



## QUESTIONNAIRE SURVEY ON CRANIO-MANDIBULAR DISORDER ISSUES IN STUDENTS' AND POST-GRADUATE TRAINING IN BULGARIA

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### ABSTRACT

The prevalence of craniomandibular disorders (CMD) among the Bulgarian population as well as the risk factors for unlocking bruxism and bruxomania mechanisms pose a demand for education on these issues reflecting modern science.

The authors' aim is to examine the subjective assessment of participants in "DAYS OF PROSTHETICS, Sofia, 15 -16 March 2014", regarding: 1. Prevalence of CMD in the country; 2. Education and training of students and post-graduates in the issues related to diagnostics and treatment of craniomandibular disorders; 3. Theoretical background for successful treatment of patients with bruxism and bruxomania.

Materials and methods: For the purpose of the present research 192 participants have been surveyed - among them 163 are dentists and 29 are students in the 4th and 5th year of study. The survey feedback has been obtained via an anonymous questionnaire consisting of 8 questions targeted at dentists' assessment of CMD prevalence and distribution, training in CMD issues in Bulgaria and the treatment of patients with bruxism and bruxomania.

The results obtained indicate that 84.0% - 93.1% (95% CI) of respondents, working as dentists in the country, expressed the view that students' curriculum lacks an overall concept for training them in the diagnostics and treatment of CMD. 79.6% - 90.2% (95% CI) of participants, dentists in the country, define post-graduate training in CMD as insufficient or lacking.

Conclusion: The development and promotion of a working platform for early screening, diagnostics and treatment of CMD for timely referral to a specialized treatment is necessary and expected by the professional community in our country.

**Key words:** craniomandibular disorders, students' and postgraduate training

### INTRODUCTION

Craniomandibular disorders (CMD) are systemic diseases where functional disorders of masticatory system correlate with musculoskeletal disorders, hearing disorders, balance, eyesight and other accompanying symptoms (7, 11, 12, 17). The presence of descending or ascending syndromes and their potential response are subjected to hot

interdisciplinary discussions by modern medicine (8, 10, 14, 16). Considerable emphasis has been placed on the prevention and diagnostics of dysregulation on a structural, functional, biochemical and psychological level (6, 10, 15).

Recognition and understanding of neurophysiological relationships and their impact on the statics and function of the body are the basis for correct diagnosis, adequate treatment planning and successful treatment of these diseases (6, 13, 14). In this process a number of factors overwhelm the dentists in our country (2, 4, 5). The difficulties are not only due to the interdisciplinary nature of CMD but also due to the shortage of specialized literature in Bulgarian to address these issues consistent with up-to-date scientific achievements (6, 10, 13). On the other hand, the prevalence of risk factors among the population for unlocking the mechanisms of functional pathology, as well as *occlusopathy*, *myopathy* and *arthropathy* related to bruxism and bruxomania (1, 2, 3), pose a demand among the scientific and academic circles in the country for adequate education on these issues in line with modern science.

### AIM

Authors' aim is to examine the subjective assessment of participants in "DAYS OF PROSTHETICS, Sofia, 15 -16 March 2014", regarding:

1. Prevalence of CMD in the country;
2. Education and training of students and post-graduates in the issues related to diagnostics and treatment of craniomandibular disorders;
3. Theoretical background for successful treatment of patients with bruxism and bruxomania.

### MATERIALS AND METHODS

For purpose of the present paper 192 participants have been surveyed during "DAYS OF PROSTHETICS, Sofia, 15 -16 March 2014", where 163 of them are dentists and 29 are students in 4th and 5th year of study at the Faculty of Dental Medicine, Sofia. Participation in the questionnaire has been random, not based on prior selection which accounts for its sample representativeness. 181 respondents (94.3%) work and/or study in Sofia and 11 respondents (5.7%) have respectively indicated other locations in the country: Bankya, Batak, Blagoevgrad, Varna, Vratsa, Pancharevo, Pleven, Plovdiv, Studena village.

