

# A brief cognitive-behavioral intervention for stress, anxiety and depressive symptoms in dental students

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## ABSTRACT

The objective of the study was to implement a brief cognitive-behavioral psychological intervention focused on helping dental students to cope with symptoms of stress, anxiety, and depression and to describe the main reasons for consulting and the changes perceived by participants of this intervention. The study consisted of an A-B-C design of a series of individual cases, with evaluations at the beginning of treatment, during treatment, and one month after the last session. The sample was composed of five university students who voluntarily requested psychological care for symptoms related to their studies and work in dentistry. To evaluate the symptoms we used the Outcome Questionnaire (OQ) 45.2, the Dental Environment Stress Questionnaire and a semi-structured exit interview. After attending 8 sessions, all 5 participants reduced their perceived stress in the dental environment. Two of the 5 participants initially had dysfunctional scores according to the questionnaire OQ-45.2 and by the end had normal scores. At the same time, the other 3 participants maintained their scores in the normal range. These results match the qualitative outcomes obtained from the exit interview. The participants reported improved coping skills after the intervention. The main limitation is that it was a non-experimental study; likewise causation cannot be attributed to the intervention and generalizations cannot be formed based on so few cases. Nevertheless, the results were promising in that the dentistry students reported that the intervention was necessary and useful for their psychological well-being.

**Key words:** Cognitive behavioral intervention; Series of cases; Stress; University students; Well-being.

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## Introduction

There is ample evidence of the close theoretical and empirical relation between stress, anxiety and depression, indicating that they all belong to the same spectrum rather than representing independent clinical pictures (Barlow, 2000). This relation has been explained by a negative affective component that would be at the base of this type of disorder, represented by the degree to which one tends to feel a state of being uncomfortable more than one of being relaxed, linked to feelings such as guilt, anger, sadness, fear, disgust and worry (Anderson & Hope, 2008).

Stress refers to a particular dynamic relation between the person and the surroundings; confronting it implies behavioral and cognitive efforts to dominate, reduce or tolerate the external and/or internal exigencies (Meichenbaum, 1987). Chronic stress, especially its psychosocial variety, is a risk factor for several psychopathologies, including anxiety disorders and depression (Slattery et al., 2012). Anxious subjects overestimate the danger associated with situations, and underestimate their capacities to confront the stressor (Sanz, 1993), which impedes their effective response capability (Sarason, 1984). In addition, states of pathological anxiety lead to a *vigilance-avoidance* pattern that interferes with the habituation process, maintaining anxiety in the long term (Craske et al., 2009).

Although young university students are elite in social terms, they frequently present different difficulties that affect their well-being and impede appropriate adaptation

(Cova et al., 2007). It has been reported that the academic performance of 44.3% of this population is affected by mental health problems (Eisenberg, Gollust, Golberstein, & Hefner, 2007). These findings have been associated with important sources of stress, such as the particular characteristics of the life cycle of the population, the demands of the university, finances, the choice of career, exam periods, and, especially in careers in the health area, the beginning of attention to patients (Alzahem, Van der Molen, Alaujan, Schmidt, & Zamakhshary, 2011; Feldman et al., 2008; Micin & Bagladi, 2011; Giri, Pratap, Marla, Kamait, & Giri, 2014).

The evidence indicates that students in the health area have greater prevalence of psychological distress (Giri et al., 2014), concentrated mainly in medical students (Perales, Sogi, & Morales, 2003; Bahri et al., 2013), in whom a greater prevalence of anxiety, depression and stress symptoms are reported than in other students (Dutra & Ludermir, 2005; Marty, Lavín, Figueroa, Larraín, & Cruz, 2005; Bahri et al., 2013). In particular, a number of studies show that anxiety is more prevalent than depression (Newbury-Birch, Lowry, & Kamali, 2002; Aguirre, Flores, & Flores, 2011; Cova, et al., 2007; Dávila, Ruiz, Moncada, & Gallardo, 2011; Pérez, et al., 2012; Arrieta, Díaz & González, 2013; Shamsuddin et al., 2013; Bahri et al., 2013).

Dentistry students have also been an important focus of research. A study in England (Newbury-Birch et al., 2002) reported a prevalence of depression ten times greater than in medical students. They also have been reported to have greater levels of perceived stress than medical students, associated with the areas of academic performance, patient-client responsibilities and the relations with their professors (Murphy, Gray, Sterling, Reeves, & DuCette, 2009).

