

The association of stress and patient's pain perception during endodontic therapy

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ABSTRACT

Objective: To assess the effects of pre-operative stress level on pain perception during endodontic therapy.

Methods: 300 patients who visited the dental section of Islam Dental College for endodontic therapy were included. Numeric pain scale was implicated for assessment of pain. Stress levels were documented using the stress scale. SPSS, Version 16.0 was used for data collection.

Results: Statistically significance correlation was found to be 0.77 when considering stress and pain during endodontic therapy.

Conclusion: Pre-operative assessment of stress helps operator improved pain control in endodontics. Therefore it is suggested that reducing patient's stress levels will help improve endodontic treatment outcome.

Keywords: Local anaesthesia (LA), Endodontic therapy, Stress, Pain.

INTRODUCTION

Endodontic therapy requires local anesthetics (LAs) for the treatment of patients presenting with irreversible pulpitis¹. Endodontic therapy is a complex and multifactorial procedure that involves many physiological, biological and social factors. Local anaesthesia, a mandatory step in endodontic therapy is often perceived as the only painful part of endodontic therapy². Pulpal pain is a multifactorial process influenced by a number of factors^{1,3,4}. Psychological and social aspects may also influence the therapy, so that patients' stress levels, state of attention and emotions may lead them to overestimate the pain they perceive^{5,6}. Stress and pain perception compromise endodontic treatment outcome⁷. Cognitive and emotional factors are the major determinant of pain during endodontic therapy^{8,9}.

Pain perceived during endodontic therapy is influenced by a number of factors, where stress and anxiety have a significant role⁹⁻¹⁵. Aim of the study was to understand and correlate the association of stress and pain in patients undergoing endodontic therapy.

PATIENTS AND METHODS

A total of 300 patients visiting dental section of Islam Dental College were included in the study. After acceptance of proposal from the institutional ethical committee, data collection was performed using the non-probability purposive sampling technique. Patients aged range was between 12-70 years. Patients on sedative, anti-psychotic medication, anti-depressants and anxiolytics were excluded.

Pre-operative stress levels were assessed using the perceived stress scale¹⁰. The stress scale range was from 0 to 4, where 0=no stress and 4=Very often. The responses are scored from 0 to 40. The perceived stress score from 0-13 would be considered low stress. The perceived stress score from 14-26 would be considered moderate stress.

High stress score was labelled from 27-40. Numeric pain scale was used to document the pain, where mild pain was recorded from 0-3, moderate pain range was from 4-6 and severe pain was recorded from 7-10.

Before starting dental procedure, patients completed a perceived stress score questionnaire. And their perceived stress level was documented. Endodontic therapy was performed on the teeth diagnosed with irreversible pulpitis and the patient's pain perception was documented using the numeric pain scale. SPSS version 16 was used and Chi-square test to find out the statistical significance.

RESULTS

300 patients (172 female and 128 male) were included in the study, their age range of 12-70 years. Tables 1 represents the gender, table 2 represents stress levels and table 3 represents pain score of the patients. Table 4 describes correlation between stress and pain. The correlation of pain and stress was found to be of statistical significance (0.77), and is shown in table 5. The results show that there is significant relevance between stress and pain during endodontic therapy.

Table 1: Gender Frequency

	Frequency	Percent	Valid Percent	Cumulative Percent
F	172	57.3	57.3	57.3
M	128	42.7	42.7	42.7
Total	300	100.0	100.0	100.0

Table 2: Stress Frequency

	Frequency	Percent	Valid Percent	Cumulative Percent
High	74	24.7	24.7	24.7
Low.	109	36.3	36.3	61.0
Moderate	117	39.0	39.0	
Total	300	100.0	100.0	100.0

Table 3: Pain Frequency

	Frequency	Percent	Valid Percent	Cumulative Percent
Mild	150	50.0	50.0	50.0
Moderate	93	31.0	31.0	81.0
Severe	57	19.0	19.0	
Total	300	100.0	100.0	100.0

Table 4: Stress and Pain Cross Tabulation

		Numeric Pain Scale			Total
		Mild	Moderate	Severe	
Perceived Stress Scale	High	7	17	50	74
	Low	97	11	1	109
	Moderate	46	65	6	117
Total		150	93	57	300

Table 5: Correlations

		Numeric Pain Scale	Perceived Stress Scale
Numeric Pain Scale	Pearson Correlation	1	.770**
	Sig. (2-tailed)		.000
	N	300	300
Perceived Stress Scale	Pearson Correlation	.770**	1
	Sig. (2-tailed)	.000	
	N	300	300

** . Correlation is significant at the 0.01 level (2-tailed).

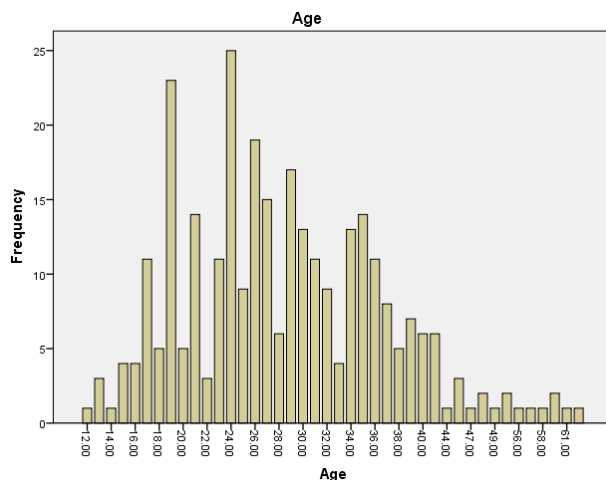


Fig 1: Frequency of Age

DISCUSSION

Endodontic therapy is stressful and painful procedure for the patient¹¹. The main objective therefore remains to keep this procedure as easy and comfortable for the patient^{12,13}. Stress, both biological and mental, has a significant role in management of endodontic therapy¹⁴. Generally the presence of stress aggravates the body physiological and emotional responses. Therefore, understanding and management of patients stress level during endodontic therapy is important.

Aim of the study was to understand the association of pain and stress and its impact on endodontic therapy. After data analysis and interpretation we found a statistical significant correlation between pain and stress (0.785). Depression and anxiety has proven a strong correlation pain and its management¹⁷. Stress can be both biological and mental, identifying the triggers that increase stress and

overcoming them to improve emotional and physical well-being of the patient will ultimately improve the patient overall health.

Pre-operative assessment of stress and its association with pain signifies that considering and working on life style modification processes can impact our post-operative pain control^{9,15,18}. Research has even advocated that increased stress levels before endodontic therapy has increased procedural pain perception during and after therapy¹⁹. Emotional intelligence and its implication in life style has proven benefit for the patients^{9,12,16}.

There were few limitations in our study like dependence of patient's perception of pain, method chosen for sampling had few limitations. As in a public dental care setup, most subjects include in the study were of low social class and weak educational background, therefore the current data may lead to under-representation of the general population. Professionals must be aware of the patient's stress perception and on top how effectively deal with such situations. Therefore understanding what factors induce stress and application of knowledge to overcome such situations will help the professionals improve the level of care provided.

No doubt, a number of pain control techniques are available but each has few risks associated with them. Life style modification to improve the quality of stress management will not only benefit the patient during therapy but this approach will also help the clinician to improve the quality of endodontic care.

CONCLUSION

Pro-active approach towards stress management will help improve endodontic treatment outcomes. Pre-operative assessment of patient's stress helps the clinician improve pain control in endodontics. Therefore biological, physiological and psychological considerations must be considered to improve the quality of patient care. Simple life style modifications can be a service to reduce stress when compared to pharmacological management.

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