Depending on their work experience and the

acquisition of specialty in Dentistry participants have been divided as follows: 57 persons (29.7%) have 0 - 5 years of work experience; 13 persons (6.8%) have 5 - 10 years of work experience; 122 people (63.5%) have over 10 years of work experience; 127 persons (66.1%) have not acquired a specialty yet; 65 (33.9%) have a specialty respectively in General Dentistry (47.7%), Prosthetic Dentistry (23.1%), Oral Surgery (13.8%), Orthodontics (4.6%), Pedodontics (6.2%) and Operative Dentistry and Endodontics (4.6%).

According to the prevalence of their dental practice respondents have been arranged as follows: 176 people

(91.7%) are working mostly general dentistry, 8 persons (4.2%) work mainly in Oral Surgery, 6 people (3.1%) mostly Prosthetics and 2 persons (10.4%) are engaged only in Orthodontic practice.

The survey feedback has been obtained via an anonymous questionnaire differentiating respondents' work experience, aspect of dental practice, acquired specialty, etc. The questionnaire consists of 8 questions targeted at dentists' assessment of CMD prevalence of distribution, training in CMD issues in the country and treatment of patients with bruxism and bruxomania.

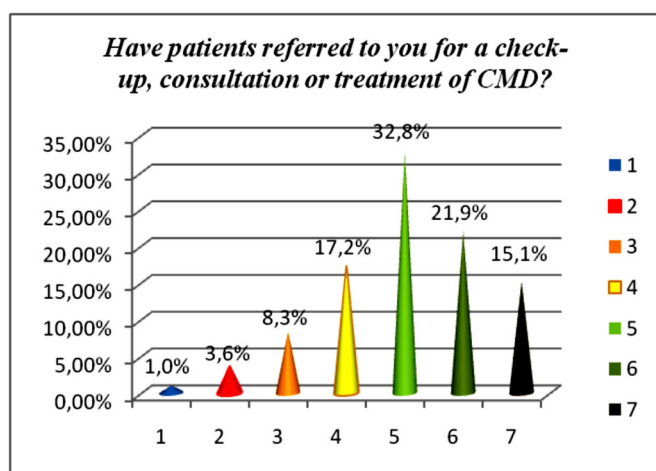
1. Do you have patients who referred to you for a check-up, consultation or treatment of CMD?
  1. Yes, recently more often - between 5 and 10 patients per month;
  2. Yes, often - up to 5 patients per month;
  3. Yes - 1 or 2 patients per month;
  4. Rarely - 1 or 2 patients quarterly;
  5. Rarely - 1 or 2 patients per year;
  6. No, I have not had such patients.
2. Do you consider education and training in our country effective and thorough on issues of diagnostics and treatment of CMD?
  1. During my course of study the curriculum did not cover any methods of diagnostics and treatment of these diseases.
  2. In my view in our country there is no comprehensive and in-depth concept for proper training in diagnostics and treatment of CMD.
  3. Yes, training on this subject is comprehensive and effective allowing successful treatment of patients with CMD.
3. Do you think post-graduate education and training provides sufficient information on the diagnostics and treatment of patients with CMD?
  1. Absolutely not, there is a total lack of information.
  2. There are some lectures on the topic but in general there is no overall diagnostic and treatment concept.
  3. Yes, there are enough forms of postgraduate training in this issue.
4. What forms of training in CMD issues have you attended so far?
  1. I have not attended any.
  2. I have attended: - congresses \_ ,  
- seminars \_ ,  
- practical courses \_ ,  
- lectures on the issue \_ .
5. If you have attended any such courses or lectures, please note how many, what kind and when?
  1. I have never attended any.
  2. I have attended the following: .....
6. What speakers have you listened to on this topic, excluding the present lecture?
  1. I have not listened to any.
  2. Only Bulgarian speakers: .....
  3. Only foreign lecturers: .....
  4. Both Bulgarian and foreign lecturers: .....
7. Do you feel yourself adequately qualified to diagnose and treat successfully patients with CMD?
  1. No, I am not and I am not interested.
  2. No, I am not but I am interested in it.
  3. Yes and I have some experience, but I need more information and knowledge.
  4. Yes, I have experience with such patients, and I consider myself qualified enough on the topic.
8. Do you have success in treating patients with bruxism, myopathy and arthropathy?
  1. I do not treat such patients.
  2. I treat such patients but the effect is only temporary, rather the result of "a placebo effect".
  3. Yes, my patients have been thoroughly cured.
  4. No, patients' condition has not improved.
  5. The treatment performed has often worsened patient's condition.