In a more specific research area, the instrument Dental Environment Stress (DES) Questionnaire (Westerman, Grandy, Ocanto, & Erskine, 1993) has been developed, which allows measurement of both different sources of stress and the level of the particular stressors that affect dental students. Its use has corroborated that the lack of time for extracurricular activities and academic tasks, the long hours of study and attention to patients are the main sources of stress (Sofola & Jeboda, 2007; Giri et al., 2014; Misrachi, Ríos, Manríquez, Burgos, & Ponce, 2015). It is worth noting that dentistry students increase their stress level during the academic year, which has repercussions on their academic performance and their health (Silverstein & Kritz-Silverstein, 2010).

This kind of study has also been performed in Latin America, finding a prevalence of mental disorders in 42.6% of Brazilian medical students, 33.3% of dental students and 31.8% of nursing students (Dutra & Ludermir, 2005). A study in Mexico (Aguirre et al., 2011) found a prevalence of 32.3% for depression and 59.1% for anxiety in medical students. These results are related to the professional practice, added to the reduced possibility of extracurricular activities, which increases alcohol abuse as

a strategy to reduce tensions (Perales et al., 2003). A study of dentistry students in Colombia (Arrieta et al., 2013) reported that 37.4% of the students had depressive symptoms, 56.5% had anxiety symptoms and 45.4% had some degree of stress.

The results of Chilean studies have been similar to those reported in the international literature (Cova, et al., 2007; Pérez et al., 2012; Meyer, Ramírez, & Pérez, 2013), in which medical and dentistry students report stress prevalence of 60 and 44.4%, respectively, while for students of psychology prevalence was only 17.8% (Marty et al., 2005). In relation to psychopathology in university students, Herrera & Rivera (2011) indicated that psychological distress increased with less recreation time, lower socioeconomic level, greater worry about expenses and more hours spent studying. More specifically, a study of dental students of the Universidad de Chile (Dávila et al., 2011) found greater predominance of anxiety symptomology than depression; in the final exam period they found 45.9% prevalence for anxiety and 9.9% for depression. Students of the third and fourth years were those who had the highest levels of anxiety symptomology, which these authors associated with the increase in academic load and the beginning of attention of patients, among others. Another study performed in this same population (Misrachi et al., 2015) reported that grades, exams, fear of failure and lack of time to relax were the most relevant sources, while for the more advanced students the stress due to the negative atmosphere created by the clinical supervisors also became a factor.

Psychological interventions have shown positive results in the mental health of students (Finkelstein, Brownstein, Scott, & Lan, 2007; Alzahem, Der Molen, Alaujan, & De Boer, 2014; Iglesias, et al, 2014), and given the prevalence of symptomology in the university population, it is crucial to have such support. These interventions are mostly in the cognitive-behavior paradigm context, which according to independent meta-analyses has shown to be efficacious in the treatment of anxiety and stress (Butler, Chapman, Forman, & Beck, 2006; Bunmi, Olatunji, Cisler, & Deacon, 2010; Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012; Hans & Hiller, 2013) and to achieve better results than other treatments (Tolin, 2010; Norton & Price, 2007).

However, it is important to indicate that there few studies on the effectivity of this type of intervention focused on the university student population compared to the studies on the prevalence of the symptomology (Alzahem et al., 2014). In the particular case of dentistry students, in spite of showing high levels of stress there is a lack of studies on interventions (Newton, Allen, Coates, Turn, & Prior, 2006).

The objective of the study was to implement a brief cognitive-behavioral psychological intervention focused on helping dental students of the Universidad de Chile to provide a more efficacious manner of confronting the main events associated with stress, anxiety, and depression in dental environments. Another aim was to describe the main reasons for consulting and the changes perceived by par-

ticipants of this intervention. The results of this study may help in the design of other interventions and research in university environments and to indicate factors to be evaluated in future studies in prevention and treatment in mental health, especially in the context of dentistry students.

## Methods

### Design

We used a pragmatic design, this approach to evaluate an intervention in normal conditions of clinical practice, instead of determining causal relationships (Patsopoulos, 2011). The design was the A-B-C type, where A is the measurements of the symptoms at the beginning of treatment, B is measurements during treatment, and C is the measurements in a follow-up session one month after the last session, in which part C included questionnaires and a semi-structured exit interview (Barlow, Allen, & Choate, 2004). We chose this design because the results are easily transferrable to clinical application, since it can be determined with which patient and with which characteristics these results have been obtained (Barlow et al., 2004).

It must be mentioned that for ethical reasons we did not make baseline measurements for several weeks as a control measure, since it was the students who spontaneously requested psychological help and this measurement would have implied intentionally retarding the treatment.

