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**STRESS AND ANXIETY IN DENTAL MEDICAL**

**PRACTICE**

**SUMMARY OF PhD THESIS**

**PhD Supervisor:**

**PROF. UNIV. DR. PREOTEASA ELENA**

**PhD Student:**

**DONE ALEXANDRA ELENA**

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## **Introduction**

In relation to dental treatments, patients may experience stress or anxiety, which may cause changes in their attitudes, such as avoiding or delaying treatment, with impaired oral health by not presenting for treatment [1]. Stress felt previously or during dental treatment may be associated with a number of physiological changes that may have a negative influence on dental treatment [2]. Manifestations that can occur in stress and anxiety are in relation to the nature, extent and setting in which stress factors act, as well as the individual's response capabilities [3]. Considering these important aspects in relation to the field of dental activities, for a better understanding of patients' behavior and for increasing patient accessibility and compliance, the research aims to analyze cognitive-behavioral, physiological and emotional aspects regarding stress and anxiety in relation to dental practical activities.

Through the doctoral research, the anxiety and stress of the patients were evaluated, related to the visit to the dentist, evaluated by different methods and contexts. The work comprises eight chapters structured in general part and personal part

**The General Part** includes the first chapter (with 7 subchapters) in which the state of knowledge regarding anxiety and stress in relation to dental treatment is present. Also, general information about anxiety and stress is presented, but also information on the causes, identification, effects, and reduction of anxiety towards the dentist.

**The Personal Part**, comprises seven chapters in which the purpose and objectives of the studies conducted are presented (Chapter 2), the general methodology of the research (Chapter 3), the studies (Chapters 4-7), the conclusions and personal contributions (Chapter 8)

**Chapter 2** presents the purpose and objectives of the study for each research direction

**The aim of the research** was to evaluate the anxiety and stress of the patients, related to the visit and during some therapeutic dental interventions, assessed by different methods and in various contexts. For a broader understanding of the topic addressed, the research aimed at several directions outlined in the general objectives of the work with the following specific objectives and working hypotheses:

1. The evaluation of the Romanian language alternatives of some questionnaire-type indices, widely used to evaluate anxiety in relation to dental treatment, to test their validity and fidelity, had specific objectives:

- Evaluation of validity and fidelity of DAS (Dental Anxiety Scale) dental anxiety measurement indices

- Evaluation of validity and fidelity of IDAF-4C+ dental anxiety measurement indices; (Index of Dental Anxiety and Fear)

- Assessing the validity and fidelity of dental anxiety measurement indices from the perspective of fear of pain FDPQ (Fear of dental pain)

2. The evaluation of anxiety concerning dental treatment and its relationship with various individual particularities had specific objectives:

- Assessment of anxiety in relation to dental treatment and various individual characteristics, with reference to general aspects (age, sex, level of education)

- Assessments of fear of pain in relation to dental treatment in general and related to previous dental treatments

- Assessment of anxiety towards the dentist and the level of medical information in the field, recorded through the study program followed by the participants.

3. Analyzing and comparing subjective and objective methods of assessing stress and anxiety during dental treatments, with different stress levels, based on the recording of stress biomarkers, had the following specific objectives:

- Evaluation of the stress and anxiety associated with the insertion of dental implants, through subjective methods (interview and questionnaire) and objective methods (with the recording of the following stress biomarkers: salivary cortisol, blood pressure, and pulse), in a general way and related to various individual characteristics;

- Comparative assessment of the stress recorded subjectively and objectively in the dental implant application session compared to the session in which the suture threads are removed;

- Analysis of the relationship between subjective stress reporting and objective assessment by recording salivary cortisol biomarkers, blood pressure, and pulse

4. The assessment of stress levels, addressability for dental treatments, and self-medication, as behavioral changes in the particular context of the pandemic with SARS-CoV-2 had the following specific objectives:

- Comparative analysis of stress in general and on accessing dental, general medical, and pharmaceutical services during the pandemic with SARS-CoV-2, in a state of emergency compared to an alert state;

- Knowing the main reasons to avoid visiting the dentist during the pandemic with SARS-CoV-2.

- Analysis of recommended drug use or self-medication during the pandemic with SARS-CoV-2.

The working assumptions were:

- In the pandemic with SARS-CoV-2, the stress on addressability to dental, general medical, and pharmaceutical services is different;
- Stress on accessing medical and pharmaceutical services, medication, and reasons for addressability at the dental office is different in the state of emergency vs the alert state of the pandemic with SARS-CoV-2
- Self-medication is assessed as being related to behavioral changes, by increasing stress and anxiety levels, in the context of the pandemic.

