

Original Research Article

## Compare stress intensity of root canal therapy specialists, dentistry residents and students during root canal therapy stages in Hamadan School of Dentistry in 2014-15

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**Abstract:** The main objective of the present study is to compare the stress intensity during root canal therapy stages among root canal therapy specialists, residents and students. The study population consists of all dentistry students in fifth and sixth years in Hamadan School of Dentistry, residents and specialists in endodontics. The statistical sample was selected by available sampling method including all dentistry students in fifth and sixth years (n=27) studying in the School of Dentistry, Hamadan, residents (n=10) and specialists in endodontics (n=10) who answered randomly researcher-made questionnaire questions on stress at different stages of root surgery. Stress among students is higher than root residents and specialists, except for 3 cases that specialists' stress is higher than other groups including stress due to work on mandibular anterior teeth, premolar teeth on the lower jaw and pulp and periodontal injection. For intergroup comparison of specialists, the highest stress is related to prepare access cavity in special cases. For intergroup comparison of residents, the highest stress is related to treat patients with systemic problems. For intergroup comparison of students, the highest stress is related to work on maxillary molar teeth. To determine the lowest and highest stress between the three groups, the highest stress of root canal therapy is related to work on maxillary molar teeth. The lowest stress from respondent groups' view is related to anesthesia and lidocaine injection. According to the study results, stress due to root canal therapy in dentistry specialists, residents and students is less than average.

**Keywords:** Stress intensity, root canal therapy, dentistry, Hamadan School of Dentistry

**INTRODUCTION**

One of the most important risks involved in dental clinics is mental disorders. In industrialized countries such as European countries workplace stress affects more than a third of the staff. In most of countries in the world, problems due to the lack of mental health are increasing so that per 10 persons of workforce 1 person suffers from problems such as depression, anxiety, stress due to fatigue and violence that the case of the lack of control and its intensity may finally lead to unemployment and hospitalization of the person. Statistics show that the growing problem of maintaining staff mental health in all workplaces. In fact, new technology era, increased physical risks and growing social pressures due to industrialization are threats to a person's mental health in his career period. One of the groups at risk of psychological problems is staff of dental centers and clinics. Job-related stress, job

stress, depression, emotional exhaustion and depersonalization are the factors that affect the mental state of dentistry personnel. Dentistry is one of stressful jobs and dentistry personnel face with significant stressors in their private and career life. Stress is a response to comply with factors or conditions that impose mental or physical pressure on a person [1]. Stress is one of common problems among dentists and today the dental environment and studying in dentistry potentially will cause students' much stress [2]. Continued stress can increase blood pressure, insomnia, immune system dysfunction and even reduce life expectancy [3]. Different countries and their results show that dentistry is considered as a stressful environment and dentistry students, specialists and residents experience much more stress than the public [4].

Stress is characterized by three key aspects of emotional exhaustion, personal transformation and reduced personal accomplishment [5]. Stress will be never completely removed from dentistry actions, however it should be minimized and many physical and mental problems should be avoided [6]. Highly technical nature, patients' management, heavy workload, repetitive nature of the work, fears and concerns of patients and income are all the factors that lead to stress in this profession [7]. Many studies have shown that the dentists who work long hours are under time pressure and experience more job dissatisfaction [8]. Also, the dissatisfaction is very common among dentists who are working individually [9]. One of dental treatments that can cause job stress for most of dentists, dental students and even root canal therapy specialists is endodontic treatment [10]. Endodontic treatment due to the type and implementation of the treatment in an area where a dentist has no direct view of the treated area and due to the canal system diversity and complexity can cause job stress for root canal therapy specialists and dentists and dental students [11]. Some different stressful cases include work stress of jaw molar, access cavity preparation in special cases (that included work on two jaw molars in general and each stage of the access cavity, the canal cleaning, shaping, filling and access cavity preparation of the veneer, sound teeth, carved teeth and filling channels with apical analysis) stress caused by filing, milling and filling anterior teeth and jaw premolar, stress caused by determining the initial file of anterior teeth and jaw premolar, work-related stress on premolar and anterior teeth and jaws anterior teeth access cavity. The presence of the factors causes great stress, consequently worse mental and physical side effects in dentists and stress can cause a drop in the quality of services provided. Dentists are more vulnerable to mental and physical diseases. For many years, theories and studies confirm that the profession causes more stressful cases that are essentially related to dentistry work nature and conditions. Identification of the job stressful cases allows a dentist to have needed power to deal with and manage stress [12]. Another stressor for many dentists is anesthetic injection [13].

Continued stress causes the physical and psychological discomfort and impact on a person health, and can bring psychological factors, such as feelings of ineffectiveness, anxiety, hatred, impatience, and numerous other side effects such as gastrointestinal disorders, bulimia, anorexia, rapid heartbeat, insomnia and headaches. Boredom caused by stress may lead to apathy toward the field of study [14]. Also, the overall level of stress experienced by dentists in general

depends on the relationship between patient and dentist, the relationship between the dentist and nurse and job satisfaction level [10]. It is therefore essential to try to improve skills to cope stress and prevent its side effects by understanding important and vital aspects of this phenomenon among dentists.