To perform the replication and thus establish later comparisons we followed the criteria suggested by (Barlow et al., 2004), who indicated as requirements: constancy of contexts and therapists, topographical similarity of the disorders to be treated, similar patient histories and uniform treatment.

### Participants

The participants were from the Dental School Universidad de Chile, and they voluntarily requested psychological care during the second semester of 2014, reporting overall psychological distress principally associated with School context and the supervised treatment of dental patients, a requirement from for obtaining the professional license to practice dentistry during fourth and fifth years of studies.

For inclusion in the study, the following criteria had to be met: the participant had to have reported symptoms of stress, anxiety and/or depression that presented themselves principally in Dental School and at the same to have reported that these symptoms decreased when the he or she did activities unrelated to the university context. In addition, we considered symptoms that were not present in Dental School but were provoked by situations that triggered memories of it.

The criteria for being excluded from the study were to have reported a previous psychiatric diagnosis or to have been receiving another kind of psychological treatment simultaneously. Students who fulfilled the selection criteria were invited at the end of the first session to participate in the research, which was previously approved by the Ethics Committee of the Dental School of the Universidad de Chile.

Twelve students requested psychological care during the second semester. One of them was excluded from this intervention and study because her reason for consulting was related with family conflicts and personality disorder traits. In this case pertinent psychological care was provided despite the fact that she was not included in the study.

The 11 remaining students were treated for stress, anxiety, and/or depression in the dental environment. However, 6 of them were excluded from analysis, one because she had a previous depressive disorder and 5 others because they did not finish the intervention. In the end, the sample of this study was composed of 5 students, and they were informed of the characteristics of the research and voluntarily signed an informed consent accepting the stated conditions.

### Intervention

The intervention was designed to be applied in the implementation of the new Program of Psychological Support, 2014 directed to undergraduate students of the Dental School of the Universidad de Chile. The program was applied by a licentiate in psychology who was doing the professional practice and training in the cognitive-behavioral area; this person was supervised by two clinical psychologists at each session of each patient. The protocol consisted of eight 45-minute sessions, plus a control session one month later. Sessions were weekly, however, the

**Table 1. Structure of the treatment.**

	Stage 1	Stage 2	Stage 3
Sessions	1, 2, 3, 4	5, 6, 7	8, 9
Objectives	Conceptualization of the problem	Application of techniques and strategies*	Monitoring and re-enforcement of the advances
Components	Cognitive re-evaluation; emotional exposition	Emotional exposition; new behaviors	Cognitive re-evaluation; emotional exposition; new behaviors

\*Homework consisted of recording stressful situation considering behavior, emotion and cognition. Techniques of exposition included role-playing, sleep hygiene, study habits, relaxation techniques. Amount and type were applied according to the collaborative work in Stage 1 between patient and therapist.



participants could postpone the session for one week. In the case of non-attendance on two occasions without advising at least one day in advance, the rest of the treatment was suspended.

The intervention was constructed with the following objectives: to educate about symptomatology and to help the participants acquire a more efficacious manner of coping with problems in the dental environment in a short period of time. The reasons for the short time frame were due to the time-consuming nature of studying dentistry, the limited resources for psychological care, and finally the high demand for psychological attention by dentistry students. The intervention was in three stages (Table 1). The first stage consisted of establishing a therapeutic relationship based on collaboration, the explanation of the treatment model and the conceptualization of the current problem of the participant, where therapist and patient proposed various hypotheses about factors that could explain the current psychological state. Stage two was the application of the techniques, and treatment finished with a stage of monitoring and reinforcement of the advances. In all treatment stages the main sources of stress reported in the dental literature were considered.

The theory of the treatment was based on the cognitive-behavioral paradigm, taking as the basis stress training by inoculation (Meichenbaum, 1987), the general guidelines for anxiety treatment (Lohr, Lilienfeld, & Rosen, 2012), the main components of intervention indicated by Barlow (2000) and the emotional-behavioral focus of Ellis (1999).