**In Chapter 3** the general methodology of the research is presented.

The study was approved by the Ethics Commission of Scientific Research of the University of Medicine and Pharmacy „Carol Davila”. At all stages of personal research, the participants were informed, and consent was requested to participate in the study. The main information they received was regarding the purpose of the study, the compliance with data confidentiality, what participation in the study entails and the risks it involves, as well as the information being adapted to each research. An email address was provided as contact details if they wanted more information, about some concerns.

In order to achieve the proposed objectives, several independent researches were carried out, interconnected by the theme. The research had a different design, in relation to their purpose, being carried out observational, descriptive or analytical, transversal or longitudinal studies. Thus, questionnaire-type tools were selected from the specialized literature, which were validated in Romanian and verified on population groups with different characteristics and dental interventions. For analytical studies, comparisons were used, different in relation to the purpose of the research (for example, to evaluate the stress and anxiety associated with the insertion of implants, its level was compared with the one felt before the procedure for removing sutures in the subsequent session, and the students from the Faculty of Dentistry were compared with students from faculties with another field of training). Research was carried out in four distinct batches. The four different studies, in scope, sample, and study design were as follows:

- - Cross-sectional study on the non-clinical sample, with the evaluation of the indices DAS, IDAF-4C+, of anxiety in relation to dental treatment and its impact of previous dental interventions;
- Cross-sectional study on a sample consisting of students for the evaluation of the s-FDPQ index and the evaluation of anxiety in relation to dental treatment in students



of the Faculty of Dentistry compared to students of other faculties with another field of training

- - A prospective study on a sample of dental office patients was conducted to assess stress and anxiety compared to procedures for inserting dental implants and removing suture threads, as well as the concordance of subjective and objective assessment of stress during dental procedures.
- - Prospective study to evaluate stress, addressability for dental treatment, and medication during the pandemic with SARS-CoV-2, during the periods of state of emergency and state of alert.

The assessment of anxiety in relation to dental treatment is frequently carried out by using questionnaire-type indices. Among the many available alternatives, 3 indices designed for this purpose were chosen after the specialized analysis, considered to be used very often, and generally appreciated as having good psychometric properties for evaluating the concept. The three indices used in the research were: the DAS index (Dental Anxiety Scale), the IDAF-4C+ index (Index of Dental Anxiety and Fear), and a variant modified by adding a question of the s-FDPQ index (short version of the Fear of Dental Pain Questionnaire). Given the fact that these indices were available in English, the first step in their use was to validate their versions in Romanian. Their validation procedure followed similar stages but was carried out on different samples. Thus, in the first phase, the Romanian version of the questionnaires was carried out, in several stages, for linguistic validation, and later their validity and fidelity were evaluated. To analyze the fidelity of the questionnaires, test-retests were used, the internal consistency of the questionnaire was tested, and the half-life method was used. To test the validity of the questionnaires, confirmatory factor analysis and correlation coefficient were used to test the convergent validity.

The analysis of the data was performed differently in relation to the purpose of the research, being used for example tests for comparing groups Chi Square test for nominal variables for comparing two independent groups, Mann Whitney for comparing two independent groups for numerical variables, and Wilcoxon , for comparing two paired groups, correlation analysis to assess whether there are linear relationships, regression analysis to make predictions. In order to test the agreement between numerical variables, the intra-class correlation was used, and for categorical variables the Kappa coefficient. The software used to analyze the data were SPSS Statistics, Jasp, R, and Microsoft Office. The threshold of statistical significance was set at  $p < 0.05$ .

**Chapter 4** presents the validated testing and fidelity of the DAS and IDAF-4C+ indices in Romanian and the assessment of anxiety in relation to dental treatment related to general characteristics and dental history. The study had a first stage of selection, translation, and validation of the questionnaires used to assess dental anxiety (DAS, IDAF-4C+). For these questionnaires, the validity in Romanian was tested, they were evaluated from the point of view of psychometric properties. Later, the level of anxiety measured by means of questionnaires was analyzed in relation to personal characteristics, previous performance of dental procedures, avoidance of accessing these types of medical services as well as the level of oral health perceived by the participants.

The data was collected through a questionnaire distributed online through the Google Forms platform, between May 2021 and September 2022. Major, autonomous individuals who consented to participate in the study were included in the study and persons who did not wish to participate in the research were excluded; persons who have never been to the dentist.

