ABSTRACT:

Thermoplastic materials (TMs) are used more than a century in dentistry worldwide, but in Bulgaria, there is limited information about their properties and indications. These materials let the specialists widen the application of full and partial dentures even in difficult clinical cases. Objective: A survey regarding the awareness of the properties, the drawbacks and the indications of the thermoplastic materials for dental purposes in Bulgaria. Material and method: Inquiry ranged from April 2016 until October 2016. The participants were 289 dentist and dental technicians in Bulgaria. The questions regard area of expertise, gender, age, years of experience; awareness of the types of TMs, members and working protocol; properties of the materials, personal observations of the participants. Results: Most of the participants work in a private practice, and half of them are familiar with the TMs in general. Conclusion: This study shows that 52% of the participants are aware of have some information about TM, 82% of them know the polyamides, 25% the thermoplastic acrylic resins, 15% polyoxymethylene, 4% polyolefin and only 1,5% Polyan. 42% use these materials in their practice and are familiar with the technological and working protocol and only 36% report that they are aware of their properties, disadvantages and indications.

Keywords: thermoplastic, denture base, resin

INTRODUCTION:

In 1983, thermoplastic materials (TMs) were introduced as a material suitable for denture fabrication. They possess the fundamental quality of elasticity, allowing them to replace metal alloys when used in combination with acrylic resin in the fabrication of traditional removable dentures. TMs have been used for over a century in dental practice worldwide. In Bulgaria, there is limited information on their properties, indications and applications. This conducts improper and even incorrect usage, not permitting the advantageous material to be used to its full potential. [1, 2, 3] The proper understanding of the application of these materials will enable dentists to widen the indications of removable dentures resulting in providing of optimal treatment in clinical problem solving. [2, 3, 4, 5, 6]

OBJECTIVE:

To conduct a survey investigating the awareness of the properties, the drawbacks and the indications of TMs for dental purposes in Bulgaria.

MATERIAL AND METHOD:

The study was conducted using a questionnaire containing 20 questions most significant of which are: what is your gender, age and years of experience; what is your occupation and working place; are you familiar with TMs; are you familiar with the different members of the group of TMs; do you use TMs in your daily practice; how do you evaluate the accuracy, aesthetics and sensitization of TMs; did you notice any drawbacks in TMs.

The information was obtained during dental seminars of the Bulgarian Dental Union, from dental clinics, practices and dental laboratories, from April 2016 until October 2016. The total number of participants in the study is 289, 77% of which are dentists and 23% dental technicians. Stein’s formula was used to determine the required number of units in this study, enabling the reliability of the results.

For processing the initial data, we used: calculus of variations for the quantitative signs, analysis of alternatives for the qualitative signs, correlation coefficient, graphical methods for displaying results. The collected data was inserted into tables.

RESULTS AND DISCUSSION:

Analysis of the age distribution of the participants showed an observational difference between the two professional groups. The majority of the dentists were within the 25 to 34 age range, whereas the majority of dental technicians were within the 30 to 45 age range. There is a slight prevalence of sex – over 50% of the participants were female. The age-gender distribution in groups is shown in diagram 1.
Less than a third of the participating dentists were specialists – 28.25%.

There is a noticeable difference in the duration of working experience between male and female dentists. According to the survey, 84.55% of the dentists and 96.07% of the dental technicians work in offices and laboratories and 6.29% in dental faculties. [Diagram 2]

The number of participants familiar with TMs is 141, and the number of participants not familiar with TMs is 148. [Diagram 3]

The most familiar TMs are Polyamides, also being the greatest number of materials - 43% of the participants are aware of it, and only 1% are familiar with Polyan. [Diagram 4]

Almost 43% of the participants expressed their opinions in regards to the accuracy of the dentures, aesthetics and sensitization of the materials. 62% of the participants gave a positive response to accuracy, 73% to aesthetics and 100% define TM as hypoallergenic. [Diagram 6]

The majority of the dentists, 56%, preferred not to use TMs in their daily practice and only 25% claimed to use it. The distribution amongst the dental technicians seemed to oppose: 17% used TMs, and 2% did not. [Diagram 5]

The participants familiar with the laboratory protocol are 45% of which 90% are dental technicians and 31% dentists.

A small number of the participants share negative views on TMs. This could be due to lack of knowledge or incorrect utilisation. [Diagram 7]
CONCLUSION:

The total number of participants in this inquiry is 289. The majority of the dentists were within the 25 to 34 age range, whereas the majority of dental technicians were within the 30 to 45 age range. There is a slight prevalence of sex – over 50% of the participants were female. 28% are specialists and 88% work in private offices or laboratories.

This study also shows that: 52% of the participants are familiar with or have information on TMs; 82% of them are aware of polyamides; 25% are aware of the thermoplastic acrylic resins; 15% are aware of polyoxymethylene; 4% are aware of polyolefin and only 1.5% of Polyan. 42% use these materials in their practice and are familiar with the technological and working protocol and only 36% report that they are aware of their properties, disadvantages and indications.

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Address of correspondence:
Dr Bozhana Chuchulska,
Department of Prosthodontics, Faculty of Dental Medicine - Plovdiv, 15A, Vasil Aprilov str., Plovdiv, Bulgaria.
e-mail: bogana_68@abv.bg