## Questionnaires

### *Measurement of psychopathology*

We used the OQ-45.2 test, a self-report questionnaire of 45 items associated with the quality of life of persons, designed to measure repeatedly changes during and after therapy (Lambert, 2012). Evidence shows that it is a sensitive and valid indicator of changes in patients independent of the diagnosis (Correa et al., 2006), and is valid in the Chilean population (Von Bergen & De la Parra, 2002). It yields a total score in which higher scores indicate lower levels of general well-being; its cutoff point (CP) is 73, therefore scores under 73 belong to the normal population and those above 73 belong to the dysfunctional population. It also provides information on three sub-scales: anxiety-depressive symptomatology (DS), interpersonal relations (IR), and social relations (SR), whose CPs are 43, 16 and 14, respectively. Scores above these values imply significant interference in the life of the subjects (Von Bergen & De la Parra, 2002). It also provides an index of reliable change (IRC); if the difference between the initial and final scores is greater than IRC, a clinically significant change has occurred in the patient, not due only to variation in instrument scores (Jacobson & Truax, 1991). IRC values are 17 for total score, 12 for DS, 9 for IR and 8 for SR (Von Bergen & De la Parra, 2002).

### *Measurement of sources and levels of perceived stress*

This was measured using the modified DES questionnaire (Acharya, 2003), adapted for the undergraduate Dental students of the Universidad de Chile (Misrachi et al., 2015). It has a Cronbach alpha of 0.858, considered as a good measure of confidence, allowing it to be used to evaluate different subjects with greater precision (Panayides, 2013). It also allows evaluation of the levels and sources of perceived stress (PS) in the specific context of a dentistry student using a Likert self-report scale. Higher scores on this scale indicate greater levels of stress. It includes six areas: academic load; pre-clinical and clinical practice; treatment of patients; faculty and administration; interpersonal relations and others (Misrachi et al., 2015). To evaluate the results of the DES we summed the items to calculate a total score for each case and measurement. We also calculated specifically the scores obtained in the *academic load* category, since it is a source of stress that could not be modified directly by the participants, and since it might explain changes in the symptomatology independently of changes produced by the treatment, it is relevant to analyze its scores independently to measure its incidence in a decrease in the symptomatology. This dimension is composed of the items: Stress due to the number of classes; Stress due to the difficulty of the classes; Stress due to the grades and tests; Stress due to fear of failing a course and Stress due to lack of time to relax.

### *Evaluation of qualitative change indicators*

To identify in more detail the way in which this intervention may have decreased the symptomatology and increased general well-being, we incorporated a semi-structured interview in the 9th session, after the questionnaires were applied. The interview had two guideline questions: *What were the behavioral, cognitive, and/or emotional changes perceived? To what factors do you attribute these changes?* During the exit interview, the answers of the participants were recorded in writing in the same clinical notebook that had been used for recording all the earlier sessions. The key concepts and phrases of each of the answers were recorded, At the end of the interview, the clinical notes were read to each patient; they were asked if they agreed with this list of changes and attributions, if something was missing, or if they wished to eliminate one of the answers, until they were in agreement with the list.

### **Data analysis**

In this section, the cases will be presented in ascending order according their OQ-45.2 total score. For each case, we provided the conceptualization of the problem and used techniques and measurements obtained in questionnaires. In OQ-45.2, to interpret changes and scores obtained by each participant we used the criteria of Von Bergen & De la Parra (2002), the CP, to evaluate the clin-

ical significance of the symptoms and the IRC to evaluate significant change in scores.

In the following section, the strategy used to present the qualitative results consists of identifying the common answers, in order to report the perceptions shared by all or some of the patients, while the phrases and concepts that appeared individually are reported identifying the case. Furthermore, the results obtained in the aspect of attributions were classified using the generic indicators of therapeutic change indicated by Krause et al. (2006).

## Results

### Case 1

#### Conceptualization

Male, 23 years old, 5<sup>th</sup> year in Dental School. Symptoms of anxiety appeared in evaluation situations, the night before evaluations, when he was arriving to his home and he had to study or to work on clinical reports. The first stage of the intervention identified his attention and cognitive biases, because he was frequently looking for verbal approval or verbal reproach. His self-evaluations had many generalizations and he believed that he did not have enough clinic skills. For this reason, the aims of this intervention were to suggest new and more efficacious achievement indicators and to learn new behavioral strategies related to new indicators.

#### Techniques used

The participant kept a record of the moments he interacted with the professors and the comments made about his work, in order to evaluate his performance and the interaction with his professors using the achievement indicators acquired in the intervention. Therapist and participant role-played professor-student and patient-dentist interactions.

#### Measurements

According OQ-45.2 scores, no measured data indicate scores over CP and the no differences between measurements were more than the IRC. The initial score was 45 and the final score was 37. In DES, the second and the third were highest of all the measurements taken during the course of the intervention. The lowest score was the first measurement. Furthermore, the lowest academic load scores were the fourth and fifth measurements (Figure 1).