In determining the sample size, recommendations to include at least 10 subjects for each question were considered [4]. Given the fact that the IDAF-4C+ index has 23 questions; the minimum sample size was considered to be 230 people.

The fidelity and validity of the questionnaires were tested. Several methods were used to assess the fidelity of the questionnaire: the test-retest method, the half-life method, and the internal consistency test by the Cronbach Alpha coefficient. Confirmatory factor analysis was used to test validity. The Cohen Kappa coefficient was used to determine if there was agreement between IDAF-4C+ and DAS. To test the convergent validity between the questionnaires, the Spearman correlation coefficient was calculated.

The DAS questionnaire has good validity and fidelity. In this study both the one-factor model and the two-factor model for the DAS questionnaire were tested, both of which have good psychometric properties. Looking at the fidelity of the DAS questionnaire according to the Cronbach Alpha coefficient (0.888) and the half-life method (Spearman Brown=0.893), the inter-class correlation (0.894), it has good fidelity.

The IDAF-4C+ questionnaire core module has good convergent validity, the score of this module is strongly correlated with the DAS anxiety questionnaire score and moderated with the control question. However, there was a moderate agreement between the IDAF-4C+ and DAS questionnaires regarding the presence or absence of anxiety according to the Kappa index which had a value of 0.617 indicating a moderate agreement between the two questionnaires [5].

In this study, those who answered affirmatively to the questions in the phobia module had higher anxiety values according to IDAF-4C+ and DAS compared to those who answered negatively, but the mean did not exceed the threshold value of 3 for IDAF-4C+ [5].

Painful procedures, followed by the cost of treatment and fear of needles and injections were the stimuli that participants said they felt most worried about when they went to the dentist. The level of anxiety was most strongly correlated with not knowing what the dentist was going to do ( $r=0.636$ ,  $p<0.001$ ) and painful procedures ( $r=0.556$ ,  $p<0.001$ )[5].

In this study, we observed a slight increase in anxiety with age. Observing the score of questions in the stimulus module of the IDAF-4C+ index, among anxiety-generating stimuli, the fact that people do not know what the dentist is about to do with needles and injections had the highest value for participants with postgraduate studies. Statistically significant differences were observed between men and women, with higher values for women, only regarding the score value for stimuli related to lack of control, feeling sick, vomiting or drowning, and the negative perception of the dentist [5].

Regarding the analysis of the level of anxiety towards the dentist in relation to the perception of oral health status and previous dental treatments, oral health self-esteem is poorly negatively correlated with anxiety towards the dentist, respectively with the DAS score ( $r=-0.399$ ,  $p<0.001$ ) and the score of the basic mode of IDAF-4C+ ( $r=-0.449$ ,  $p<0.001$ ).

The level of anxiety was different depending on the reason participants said they generally go to the dentist. Therefore, participants who generally go for a check-up every 6 months or once a year, or who go when they notice a non-urgent problem have a lower level of anxiety. Participants who regularly went for check-ups had lower levels of anxiety about all stimuli [5]. The more recent the last visit to the dentist, the lower the level of anxiety, an aspect observed when using both indices, DAS and IDAF-4C+.

Lower levels of dental anxiety have been associated with scaling, orthodontic treatment, and dental implants, while increased levels with mobilizable prosthetic restorations. Endodontic treatment, extractions, and fixed prostheses were not associated with dental anxiety. Participants who had scaled in the past generally had lower values for all items of the stimulus mode and showed a lower probability of responding affirmatively to all items of the phobia module. The participants with removable dentures reported higher levels for the following anxiety-provoking stimuli: the cost of dental treatment and feeling ashamed or queasy when going to the dentist [5].

In the literature, a lower agreement compared to that in this study was reported between the DAS and IDAF-4C+ questionnaires ( $Kappa=0.498$ ) [6]. The difference between the questions can be based on the differences between the questionnaires, for example, IDAF-4C+ also has a component related to weaker behavior represented by the DAS questionnaire.

**In Chapter 5** The second study it was tested the validity of the s-FDPQ questionnaire, which measures the fear of pain in relation to dental treatments. In addition, the level of anxiety was assessed and the results obtained by students from dentistry and other faculties were compared, with a different level of medical information, highlighting the particularities of patients in relation to anxiety.

