

Strategies of Coping With Stress During Root Canal Therapy

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Received 2014 October 20; Revised 2015 January 22; Accepted 2015 February 19.

Abstract

Background: Endodontic treatment is one of the stress producing situations.

Objectives: The purpose of this article was to determine the most stressful stage of root canal therapy among endodontists, endodontic residents, and undergraduate dental students and offering some strategies for reducing stress during this treatment.

Patients and Methods: This descriptive survey comprised three groups. Thirty-six endodontists, 41 endodontic residents, and 47 undergraduate dental students selected by convenience sampling. Participants were asked about age, sex, the most stressful stage of root canal therapy and stress reducing strategies during the procedure.

Results: The most stressful stage of root canal therapy was endodontic treatment for children in male endodontists and residents, preparing access cavity on crowns in female endodontists, obturation of apically root Resorped canals in female residents, obturation in female students, and preparing access cavity on molar teeth in male students. The most suggested strategy for reducing stress during root canal therapy was related to experience, knowledge, enough study, and technical mastery.

Conclusions: It is required to consider the strategies during student education in dental schools for both under and post-graduation dental students and better to follow them in workshops for other dentists and even endodontists.

Keywords: Stress, Student, Dental, Root Canal Therapy

1. Background

The term stress contains all of the psychosocial pressures. Although this word is mostly used in the recent centuries, it has affected human life of all ages. Generally two sources for stress have been recognized; external sources that initiate from environment and internal sources from human, the body inside. Job stress is considered as external stress. Job stress is a form of interaction between individual characteristics and working conditions so that people cannot cope with the demands of workplace. In addition to harmful effects on human wellbeing, job stress has inappropriate effects on institutes and organizations. Stress is the first cause of burning out from jobs and results in several milliards dollar economic loss annually. Although occupational stress has some advantages like increasing motivation and concentration, high levels of job stress can cause disease, hasty decision, poor relationship between coworkers, decrease creativity, absence and leaving the profession (1-7).

Dentistry is a stressful profession. It has been suggested that dentistry generates more stress than any other profession. Indeed, dentists encounter numerous stres-

sors during their activities, which affect their health and performances. Some stressors contribute to work overload; problems of managing dental clinic, auxiliary staffs and patients, and some are performance related problems that occur because of the nature of dentistry profession, which needs great concentration on a small space of oral cavity (8-12). For students, however, meeting the teachers' expectations, managing patients, working load, and lacking time for relaxation, examinations and grades and tuition can cause stress in addition to performance pressure (12-15). Researches showed that dental students experience higher stress than other students (16, 17). Jurkat et al. explained that more than a half of students did not have appropriate strategies of coping with stress. Thus, it is important to offer some prevention courses to cope with stress in dentistry school and future job in dental profession (18). Dental residents face with many stressors including clinical and research assignment, financial and family issues and they are influenced by those stressors while having little control over them (19). Divaris et al. showed that postgraduate dental students who enrolled in clinical residency experienced more stress than PHD students (20). These pressures have physiological and psychological ef-

fects on these groups and can even cause early retirement among them (21-23).

Investigations have shown that gaining skill and confidence play important role in controlling dentists' stress during dental treatments. On the other hand, dentists who have less work experience and training express higher levels of stress while treating patients (8). Coping refers to efforts to reduce the effects of stress on human health (24). The purpose of dealing with stress is neutralizing the negative effects using appropriate coping strategies (9). People using these strategies are less stressed and teaching coping skills is useful to deal with stress (24). Some papers argue that dentists lacked knowledge about managing their stress and it is necessary to determine job related stressors and existing coping strategies before managing stress interventions (25). Therefore, identifying stressors in dentistry can be considered as the first step of stress prevention strategies. Some other strategies discussed are getting help from others to get things done, physical exercising such as walking, travelling, laughing, being realistic, having interactive skills, muscle relaxation, time management, cognitive coping skills, desensitization, hypnosis, deep breathing exercising, meditation and learning business management. The literature suggests that stress management training should be a part of students' curriculum and continued in workshops for practicing dentists. There are support networks in some countries that provide counseling to dentists to help them cope with stress (9, 25).