For the purpose of statistics and data analysis the following methods have been used: frequency analysis and crosstabulation of quality variables; c2-criterion (chi-square) and Fisher's exact (two-tail) test; determining the 95% confidence intervals (CI); graphical methods for data presentation. Statistics software package (Windows version 16.00, 15 Nov. 2007) has been used for statistical analysis of data from epidemiological and clinical research.

## RESULTS

The data obtained from the question "Have patients referred to you for a check-up, consultation or treatment of CMD?" has shown that 190 persons responded to it, representing 99.0% of all participants. (Fig. 1)

**Fig. 1.** Distribution of respondents according to their answers to Question 1.



**Key:** 1- No answer provided; 2- Answer: "between 5 and 10 patients per month"; 3- Answer: "up to 5 patients per month"; 4- Answer: "1 or 2 patients per month"; 5- Answer: "1 or 2 patients quarterly"; 6- Answer: "1 or 2 patients per year"; 7- Answer: "No, I have not had patients with CMD."

The distribution of answers to Question 2 "Do you consider education and training in our country effective and thorough on issues of diagnostics and treatment of CMD?" is intriguing. More than half of respondents (107 persons - 55.7%) believe that "in our country there is no comprehensive and in-depth concept for proper training in diagnostics and treatment of CMD". 32.8% (63 participants) reported that during their course of study "the curriculum did not cover any methods of diagnostics and treatment" of patients with functional pathology of the masticatory apparatus. 95% Confidence Interval of respondents (88.7%) who regard training in this issue as insufficient (option 1 or 2 to Question 2) shows confidence limits 84.0% - 93.1%. It can be safely assumed that this is the group where dentists believing that training on this subject is not thorough enough belong to.

This data has been confirmed by the low 8.9% (17 persons) of the respondents who answered with: "Yes, training on this subject is comprehensive and effective allowing successful treatment of patients with CMD". Moreover, crosstabulation of answers to Question 2 and 4 demonstrates that out of 17 persons 76.5% (13 persons) have not attended any form of training in CMD.

Thus, a statistically significant correlation ( $P < 0.0001$ ) stands out between the distribution of answers to Question 2 and 3: "Do you think post-graduate training provides sufficient information on the diagnostics and treatment of patients with CMD?". (Table 1)

**Table 1.** Distribution of respondents according to their assessment of students' training (Question 2) and post-graduate training (Question 3) in issues of CMD.

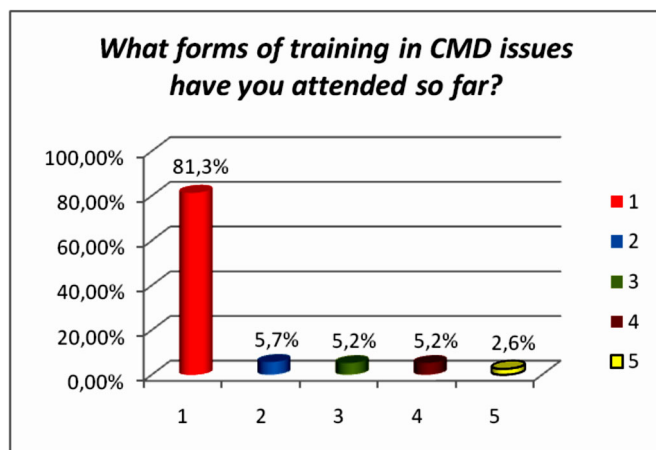
| Answers to Question 3 \ Answers to Question 2                       | Answers to Question 2 | No training in the CMD issues is provided. | There is no overall concept for training in CMD issues. | Yes, training is good enough. | Total  |
|---------------------------------------------------------------------|-----------------------|--------------------------------------------|---------------------------------------------------------|-------------------------------|--------|
| Absolutely not.                                                     | number                | 22                                         | 18                                                      | 4,8%                          | 42     |
| There is a total lack of information.                               | % within row          | 52,4%                                      | 42,9%                                                   | 1,1%                          | 100,0% |
|                                                                     | % of Total            | 12,3%                                      | 10,1%                                                   | 7                             | 23,5%  |
| There is a lack of overall diagnostic and treatment concept.        | number                | 35                                         | 77                                                      | 5,9%                          | 119    |
|                                                                     | % within row          | 29,4%                                      | 64,7%                                                   | 3,9%                          | 100,0% |
|                                                                     | % of Total            | 19,6%                                      | 43,0%                                                   | 6                             | 66,5%  |
| Yes, there are enough forms of postgraduate training in this issue. | number                | 5                                          | 7                                                       | 33,3%                         | 18     |
|                                                                     | % within row          | 27,8%                                      | 38,9%                                                   | 3,4%                          | 100,0% |
|                                                                     | % of Total            | 2,8%                                       | 3,9%                                                    | 15                            | 10,1%  |
| Total number                                                        | number                | 62                                         | 102                                                     | 8,4%                          | 179    |
|                                                                     | % within row          | 34,6%                                      | 57,0%                                                   | 8,4%                          | 100,0% |
|                                                                     | % of Total            | 34,6%                                      | 57,0%                                                   | 4,8%                          | 100,0% |