The s-FDPQ questionnaire has five items considered the most representative of the fear of pain [7]. In this study, the questionnaire was modified by adding a question regarding the fear prior to the insertion of an implant, being a procedure that involves a high level of stress on patients with implications for the decision to choose treatment with implants [8].

The value of the Cronbach alpha coefficient for the s-FDPQ questionnaire was 0.92, the questionnaire having good fidelity. If any of the items were taken out the internal consistency of the questionnaire would not improve. The value of the Spearman-Brown coefficient was 0.878, which shows good fidelity. The s-FDPQ questionnaire items were moderately correlated with the DAS and IDAF-4C+ questionnaire score. The strongest correlation was of the item with reference to the endodontic treatment. According to confirmatory factor analysis, the single factor model of the questionnaire measuring fear of pain s-FDPQ variant modified by adding a question is plausible. The procedures that participants were most afraid of pain were surgical procedures, insertion of an implant, and extractions. If they had no endodontic treatment in the past they had a better chance of being afraid of pain [9].

Dental students had a lower percentage of anxiety compared to students at another college. Comparing the stimuli that determine anxiety in general, recorded in the IDAF-4C+ questionnaire, for all students, the most important stimulus is the fear of pain, followed by the cost of treatment, and the use of needles and injections. Comparing the level of anxiety between dental students and those who do not study dentistry, the general tendency was observed for students attending dental faculty to register lower values for all stimuli. In the case of dental students, stimuli for anxiety are poorly correlated with the value of the index of the basic module of IDAF-4C+. The strongest correlation is between anxiety level and lack of control ( $r=0.428$ ,  $p<0.001$ ). While for students in another field, the strongest

correlations between stimuli and anxiety levels are for painful procedures ( $r=0.631$ ,  $p<0.001$ ) and for not knowing what the dentist is going to do ( $r=0.603$ ,  $p<0.001$ ). Most dental students tend to go to the dentist for a check-up or when they notice they have a problem that is not urgent [10].

The level of knowledge in the dental medical field can contribute to reducing the level of anxiety of patients and adopting behaviors that lead to good oral health [11]. Previous studies have reported that the difference between dental students and students in other fields regarding anxiety is due to the knowledge acquired by students during college [11]. The problem may arise that the reduced level of anxiety in dental students can be explained by characteristics related to personality or the reason why they chose their dental faculty.

The lack of control during treatment was a stimulus with quite high values for those who do not conduct studies in the field of dentistry. In the case of dental students, the lack of control was most strongly correlated with the level of anxiety. Thus, good communication with the patient and increased control levels can be beneficial for reducing anxiety. One way the patient can feel in control is to agree to a commonly agreed sign so as to stop the procedure if necessary [12,13].

Among the causes of anxiety towards the dentist mentioned in the literature, previous experiences at the dentist, both personal and those of close people, can influence the level of anxiety [14], and can explain the increased level of anxiety if they did not have the intervention.

In **Chapter 6**, the assessment of patients' stress and anxiety was addressed before the intervention of inserting dental implants, in relation to the previous experience regarding dental treatments, but also to some associated medical interventions, of a smaller magnitude, through the objective determination of some biomarkers (pulse, tension, cortisol).

A prospective, observational, and analytical longitudinal study was conducted. The data was collected between May 2022 and February 2024.

Major patients were included, with different forms of edentulousness, who are going to be subject to the insertion of dental implants and later prostheses on implants, independently of the realization of this research. Exclusion criteria were: the presence of general conditions that contraindicate surgical interventions and the insertion of implants, the presence of general conditions and/or with medication that can influence the level of salivary cortisol (Addison, Cushing, cortisol drugs), participants who do not agree to participate in the study

30 participants were included in the study, mostly male. For most participants the last school graduated was high school. The average age was 56.1 years. For 17 of the participants, data were collected in two treatment sessions, namely when dental implants were inserted and when suture threads were removed.

Prior to inserting the implants, most participants had a reduced level of anxiety. The stress level was average according to the subjective assessment through a unique question, an aspect also suggested by some of the registered biomarkers, with reference to diastolic blood pressure, cortisol, and pulse. The pulse was significantly higher in participants who had implants in the past compared to those who did not have implants inserted in the past. The level of blood pressure, both systolic and diastolic, was higher in participants who had scheduled extraction and implant in the same session compared to those who had scheduled implant only. Pulse and stress levels were slightly higher, but the difference was not statistically significant. The stress prior to the intervention and the level of anxiety measured by the DAS index were positively correlated. Pain was associated with blood pressure at the beginning of the intervention and with the level of stress felt at the end of the intervention. No correlations were encountered between subjective and objective assessments of stress.