One of the stress producing situations in dental practice, which cannot be eliminated, is root canal therapy. The nature of treatment, variation and complications of root canal system and problems of managing anxious patients, who complain pain (26), in addition to other factors, create stress in this treatment field. Therefore, dentists and students experience a great deal of stress during endodontic treatment. Weathers stated that if endodontic treatment is disorganized, it became stressful and confusing and the best way to get organized in endodontics is to create reproducible systems for every procedure and recommended ten systems for endodontics (27).

2. Objectives

Since learning stress management strategies is required to minimize the effects of stress and there are few articles regarding stress control strategies during endodontic treatment, the purpose of this article was to determine the most stressful stage of root canal therapy among endodontists, endodontic residents and undergraduate dental students and offering some strategies for reducing stress during this treatment.

3. Patients and Methods

This was a descriptive investigation. Study population comprised three groups. The first two groups were endodontists and endodontic residents who took part in 16th scientific congress of Asia pacific endodontic confederation (APEC) and endodontic professors and residents of Khorasgan, Isfahan, and Zahedan faculty of dentistry. Undergraduate dental students of fifth and sixth years studying in Isfahan and Khorasgan faculty of dentistry in spring of 2012 enrolled as the third group of research. Thirty-six endodontists, 41 endodontic residents and 47 undergraduate dental students were selected by convenience sampling method. Participants were given a simple questionnaire. In the first part of questionnaire respondents were asked their age and sex. In the second part, they asked to write the most stressful stage of endodontic treatment. At the end of questionnaire, the participants asked to suggest five strategies for reducing stress during root canal therapy. The questionnaire was completed in self-report method and data was analyzed by statistical package for social sciences (SPSS, v17, SPSS Inc., Chicago, IL). The questionnaire was open answer and face and content validity were confirmed by two professionals.

4. Results

From 36 endodontists, 17 (47.2%) were female and 19 (52.8%) males. From 41 endodontic residents, 19 (46.3%) and 22 (53.7%) were female and male, respectively. Undergraduate dental students were 26 (55.3%) female and 21 (44.7%) males. Fifteen endodontists aged below 35 years (42%) and 21 (58%) were 36 years old and above. In endodontic residents group, 30 (73%) aged up to 35 years and 11 (27%) were 36 years old and above. Undergraduate dental students group were all (100%) below 35 years old. The most stressful stage of endodontic treatment is presented in [Table 1](#).

[Table 2](#) shows reducing stress strategies during root canal therapy, besides; mean repetition of participant suggestions in the first three priorities is presented.

5. Discussion

As [Table 1](#) shows, the responders stated similar stressful stages totally, which are considered as complicated endodontic treatments. However, there are differences between their priorities, especially between the three groups and genders. The differences in priorities in undergraduate students were more than the two other groups because they have less exposure to difficult cases, on the other words, they stressed in the preliminary stages of endodontic treatment, which may be due to their lack of experience.

Table 1. The Most Stressful Stage of Endodontic Treatment Among Endodontists, Endodontic Residents and Dental Students

Grade	Male		Female	
	The Most Stressful Stage	No.	The Most Stressful Stage	No.
Endodontists				
1	Endodontic treatment for children	6	Preparing access cavity on crowns	9
2	Preparing access cavity on crowns, endodontic retreatment	5	Endodontic treatment for children	7
3	Injection of dental anesthesia	4	endodontic retreatment	2
4	Obturation of apically root resorpted canals, traumatic patients, endodontic treatment of upper third molars	2	traumatic patients, endodontic treatment of third molars, Injection of dental anesthesia, correcting events during treatment	1
5	Uncooperative patients, pregnant patients, apexogenesis, endodontic emergencies, correcting events during treatment	1		
Endodontic Residents				
1	Endodontic treatment for children	9	Obturation of apically root resorbed canals	5
2	Obturation of apically root resorpted canals	6	Obturation, Preparing access cavity on crowns, endodontic retreatment	4
3	Preparing access cavity on crowns, endodontic retreatment, traumatic patients, endodontic surgery	5	Endodontic treatment for children, traumatic patients	3
4	Checking final radiography, application of MTA, correcting events during treatment	1	Finding tooth canals	2
5	-		endodontic treatment of upper molars, Checking final radiograph, endodontic surgery, initiation of endodontic treatment	1
Dental Students				
1	Preparing access cavity on molar teeth	7	Obturation	16
2	Obturation	6	Preparing access cavity	4
3	endodontic retreatment	2	Determining initial file, checking final radiography	2
4	Preparing access cavity on anterior teeth and crowns, filing and flaring molar teeth, endodontic treatment for children	1	Endodontic treatment of molar teeth, correcting events during treatment, filing, and flaring molar teeth,	1