### Case 2

#### Conceptualization

Female, 25 years old and 4<sup>th</sup> year in School of Dentistry. The main symptoms of anxiety appeared before and after lessons and clinical work with a certain professor that used offensive language. The symptoms increased when she had university evaluations, making it difficult

to fall asleep, causing muscular pain, and contributing to physical exhaustion. In addition, she reported insecurity in her capacity to manage her patients with dominant personality traits. On other hand, she reported difficulty spending her free time on recreational activities because she felt pressure from her academic responsibilities. We, therapist and participant, identified that she avoided arguments with her professor and her patients. In addition, she lacked assertive communication, and she avoided situations in which she could be judged. Therefore, the main aims were to stop avoiding behaviors and to train assertive communication skills.

#### Techniques used

Therapist and participant role-played professor-student and patient-dentist interactions. Participant designed a weekly schedule that included realizable objectives with contrastable and realistic incorporating times to be used exclusively for personal recreation.

#### Measurements

According OQ-45.2 total scores, no measured data indicate scores over CP and the no differences between measurements were more than the IRC. The initial score was 53 and the final score was 39. In DES, the second measurement was 46 points (pts), and this was highest of all the measurements taken during the course of the intervention. The lowest total score and *academic load* score was the final measurement.

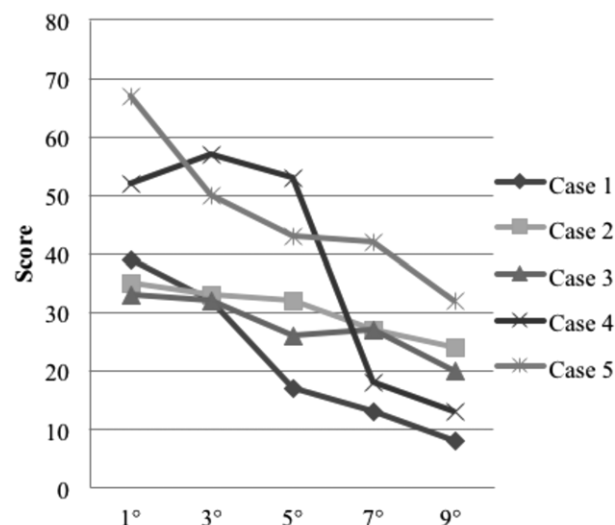


Figure 1. Score obtained in measurement sessions for each case in the subscale of anxiety-depression symptomology of the OQ-45.2 questionnaire. Cutoff point=43; Index of Reliable Change=12.

### Case 3

#### Conceptualization

Male, 23 years old and 5<sup>th</sup> year in School of Dentistry. He requested psychological care for constant anxiety and lack of motivation in academic and clinical work. He had begun simultaneously a pharmacological treatment to control a high basal anxiety; despite this we decided to include this case, since it allowed us to evaluate the performance of the psychological intervention when accompanied by pharmacotherapy. For two reasons, the first was the participant thought that pharmacotherapy was not efficacious without a psychological treatment, and second was the symptoms were narrowly associated with university context. We identified an overrating about judging of academic authorities, this plus his self-exigency provoked high stress levels because he tried to accomplish difficult objectives and if he did not achieve them his self-esteem decreased. Therefore, the aims were to identify and change beliefs and behavior related with perfectionism and low-esteem.

#### Techniques used

He designed a weekly schedule that included realizable objectives with contrastable and realistic evaluation criteria, as well as incorporating times to be used exclusively for personal recreation. Weekly, he registered in his journal his thoughts about stressful situations.

#### Measurements

According OQ-45.2 total scores, no measured data indicate scores over CP. He obtained 66 pts in initial session and 22 in last session. Concerning IRC, he obtained a reliable change between third measure and next measures comparing with first and second measures of general well-

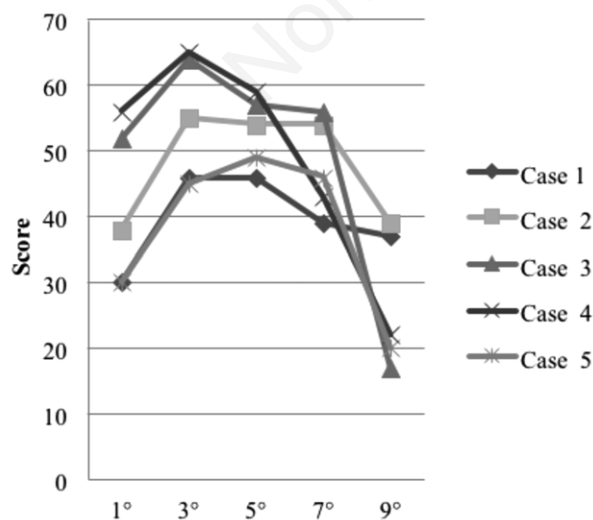


Figure 2. Score obtained in measurement sessions for each case in the general scale of the dental environmental stress questionnaire.

being, this means that Case 3 decreased his total score significant clinically. In DES, the second measurement was 64 pts, and this was highest of all the measurements taken during the course of the intervention. The lowest total score and *academic load* score was the final measurement.