The level of stress evaluated subjectively, by a single question, was higher before the insertion of the implants compared to the end of the intervention, before the removal of the threads, and immediately after the removal of the threads. Pulse, tension, pain, and cortisol showed rather reduced variations between interventions, with higher values being in the insertion session of the implants, but the differences were not statistically significant.

In general, surgical treatments are associated with an increased level of stress and anxiety in patients [16,15]. For insertion of implants a mean level was reported Pani et al. [17]. Similarly, in this study the participants reported an average level of stress, prior to the insertion of the implants. Subjectively measured stress and anxiety were not correlated with pulse, blood pressure, and salivary cortisol levels. Similar to the results obtained by Pani et al [17]. in this study, there was no correlation between anxiety level and pulse rate. Previous results on the association between anxiety and cortisol levels are contradictory, most studies did not find a correlation between the two, Sadi et al [18] and Brand [19] found them unrelated, similarly, and Kanegane [20] did not find a correlation between dental anxiety and cortisol levels, but found a correlation between perceived pain and cortisol levels. However, there are also previous studies that have reported that the level of anxiety is positively correlated with the level of salivary cortisol [21,17].

The collection of several salivary cortisol samples would have been indicated to have reference values. We tried to register the cortisol after the intervention but this was not possible due to blood contamination of the sample and failure to perform the analysis by the laboratory.

In **Chapter 7**, the general stress level of patients during the pandemic with SARS-CoV-2 was analyzed, being comparatively assessed at two points in time: immediately at the end of the state of emergency period and three months later. The data was collected by means of a telephone interview.

Information related to the level of general stress, access to dental medical services, respectively hospitals, family doctors, and pharmacies was recorded as well as the frequency of use of self-medication in relation to the level of medical information.

According to the results, given their limits during the pandemic, in the initial periods, with reference to the state of emergency and the state of alert - different periods from the point of view of the general context - there were differences regarding addressability for medical services in general and dental in particular, but also regarding certain associated behaviors.

The overall stress felt was higher during the state of emergency compared to the immediately preceding period, while, 3 months later, when reapplying the questionnaire, participants had lower levels of stress [22].

Regarding accessing dental and other medical services, in terms of the behavior of the participants, fear was observed in accessing medical services, even during the period in which they were not restricted. The greatest fear was associated with the possibility of going to the hospital, followed by the dental office, family doctor, and pharmacy, the difference being statistically significant. At the first application of the questionnaire, most patients stated that they would postpone dental treatments if they were not urgent and after the completion of the state of emergency, the main reason being the possibility of becoming infected with SARS-CoV-2, this fear being significantly higher in younger people. Later in the second survey application, the number of people who would postpone going to the dentist was reduced [22]. In the context of the pandemic, due to the limitation of access to medical services, the correct information of patients regarding the maintenance of a general state of health is an important aspect, along with the correct information regarding the safety of the dental medical therapeutic act.

Some participants said they are afraid to contact the virus in the dental office due to its agglomeration. Other research has also reported fear of virus infection in the dental office

[23]. According to Lin et al. [24] the increased level of fear of contracting the virus was also due to uncertain information received through the media with negative effects on sleep and stress levels, recommending limiting the use and involvement of doctors in information campaigns. As far as drug use is concerned, there has been an increasing trend in self-medication. Part of the self-medication reasons reported in the literature during the pandemic were fear of infection and quarantine [25]. Frequently reported in the literature during the pandemic, vitamins, acetaminophen, and antibiotics [25,26] were used as self-medication. Self-medication is a problem also associated with dental conditions being more frequently reported in the elderly [27]. The use of pain relievers, and antibiotics to reduce pain in those who are afraid of dentists and lower incomes have been reported in the literature [28]. In this study, the consumption of paracetamol for dental pain was reported as well, but in a small number of participants, by limiting access to dental services, this behavior was encouraged during the pandemic.

In **Chapter 8**, the conclusions and personal contributions of the study are presented

The personal research highlighted a series of aspects regarding anxiety and stress in relation to dental treatments, in terms of subjective and objective evaluation methods, particular aspects related to the general and individual characteristics of the patient, the type of medical interventions, the approach, and access in contextual situations.