Both questions are responded to by a total of 179 persons. 85% of them gave a negative assessment of students' and post-graduate training, providing as answer options 1 and 2 to Questions 2 and 3: "During my course of study the curriculum did not cover any methods of diagnostics and treatment of these diseases."; "In my view in our country there is no comprehensive and in-depth concept for proper training in diagnostics and treatment of CMD."; "Absolutely not, there is a total lack of information." and "There are some lectures on the topic but in general there is no overall diagnostics and treatment concept." 95% Confidence Interval of this percentage (85.0% ) is in 79.6% - 90.2% range.

The analysis of answers to the next two questions of the questionnaire has indicated the following: Question 4 "What forms of training in CMD issues have you attended so far?" and Question 5 "If you have attended any such courses or lectures, please note how many, what kind and when?" the option "I have not attended any." has been chosen by 81.3% of respondents (156 persons) for Question 4 and by 81.8% of respondents (157 persons) for Question 5.

Extremely close is the relative percentage of participants specifying what forms of training in CMD issues they have attended until now - for Question 4 the respondents are 36 persons (18.7%) and for Question 5 they are 35 persons (18.3%), respectively. Fig. 2 demonstrates the percentage distribution of the responses received.

**Fig. 2.** Distribution of respondents according to their answers to Question 4.



**Key:** 1- none; 2- congresses; 3- seminars; 4-lectures; 5- courses

A statistically significant correlation ( $P = 0.011$ ) has been observed between answers to Question 4 and respondents' work experience, namely students (with 0 years of work experience) have responded to the question in a fundamentally different way from dentists. 96.67% of students have reported that they have not attended training in this issue, whereas only 3.4% have attended "one lecture"

on the subject. Among dentists who have not attended any training related to the diagnostics and treatment of CMD more than half (58.5%) have work experience over 10 years, 14.8% have work experience 0 - 5 years and 7.0% - 5 - 10 years.

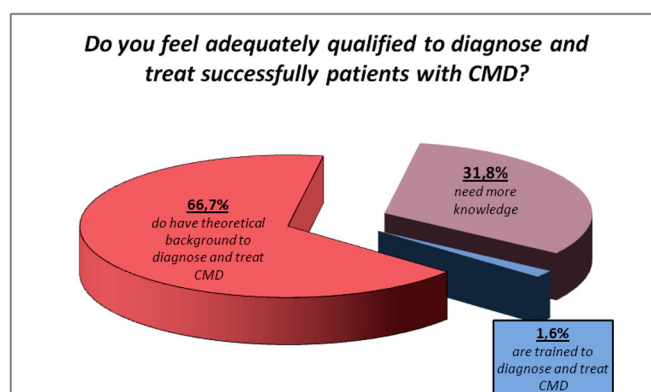
Question 5 "I have attended the following...." lectures and seminars on CMD issues at "SOFIA DENTAL MEETING" returned Option 2 responses, distributed as follows: 11.5% of respondents. 4.2% participants have been to lectures and congresses organized by Sofia branch of the Bulgarian Dental Association whereas 2.6% have attended only courses.

