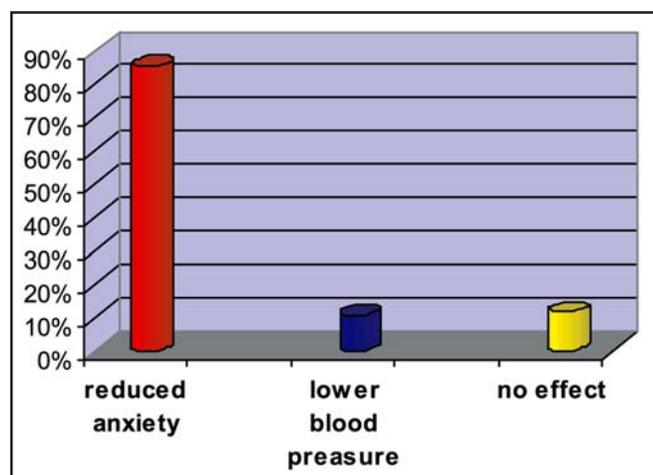
**Diagram 3.** Distribution depending on the use valerian and valerian preparations for the preliminary preparation of patients



To the question “Do you use valerian tincture as a means of immediate preparation of patients?”, valerian tincture is clearly indicated with a ‘yes’ by one quarter of the respondents and ‘sometimes’ by 40.5% and as a means for immediate preparation of patients. The above results show that valerian preparations are used in dental practice.

With the last question of the survey, the authors try to explore the opinion of dental practitioners on the results from the application of valerian tincture. The question is: “If you have used valerian tincture for immediate preparation, how do you evaluate the effect of the application?”. Answers are: a) reduced anxiety, b) lower blood pressure, c) no effect. The answer may be more than one. Since 104 of the respondents do not use valerian tincture, answers to this question are given by 192 participants. The majority of respondents believe that the adoption of valerian tincture reduces anxiety caused by the forthcoming dental treatment (Diagram 5). Another group has marked hypotensive effect of the drug (10.8%). Lack of effect report 11.6 percent of the respondents.

**Diagram 4.** Distribution depending on the assessment of the effect from the use of valerian and valerian preparations for immediate preparation of the patients



## CONCLUSION

In the practice of dental practitioners in our country valerian preparations are relatively widely-covered. Nearly three quarters of respondents use them. They apply them to influence the stress during treatment, before the visit as well as immediately before the treatment manipulation using their anxiolytic and hypotensive effect. Valerian is a popular remedy among the population and this fact facilitates its use against the concerns about dental treatment.

## REFERENCES

1. Ang-Lee MK, Moss J, Yuan CS. Herbal medicines and perioperative care. *JAMA*. 2001;286(2):208-16.
2. Bhattacharyya D, Jana U, Debnath PK, Sur TK. Initial exploratory observational pharmacology of *Valeriana wallichii* on stress management: a clinical report. *Nepal Med Coll J*. 2007;9(1):36-9.
3. Copley M, Cave Z, Ellis J, Middleton RW. Effect of kava and valerian on human physiological and psychological responses to mental stress assessed under laboratory conditions. *Phytother Res*. 2002;16(1):23-7.
4. Gilani AH, Khan AU, Jabeen Q, Subhan F, Ghafar R. Antispasmodic and blood pressure lowering effects of *Valeriana wallichii* are mediated through K<sup>+</sup> channel activation. *J Ethnopharmacol*. 2005;100(3):347-52.
5. Jacobs BP, Bent S, Tice JA, Blackwell T, Cummings SR. An internet-based randomized, placebo-controlled trial of kava and valerian for anxiety and insomnia. *Medicine (Baltimore)*. 2005; 84(4):197-207.
6. Kennedy DO, Little W, Haskell CF, Scholey AB. Anxiolytic effects of a combination of *Melissa officinalis* and *Valeriana officinalis* during laboratory induced stress. *Phytother Res*. 2006; 20(2):96-102.
7. Sakamoto T, Mitani Y, Nakajima K. Psychotropic effects of Japanese valerian root extract. *Chem Pharm Bull (Tokyo)*. 1992;40(3):758-61.
8. Spinella M. The importance of pharmacological synergy in psychoactive herbal medicines. *Altern Med Rev*. 2002; 7(2):130-7.
9. Yan CS, Mehendale S, Xiao Y, Aung HH, Xie JT, Ang-Lee MK. The gamma-aminobutyric acidergic effects of valerian and valerenic acid on rat brainstem neuronal activity. *Anesth Analg*. 2004; 98(2):353-8.

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