### Case 4

#### Conceptualization

Female, 23 years old and 5<sup>th</sup> year in School of Dentistry. She reported that she was an indecisive person, she was constantly afraid of making a bad or wrong choice about academic and family matters, and that her alcohol consumption interfered with academic duties. Therapist and participant identified depressive symptoms in clinical or academic places; it was associated with the lack of motivation and self-questioning about the practice the dentistry as her profession. In addition, she was a part of frequent family arguments because her parents wanted her to have a high socioeconomic status and prestigious profession. Therapist and participant identified an overrating of parents' and friends' opinion when she had to make choices, causing insecurity in her academic goals and her lack of control of her consumption of alcohol. Therefore, the aims were to learn auto-recognition of emotions, thoughts and priorities, and better manners of communication and arguing.

#### Techniques used

Therapist and participant determined a list of tasks graduated based on the amount of anxiety they generated, in which the student could put into practice the assertive behavior modeled in the sessions. Moreover, a schedule of activities was constructed, defining places in the house

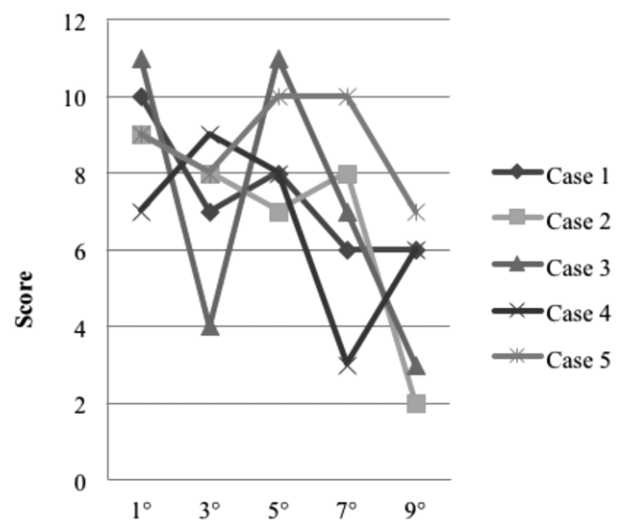


Figure 3. Score obtained in measurement sessions for each case in the academic load dimension of the dental environmental stress.



to perform specific actions and generate discrimination of stimuli for behaviors of eating and sleeping. Finally, therapist and participant elaborated a plan for control of alcohol consumption defining the keys that stimulated or stopped consumption.

#### Measurements

The first, second and third measurements were above CP in total score (82, 85, 79 pts) and subscale DS, of anxiety-depressive symptomatology (52, 57, 53 pts). According IRC, we observe a significant clinically decrease between fourth and fifth measurement comparing with first, second and third measurement. On the end, DES reveals perceived stress in dental environment was highest in the second measurement, and DES total score and *academic load* score were lowest in the fourth measurement (Figures 2 and 3).

### Case 5

#### Conceptualization

Female, 22 years old and 4<sup>th</sup> year of School of Dentistry. She requested psychological assistance for her uncontrollable crying in her home and at school. The crying was easily triggered and lasted a long time. The researchers proposed excluding her from the study because she presented a recent break up of a romantic relationship, but we decided to maintain her in this study because when the therapist explored if there were symptoms before the break up, he identified significant distress in university context. Concretely, she said: *The break up was the last drop that made the cup run over.* Therapist and participant identified an attention bias, focused on emotions and body sensations related to sadness and shame, causing her to overrate problems and underestimate her coping skills, affecting behavioral performance. In addition, it was difficult for her to express anger. The aims were to learn and practice coping skills especially during stressful situations and to stop avoiding behavior.

#### Techniques used

She recorded cognitive and behavioral aspects of situations that provoked sadness or anger. Therapist and participant role-played with emphasis on attention to somatic symptoms and their contrast by means of the therapist.