51.4% (18 persons) who have picked options 2, 3 or 4 to Question 6 have listened only to Bulgarian lecturers discussing aspects of CMD issues. 31.4% (11 persons) have chosen to answer with option 3 "only foreign lecturers" while 17.2% have selected option 4 "both Bulgarian and foreign lecturers."

The last two questions of the survey are concerned with respondents' theoretical background to conduct diagnostics and successful treatment of patients with bruxism and bruxomania. To Question 7 "Do you feel yourself adequately qualified to diagnose and treat successfully patients with CMD?" 66.7% (128 persons) have replied negative, 92.2% of them have opted for "No, but I am interested" whereas only 7.8% - "No, I am not interested."

Figure 3 displays the percentage distribution of responses to Question 7, namely the sum of the proportional share in percents of answers 1 and 2 (66.7%), answer 3 (31.8%) and answer 4 (1.67%), respectively.

**Fig. 3.** Distribution of respondents according to their answers to Question 7



Apart from the high percentage of respondents who believe they are not qualified enough to diagnose and treat CDM, the data obtained also reveals the high number of respondents willing to acquire the necessary knowledge for this purpose. They are represented by 179 persons (93.3%) who have delivered options 2 and 3 to this question.



Dentists' self-assessment of their personal success is worth noting, recorded in their answers to Question 8 "Do you have success in treating patients with bruxism, myopathy and arthropathy?". 184 are the respondents here and nearly half of them (48.9 %) "do not treat such patients", 40.7% determine the effect of the treatment as "rather the result of a placebo effect", 5.9% believe that "patients have been thoroughly cured" and 4.3% reported "patients' condition has not improved" or "the treatment performed has often worsened patient's condition."

## DISCUSSION

The feedback from the questionnaire demonstrates that patients with CMD refer to 29.1% of the respondents on a monthly basis. The relative percentage (32.8%) of those who report that they treat "1 or 2 patients quarterly" is close. The cumulative percentage (83.8 %) of all dentists who have given options 1 - 5 to Question 1 is quite high.

Consequently, the results obtained from Questions 2, 3, 4, 5 and 6 cause great concern as it is confirmed by the high percentage limit of 95% CI (84.0% - 93.1%) of dentists in the country believing students' education lacks comprehensive and in-depth concept for proper training in diagnostics and treatment of CMD. These findings are further supported by the negative assessment of 85% of respondents regarding postgraduate training in aspects of CMD issues. The concluded 95% CI of this percentage and the statistically significant correlation between responses to Questions 2 and 3 determine a 79.6% - 90.2% range, hence 95% can certainly be expected to be the dentists defining training in CMD issues as "insufficient or non-existing".

The distribution of responses to the next two survey questions - Question 4 and Question 5 - illustrates the above-said: 81.3% of respondents to Question 4 and 81.8% of

respondents to Question 5, respectively, by 15 March 2014, had not attended any form of training related to CMD. This data should be interpreted responsibly as 93.3% of respondents maintain that they do not feel adequately qualified to diagnose and treat the CMD, however, many are interested in having such training, knowledge and skills.

Respondents' self-assessment of the treatment performed by them is quite logical: only 5.9% believe they are able to conduct successful treatment of patients with bruxism, myopathy and arthropathy. Still, the cumulative percentage (93.9%) of those who report that patients have not been thoroughly cured, or that their condition has not improved, or that the effect is "placebo", or refuse to treat patients with CMD is alarmingly high.

## CONCLUSION

The issue of modern methods of diagnostics, pre-prosthetic preparation and treatment of the masticatory system of patients with craniomandibular disorders in Bulgaria is prevalent and serious. The analysis of the subjective assessment of dental practitioners and students regarding the prevalence, diagnostics and treatment of CMD issues must be taken into serious consideration as it provides professional dental circles in Bulgarian with important feedback on the quality of training in this common and socially important problem, outlines the problems and niches in education, and justifies the need for update in the education in this area. To successfully treat patients with craniomandibular disorders they first have to be properly recognized. Therefore, the development and promotion of a working platform for early screening, diagnostics and treatment of CMD for timely referral to a specialized treatment is highly necessary and expected by the professional community in Bulgaria.

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