- DAS questionnaire shows good validity and fidelity
- The IDAF-4C+ questionnaire the core module is valid and faithful recording in addition to the DAS questionnaire which predominantly records an emotional component and a cognitive-behavioral component. The stimulus module is valid and faithful, however, it can be improved. The phobia screening module, although it has good fidelity, has less validity, and it manages to capture a higher level of anxiety, but not necessarily phobia.
- The short form of the FDPQ questionnaire that records fear in relation to pain, is a valid and faithful questionnaire. Adding a question regarding the insertion of an implant can help to better understand the concept as the questionnaire has good psychometric properties.
- As medical experiences and patient histories, those who had previously had treatments such as scaling, implants, and orthodontic treatment generally had lower levels of anxiety compared to those without such treatments in the past.
- Fear of pain is one of the most powerful stimuli associated with dental anxiety. The highest value was for surgical treatments, the extraction of the wisdom tooth, followed by the insertion of implants. Those who had such treatments in the past have generally experienced a lower level of fear of pain.



- People with undergraduate and graduate education have a greater need for information, not knowing what the dentist is going to do has had a higher level and has been more strongly correlated with anxiety.

- Dental students in general have lower levels of dentist anxiety compared to students in other fields, arguing for the importance of level of information on anxiety levels.

- Avoidance of dental treatment is associated with an unsatisfactory perception of oral health. A large percentage of people would report to the dental office to resolve an emergency rather than for the treatment of older dental problems or to prevent the emergence of new ones.

Objective methods of assessing anxiety, such as measuring pulse, and blood pressure and determining salivary cortisol, showed different values, correlated with stress and anxiety levels:

- Between subjective and objective measurements of stress no association was found.

- Before the dental implant insertion procedure, patients experience a higher level of stress, highlighted subjectively, but also suggested by some stress biomarkers, for example through higher values of pulse, diastolic pressure, and cortisol.

- Immediately after the application of dental implants, compared to the situation before their application, the subjective stress level reported by the patient shows a considerable decrease, and the evaluated stress biomarkers record a different variation, systolic tension increases, diastolic tension decreases, and pulse decreases.

- Before the application of dental implants, compared to the situation observed before the removal of sutures, the stress reported by the patient has a higher level, the systolic blood pressure has similar values, but the diastolic blood pressure, the pulse, and the cortisol have higher values.

Regarding some contextual situations, that can change the level of stress and anxiety, such as the pandemic with SARS-CoV-2, it was observed that:

- Periods of crisis, such as the pandemic, have a negative effect on the individual and implicitly on dental medical practice. Thus, the level of stress recorded at the end of the state of emergency was higher compared to the period before the pandemic with SARS-CoV-2.

- During the pandemic, behavior changed, considered preventive for SARS-Cov-2 infection with self-administration of medication, such as vitamins, to boost immunity.

- Increased fear of going to the hospital and dental office was identified. Initially, the fear of going to the dental office, determined by the possibility of contracting SARS-Cov-2, had a high level, close to the fear of going to the hospital.

- The main reasons why participants avoided visiting the dentist were treatment costs, painful interventions, and in the context of the SARS-CoV-2 pandemic, the fear of contracting the virus was added to the dental office.

Regarding the aspects highlighted by the studies, it is assumed that subjective and objective measurements of stress and anxiety related to dental services could be influenced by general characteristics and level of information. Preparing the patient before dental procedures is necessary for reducing stress and anxiety.

### **Personal contributions**

During the research carried out, we validated in Romanian three questionnaires present in the specialized literature as being used until now for the evaluation of anxiety in relation to dental treatments.

These questionnaires, DAS, IDAF-4C+, and FDPQ, allowed me to test and highlight a number of particular aspects of anxiety and stress in relation to dental treatments in different population groups, in terms of their general characteristics, access to dental treatments, their experience and level of medical information.

An important benefit brought by this research is the contribution made to the identification of people with anxiety and the stimuli that participants are concerned about when going to the doctor, their identification being the first step necessary to take the necessary measures to reduce the negative consequences.

In addition, the research supports the hypothesis that simple and very accessible methods for the dentist such as informing patients, dispensary, and simple maneuvers, such as sanitizations and descaling, can favor a lower level of anxiety, and future studies are needed for confirmation.

The subjective stress reported by the patient may be different from the physiological manifestations that patients present, it is indicated to measure blood pressure and pulse in stressful conditions before more stressful medical interventions such as surgical ones or implant insertion.

We also highlighted that in some contextual critical situations, such as the SARS-CoV-2 pandemic, the stress level was higher, which also manifested itself in relation to dental treatments.

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