#### Measurements

This case an obtained total and DS score above CP in the initial, second and third measurements. The scores were 135 in total and 67 in DS. According to subscales Interpersonal Relations and Social Relations, the scores were above CP in initial and second measurement. On other hand, she significantly decreased scores between the initial and final measurement, considering IRC. Finally, In DES, the third measurement was 64 pts, and this was highest of all the measurements of this case. The lowest total and *academic load* score was the final measurement.

### Qualitative indicators of change

In relation to the changes observed, in the exit interview, all participants indicated that they felt more motivated to perform their academic duties. Cases 1 and 4 mentioned an increase in self-esteem and personal security, as well as a capacity to express them better. Specifically, Case 4 recognized that an important change was learning to say things directly, without anger or tears. Cases 2 and 3 indicated *more time for themselves*, and decrease of the guilt they felt in doing recreational activities. Finally, Case 5 used the phrase *I was a zombie before* to refer to the change she had lived; she then explained that she referred to the sensation of not having control over her emotions, or of doing things simply because she was *supposed* to do them. General indicators of therapeutic change were as follows.

#### Acceptance of their own limits and recognition of the need for help

Participants indicated that a first step towards change was to take the decision that they needed psychological help and beginning to attend the sessions.

#### Unfreezing (or questioning) of forms of understanding, behavior and habitual emotions

A common response of all participants was to attribute their change to the opportunity that the sessions generated to see things from a different perspective than normal. Mainly, they managed to distinguish what the *wanted* to do from what they *had* to do.

#### Establishment of new connections between personal aspects, those of their surroundings and biographical elements

The participants indicated that a fundamental factor was learning to recognize the behaviors, thoughts and emotions they had, and to ask themselves why things happened this way.

#### Recognition of the help received

This is the last indicator shared by all participants, who all valued the support provided by the therapist, on one hand as someone who provided a different perspective, a vision external to the Dental School, and on the other hand who provided an opportunity for them to vent their feelings.

#### Appearance of feelings of competence

Case 1 affirmed that what was fundamental was *starting to believe in myself*, that is, to recognize that the knowledge that he had was adequate to function effectively in the academic sphere.

#### Recognition of their own participation in the problems

Case 4 stated *I learned not to over thinking about my worries*, explaining that now instead of thinking about her

problems and avoiding assuming her responsibility, she performed immediate actions that helped to resolve the situation.

#### *Reconceptualization of their own problems and/or symptoms*

Case 2 explained that one factor to decrease stress was *to realize that problems don't just depend on me*, while Case 3 stated that it was *to realize that in the end things always resolve themselves*.

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## Discussion

The motives of the students for consulting is in agreement with both the national (Misrachi et al., 2015; Dávila et al., 2011) and international literature (Sofola & Jeboda, 2007; Fonseca et al., 2013; Giri et al., 2014), where the symptoms of the emotional ambit are the most prevalent and studied, associated with the attention to patients and clinical requirements, which could be related to the fact that 11 of 12 students that requested psychological care, to have a reason of consulting about symptoms appeared frequently in Dental School, and the cases who completed the treatment were taking clinical courses at the moment.

The results of the follow-up of the cases 4 and 5 indicate an increase in general well-being, a decrease in the anxiety-depression symptomatology and perceived stress; in only seven sessions reaching scores in the range of the normal population. These results agree with studies that show the efficacy of cognitive-behavioral interventions for the treatments of stress and anxiety in university students (Chinaveh, Mohd, & Mohd, 2010; Alzahem et al., 2014; Iglesias et al., 2014).

However, we consider these results with DES, because, although there was not a clear common tendency in the variations, all cases had a lower score in the final control than in the first session, although the former coincided with the last weeks of the semester in which most courses were finishing. In this regard, the decreasing in OQ-45.2 scores could be explained by less academic load.

On other hand, it must be noted that in the specific category *academic load* cases 4 and 5 no have high scores than the rest of the participants, despite they were highest OQ-45.2 scores. In addition, it is notable that Cases 1 and 2 were those who ended with higher PS levels; they had not higher levels of general well-being and less anxiety-depression symptomatology. This suggests that this dimension may be associated with psychological consulting in participants with normal scores in the OQ-45.2.

The conceptualizations of cases allowed interpreting from other perspective the variations on scores. On one side, cases 1, 2 and 3 were described for anxious symptoms related evaluation, and auto-evaluation context and they needed an intervention focused on behavioral and cognitive themes. On the other side, cases 4 and 5, anxiety with depressive symptoms, to being crying a particular indicator.