#### **METHOD**

The study can be considered as a regular science through which answers of given questions on the study subject are obtained. Also, the study method is considered as a systematic process to find an answer to a question or a solution for a problem. The study method in a more complete definition includes a set of rules, tools and valid (reliable) and organized ways to examine facts, discover unknown and achieve a solution to the problem [45]. The present study method is ex post facto (comparative) and applied due to using its results in the real world. The method is referred to research where the researcher according to the dependent variable examines its possible occurrence causes. The comparative research method is retrospective and since the cause and effect (dependent and independent variables) are examined after the case occurrence, the method can also be called ex post facto [46]. In the survey a questionnaire was prepared consisted of two parts, including demographic questions (age, gender and year of entry) and specific questions. Specific questions were 15 questions about stress. After completing questionnaires by specialists, residents and students, they were collected and after being classified the data were statistically analyzed.

#### **RESULT & DISCUSSION**

The evidence from this study that was obtained for the first time in Hamadan in the academic year 2015-16 suggests that stress level of endodontists, residents and dental students is moderate to low at most different stages of root canal therapy. In this study, 50 questionnaires were distributed among students, 10 questionnaires were distributed among residents and 10 questionnaires were distributed among specialists that the cooperation of specialists and residents was very good but student had no good welcome and only 27 questionnaires were returned. For specialists, the study results were consistent with the results of international research. In all jobs, experience and history highly determine stress experienced by those in the jobs. From such a perspective, as Bourassa, Johnson-Leong, Rada and Baylard showed, with increasing age, dentists gradually experience less stress during the treatment. So, endodontists who have years of therapeutic experience and activity, it is natural that they do not have high stress. Generally, the results of residents

indicate that the group also does not experience high stress during root canal therapy stages. For stress caused by work on mandibular anterior teeth, stress caused by work on premolar teeth of the lower jaw, stress caused by pulp and periodontal ligament injection, residents and students' group have experienced less stress than specialists some points are presented and extended. This average less than average of residents and students' group may be due to less experience of this group. Similar research that was conducted in this regard by Golparvar *et al.* [51] in Isfahan also in some cases, such as working on various and traumatic treatments stress of residents and students was less than specialists. The first function of the experience was gaining more skills, but the experience functions are not limited to it. Another experience function can be familiarity with several problems that may occur during work on root canal. This possibility is presented that because residents and students as endodontists are not familiar with the problems arising from the treatment they have reported less stress. Also another possibility to explain the finding is that residents and students may show social desirability when they respond to stress questionnaire during root canal therapy and they have not reported their real level of stress. In Golparvar *et al.* study filling the canal and molar teeth showed the highest stress [51] that is consistent with the present study that work stress on the upper molar was the highest from 3 groups' view. Also, in Golparvar study stress caused by mandible premolar treatment by specialists was less than other groups that is inconsistent with the study and the reason is that Golparvar was conducted in Isfahan and premolar mandibular canal splits in Isfahan are less than Hamadan. Pativi in his study said the presence of various forms of dual-channel in maxillary second premolar in Iranian population shows the need for more investigation of root canal treatment of the tooth [52]. Now that lower premolar teeth because of the possibility of channel splits and anatomical variation much more stress can be imagined. That is consistent with the present study. Essentially, in maxillary premolar there are additional channels with additional roots that finding additional channels is really easier than finding additional channels in premolar mandibular that apical splits at the root end lead to anatomical variation. In this study, stress caused by success of re-treatment is one case that is high that is consistent with studies of Rada *et al.*, showing failure of the 1<sup>st</sup> treatment period can lead to increased stress in groups of specialists, residents and students. Because correcting errors of the initial treatment is one of problematic stressors. Solutions that have been presented by Rada *et al.* for this are using proper techniques of desensitization and relaxation [49]. Other

factors according to the study results are mental pressure due to impose pressure to students to succeed in the treatment. Competitive nature of dentistry, personal problems and the family attention are hidden factors that may make students face with much more stress. Naidu *et al.* in their study have concluded that stress level of students in the first 5 years of education is higher and dentists experience less stress than students [50].

The evidence of this study showed that stress level among residents, specialists and students is lower than the average, which is consistent with the results of Golparvar *et al.* [51]. In intergroup comparison of specialists the highest stress is related to access cavity preparation in special cases. The reason can be that teeth treatment in special cases e.g. root canal therapy of the veneer by other groups is referred to specialists. So, specialists to other groups are at risk of challenges and stress. In intergroup comparison of residents the highest stress is related to treating patients with systemic problems because such patients usually are not treated by students in Hamadan School of Dentistry and referred to residents. So, residents are more at risk of the complexity of such treatments e.g. medication interventions, some patients with dental treatment or special considerations are among patients with diabetes or heart disease. In intergroup comparison of students, work-related stress on maxillary molar teeth, work-related stress on molar teeth of the lower jaw, access cavity preparation stress in certain cases, stress of retreatment success, stress caused by exposure to trauma, stress due to emergency treatment (abscesses, cysts, broken teeth and pregnancy), stress due to treating patients with systemic problems (clotting problems, patients with heart diseases, anxiety and thyroid problems) are higher than average. That stress of work on maxillary molar teeth is higher than others and this can be due to indirect view, difficult access and preparation as well as difficulty in finding the 4<sup>th</sup> canal and inexperienced students. To determine the lowest and highest stress among the 3 groups, the highest stress of root canal therapy is related to work on maxillary molar teeth. Stress of retreatment success is in the 2<sup>nd</sup> rank, stress caused by exposure to trauma is in the 3<sup>rd</sup> rank and stress associated with emergency treatment (abscesses, cysts, broken teeth and pregnancy) and stress of access cavity preparation both are in the fourth rank in special cases. The lowest stress from the respondent groups' view is related to anesthesia and lidocaine injection. This is because a dentist's stress during anesthesia and lidocaine injection is not much due to its high frequency.

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