Endodontic treatment for molar teeth was declared as the most stressful stage by approximately all the three groups. Molar teeth, especially third molars, because of various and sometimes unusual shapes of root and canal, variation of dental pulp anatomy, multiple roots, the number of canals in each root and their positions, higher incidence of canal curve, inability of radiographs to display all of the tooth aspects, possibility of calcification of root canals and visibility and access problems in posterior sites of oral cavity, can be classified as sophisticated teeth for root canal therapy (26). However, literatures state that older dentists express less stress and increasing experience can decrease dentists' stress (9, 19, 28). After some experiences, human normally learn ways to overcome stressors. Past experiences enhance the ability of managing stress and develop coping skills (29).

One of the most stressful stages of endodontic treatment for endodontists and residents, especially in males, is endodontic treatment for children. There are many reasons why these patients are more stressful for students and

professions, including difficulty in managing anxious children, fear of injection, and complications of complex treatments such as vital pulp therapy, apexification and regeneration, in children who need root canal treatment.

Weathers introduced some cases as difficult stressful patients, such as endodontic retreatment, extremely calcified canals and working through crowns, severe swelling, patient management problems and root with multiple canals (27). Our study confirmed that research. Managing anxious traumatic patients, probability of pain and soft tissues involvement, difficulty of accurate diagnosis and multiple session treatment in dealing with patients with trauma, difficulty in previous restorations and post and core removal, taking out broken instruments, correction of ledged and blocked canals and managing flare ups in endodontic retreatment, cause stress during root canal treatment.

The most common strategy suggested for reducing stress during endodontic treatment was related to experience, knowledge, enough study and technical mastery

Table 2. Stress Management Strategies

Mean Repetitions in Three First Priorities	Suggested Strategies	Grade
11.99	Knowledge and experience, enough study, technical mastery	1
5	Availability of equipment needed	2
4	Enough concentration, self-confidence, trust in God	3
3.67	Soft music, appropriate intimate professional relationship with patient, taking ideal radiographs, patient adequate anesthesia	4
3	Good patient cooperation	5
2.67	Increasing the time of treatment for each patients, gaining the skill of time management	6
2.33	Correct diagnosis, creating suitable calm environment in dental office, application of new equipped instruments	7
1.6	Experienced nurse, patience during root canal therapy, being interested of performing endodontic treatment	8
1.33	Performing treatment in several sessions, using chewing gum, identify the cause and eliminate stress	9
1	Being on time in dental office, appropriate case selection, careful examinations	10
0.67	Using calming tablets, resting enough, resting when a problem during treatment happened, application of apex locator, having relax professors	11
0.33	Treating complicated cases at the end of office time, appropriate access cavity, cooperation with pediatric professions, adhere to scientific dental principles, using patency file during root canal treatment, performing recapitulation during canal flaring, practicing yoga, using relaxation methods	12

(Table 2). Theoretical and technical knowledge about root canal therapy and dental anatomy lead to gain experience. Although studying plays an important role in upgrading theoretical knowledge, as some responders mentioned, practicing on extracted teeth or phantoms is a good way to gain practical experience. Moreover, learning how to deal with events during root canal treatment, how to manage patients and cope with treatment complexities and adverse effects can reduce the stress, especially in students group.

Rada et al. (9) described some stress management strategies necessary in dental education, some of them were confirmed by the present study, such as interviewing skills and effective listening skills, interpersonal communications skills, management of difficult uncooperative aggressive patients, stress management procedure and time management.

Iwona et al. (30) stated that music can change human mood by changing the brain metabolism. It can enhance dental patients' tolerance in stressful situations and similar effect on dentists. Using soft music creates a lull atmosphere in dental office.

Dental radiography is considered as the second eye of dentists, which is widely used in root canal therapy for diagnosis, treatment and follow-up of patients (26). High quality radiographs can show more details, as some responders mentioned especially initial radiographs may show some of the complexities of treatment. Therefore, it

can lead to appropriate case selection for dentists and prevent errors and events during treatments. Consequently, emphasize on getting high quality dental radiographs is a factor in reducing stress during endodontic treatment.