This data suggest that OQ.45-2 enables to detect population with symptoms significant clinically, it not relate necessarily with request assistance about academic and clinical problems. Qualitative data support this hypothesis because cases 1, 2 and 3 perceived psychological changes despite OQ.45.2 not indicated significant decrease or dysfunctional score.

In relation to the stages of the intervention, on one hand it is notable that there was an increase in PS scores in the third session for all cases which later decreased, which may be due to the fact that at this time they were in the stage of recognizing the stressors and conceptualization of the conflictive situations, and on the other hand, during the stage of application of the techniques there was an important decrease in the symptoms in the majority of the cases for most measurements. This increase and later decrease may be understood as a habituation process that began after breaking the cycle of avoiding stressors (Craske et al., 2009) by their recognition and exposition.

It is also important to consider the role of each of the diverse techniques applied in this intervention. For example, the decrease in the symptomatology may be explained not only by the effects of the habituation, but also by the effects of the cognitive re-evaluation or by learning more efficacious manners of confronting conflictive situations, according to the view of Meichenbaum (1987). It may also be understood as the acquisition of new behaviors that occurred in non-stressing contexts, which allowed them to re-evaluate comparatively the amount of symptoms they had felt during the last week. Craske, Treanor, Conway and Zbozinek (2014) support the idea of a combination of factors, indicating that for the reduction of anxiety, the techniques of exposition produced learning in the patients in an independent manner, while the cognitive strategies fulfilled a consolidation role after exposition.

The role-playing technique was used in all cases; its main objective was to allow confronting a situation that produced elevated levels of anxiety, but in a simulated context in which the participants felt more control. However, in the interviews in the control session, role-playing and the acquisition of new behaviors that allowed extinguishing anxiety were not mentioned as factors of change by the participants.

Thus in the perception of the participants, cognitive aspects were the most important to explain the changes in their symptoms, in which the emotional and behavioral changes would be the product of a new way to think about stressing situations. This concurs with the theoretical model of Ellis and Grieger (1990), in which uncontrollable, excessive or less intense emotions are the result of an irrational or inflexible way of thinking.

With regard to the generic indicators of change, the indicators Unfreezing and Establishment of new connections are in concordance with the component of cognitive re-evaluation proposed in the intervention, while Acceptance of own limits and Recognition of the help received are as-



pects not specifically associated with the theoretical model utilized in the design of the invention, but rather are linked to the fact of receiving psychological attention. However, the opportunity to vent feelings indicated by the participants may be understood from the component of emotional exposition, in which expressing emotions both verbally and physically is allowed and encouraged during the sessions.

One of the main contributions of this study is to provide evidence in the area of brief treatments, since very few brief treatments have been designed and evaluated at the general level (Bados, García, & Fusté, 2002), and specifically in dentistry students (Newton, Allen, Coates, Turn, & Prior, 2006). We used a flexible intervention, allowing techniques to be included or not according to the particular needs, but maintaining the planning of stages and objectives as well as basing the study on a design of a series of unique cases, because of this we obtained results that provide a different perspective than controlled studies, which have difficulties in extending their results to ordinary clinical practice (Bados, García, & Fusté, 2002). In other words, the main contribution of unique case studies is that they provide information about the subjects who receive the intervention, conserving their particular characteristics but without separating them from their context, and making it easier for other psychologists to interpret the results and apply them in their clinical practice (Widdowson, 2011).

However, this results should to be interpreting with caution, because no-experimental studies no allow infer causality about outcome of treatment, whether changes were due to the treatment, the passage of time or simply the fact of receiving some type of support, and other hand, case studies may be not generalizable to all consulting population. In the end, therapist and patient perceptions about problems and change may be biased for expectative that intervention working.

Some variables that could be incorporated in future studies include the total number of hours in the university, in attention in the dental clinic, in studying at home and in recreational activities, which could provide an objective contrast to the perceived levels of stress indicated by the DES and multiple measurements of different variables that may influence the changes observed in the treatment. Research on similar interventions should be centered on evaluating in greater depth a limited group of cases in which there is more control over the changes produced during the treatment, incorporating records of beliefs and behaviors as well as studying the effects of the therapeutic relation in the changes. Finally, it will be important to include professors, parents and friend in the progress of participants during the intervention.

## Conclusions

In summary, it is necessary to explore the causes of and solutions to this problem instead of simply reporting it, and wondering if scores of questionnaires are effective

screenings of need of psychological support, since it is not only a benefit for the students, but also for the patients under their care (Dyrbye, Thomas, & Shanafelt, 2006).

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