In this study, respondents believed that preventing complications during treatments can reduce endodontic stress. Accessibility to some equipment in dental office can lessen the stress of endodontic treatment. Availability of equipment necessary, application of new instruments such as files, gates, etc. that reduce the probability of instruments fracture in dental canal, using devices like apex locator that confirms correct working length, taking advantage of methods like recapitulation in flaring canals and application of patency file during endodontic treatment lead to maintain working length and prevent debris pack and thus subsequent problems. Therefore, dentist does not have stress of correcting those problems. Weathers believed that arranging instruments and regulated tray set up can facilitate access to them and reduce treatment stress (27). Our participants also mentioned it.

Preparing correct access cavity facilitates endodontic treatment and minimizes the stress of next steps. Weathers stated some suggestion to achieve ideal access cavity and believed that following the suggestions would help reduce the stress (27).

Dentists may face additional stress when treating people beyond their ability and proficiency. Therefore, appropriate case selection, detailed examination, and accurate

diagnosis prevent stress.

Most patients are afraid of anesthetic injections. Successful injection strengthens confidence in patients and increases patients' cooperation. Accordingly, gaining deep anesthesia prevents stress of next steps. Weathers also emphasized painless anesthesia for reducing stress of dentist as well as patient (27).

Stress tolerance varies with fatigue, amount of rest and illness. People's ability to tolerate stress is reduced when a person is ill or had not enough rest and during major life changing (29). Adequate amount of rest before endodontic treatments and resting during endodontic problems and keeping patience can decrease stress due to endodontic treatment. Dental work requires too much focus on a small area of mouth. Sitting for much of workday time and making small precise movements in oral cavity can cause stress. Devoting a place to rest in dental office provides relaxation and exercise facilities. Practicing yoga, stretching and relaxation exercises reduce physical and psychological pressures. Stress tolerance varies with people who surround the dentist as well. Being surrounded by supportive people resists dentist against stress effects (25, 29). Accordingly, experienced dental staff, nurse and axillaries increase dentist's threshold of stress tolerance and subsequently reinforce the dentist's focus. Expert dental axillaries make significant contribution in creating relaxed environment in dental office as well as providing equipment requested and reservation patients.

Participants emphasize the importance of time managing skills in reducing stress of endodontic treatments. Dentists and patients should present at dental office on time, the time of treatment might be regulated according to case complications, which might need several sessions for treatment. Some complex cases may require changing the time of admission to avoid overcrowding in dental office. Treating complicated and time consuming cases at the end of office time can reduce dentist's stress, because there are less patient waiting and dentist focus is more and can devote more time to that patient.

According to Kumar et al. (13), atmosphere created by clinical supervisors in academic workplace produces stress in students of dentistry. It was also stressful for dental students participating in this study. Some of them suggest that relaxed professors do not create stressful atmosphere in endodontic department and it reduces students' stress.

Finally, what turns endodontic treatment into a nightmare for some students and dentists is lack of interest to this field of treatment, which requires high concentration, great tactile sense and a lot of patience. However, interest in endodontics can reduce most of stress during treatment.

Endodontic treatment causes stress for students, res-

idents and even endodontists, especially in complicated cases. Some strategies have been offered for reducing stress during endodontic treatments. The most common strategy suggested for reducing stress during endodontic treatment was related to experience, knowledge, enough study and technical mastery. It is required to consider the strategies during student education in dental schools for both under and post-graduation dental students and better to follow them in workshops for other dentists and even endodontists. Future studies can be performed to survey the effectiveness of these strategies for reducing stress during endodontic treatments.

Supplementary Material

Supplementary material(s) is available [here](#).

Footnote

Authors' Contribution: Study concept and design: Mitra Karbasi Kheir, Mohsen Golparvar, Maryam Zare Jahromi, acquisition of data: Mitra Karbasi Kheir, analysis and interpretation of data: Mitra Karbasi Kheir, Mohsen Golparvar, drafting of the manuscript: Mitra Karbasi Kheir, critical revision of the manuscript for important intellectual content: Mitra Karbasi Kheir, Mohsen Golparvar, statistical analysis: Mitra Karbasi Kheir, Mohsen Golparvar, administrative, technical and material supports: Mitra Karbasi Kheir, study supervision: Mitra Karbasi Kheir, Mohsen Golparvar.

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