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Research Article

DENTAL PATIENT'S KNOWLEDGE, AWARENESS AND ATTITUDE TOWARDS ROOT CANAL TREATMENT: A SURVEY BASED RESEARCH

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ABSTRACT

Objective-The purpose of the study was to know the patient's knowledge, awareness and experiences regarding root canal treatment. **Method-**A time bound survey was done for a period of 45 days of patients visiting the O.P.D section of the college. The pooled subjects were selected via convenience sampling technique and divided into three groups i.e group 1-teenagers, group 2-middle aged patients, and group 3- geriatric patients, the completed questionnaire was analysed to know their experiences, expectations and other concerns about root canal treatment. **Results-** An improvement of knowledge and awareness of patients about endodontic treatment has been observed. The mass media which greatly influences the public, can be used to spread awareness about the different dental treatment modalities. Results were analysed using non parametric chi square test. **Conclusions-**Further studies are required to assess the patient's overall acquaintance towards root canal treatment.

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INTRODUCTION

A diseased condition of teeth may often lead the patient to seek dental care. Dental pain is the commonest reason observed among patients for the relief of which they pursue necessary treatment, which primarily includes root canal treatment (RCT) and extraction of the diseased tooth (Parikosh M *et al*, 2015). Extraction of the tooth may lead to a chain of events such as causing the adjacent or opposing teeth to shift, affect the masticating ability and harm the natural smile and esthetics of the patient. The chief outcome of securing oral health is the conservation of the inherent dentition (Elemam RF *et al*, 2011). In modern dentistry, root canal treatment is an achievable and effective method to preserve the teeth (Umanat AU *et al*, 2012).

Endodontics deals with pulpal tissue of teeth which consists of nerves and blood vessels. Endodontic therapy also known as endodontic treatment or the root canal treatment involves the removal of diseased tissue and protection of the disinfected tooth from future entreachment by microorganisms(Cohen 2006).Root canal treatment prevents the severance of periodontal fibers that play an important role in proprioception for occlusal feedback which is of great significance for prevention of damage to temporomandibular joint (Doyle SL *et al*, 2007). Also, various systemic reviews suggest that the RCT aids in the longer duration of retention of teeth having pulpal or periradicular infections that otherwise might have been extracted (Pak JG *et al* ,2011).

Publications about the awareness and understanding of patients regarding the endodontic treatment are relatively few. Doumani *et al* in their study in Saudi population concluded that knowledge and awareness about endodontic therapy differs among various races and populations (Doumani M *et al*, 2017). Whereas, a study by Janczarek *et al* showed an upswing in Polish patient's acquaintance to the treatment procedure mainly due to mass media (Janczarek *et al*, 2014). According to the study conducted by Sisodia *et al*, a moderate level of consciousness was seen among patients from New Delhi regarding the endodontic procedure. (Sisodia *et al*, 2015). It is evident by the study conducted by Habib *et al* that there was an

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improvement in the levels of acquaintance towards root canal treatment in Syrian population, also the importance of acumen and competency of the operant in selection by participants was demonstrated. The study also demonstrated that the knowledge and awareness of the patient about the endodontic treatment may influence the ultimate choice and decision by the subject (Habib AA *et al*, 2017).

The purpose of the study was to assess the overall awareness of patients regarding root canal treatment.

MATERIALS AND METHOD

Time bound survey was carried out for a period of 45 days of patients visiting O.P.D section of the college wherein a total of 508 patients participated. An informed consent was obtained from the subjects. A multiple choice self administered questionnaire was prepared consisting of 13 questions and distributed to patients willing to participate in the survey. The pooled subjects were divided into 3 groups. Group 1 included teenagers (157 patients aged 13-19 years),Group 2 included middle aged patients(239 patients aged 20-59 years)and Group 3 which included geriatric patients(112 patients aged 60 years and above).The data collected was analysed using descriptive statistics. Non parametric Chi square is used to test association of groups with the mode of reply.

RESULTS

The study comprised of 508 subjects including 157 patients aged 13-19 years, 239 subjects aged 20-59 years and 112 individuals aged 60 years and above. The results have been summarized in the tables.

When analysing awareness of the patients towards RCT, majority of the teenagers (85.9%) had a basic knowledge about the treatment, followed by middle aged individuals (85.59%).

Majority of the respondents (65.38% teenagers, 65.25% middle aged individuals and 63.64% geriatric patients) knew about the treatment during their visit to the dental clinic, followed by the awareness and knowledge from friends and relatives.

The average number of visits for the endodontic treatment was estimated to be 2-3 times by 46.61% of the middle aged individuals, followed by the teenagers (38.46%) who also estimated equal number of visits.

Table 6 presents the average cost estimation of endodontic treatment which demonstrates that equivalent number of middle aged individuals (36.44%) estimated it to be below Rs 1999 and below Rs 2999.

Majority of the geriatric patients responded that they had not undergone any endodontic treatment earlier, whereas, majority of the teenagers (47.44%) had undergone previous endodontic therapy.

Most middle aged individuals(75.42%), followed by teenagers(69.23%) and geriatric patients(65.45%) preferred endodontic procedure over extraction The study showed that most middle aged respondents(88.98%) preferred a specialist over a general practitioner for carrying out the intricate procedure.

Table 1

After what duration of pain have you reported for treatment?	Immediately	Within 1-3 weeks	1month or more	Not experienced R.C.T/pain	Total	P value
Teenagers	42(26.92%)	82(52.56%)	24(15.38%)	8(5.13%)	156(100%)	0.0043
Middle aged	70(29.66%)	84(35.59%)	46(19.49%)	36(15.25%)	236(100%)	Highly
Geriatric	24(21.82%)	56(50.91%)	18(16.36%)	12(10.91%)	110(100%)	significant difference

Table 2

Have you used home remedies for relieving pain?	Yes	No	Not experienced R.C.T	Total	P value
Teenagers	56(35.9%)	94(60.26%)	6(3.85%)	156(100%)	P=0.079 Not Significant
Middle aged	64(27.12%)	148(62.71%)	24(10.17%)	236(100%)	
Geriatric	36(32.73%)	68(61.82%)	6(5.45%)	110(100%)	

The results show that majority of the teenagers(52.56%) reported to the dental clinic within 1-3 weeks of suffering from dental pain, followed by geriatric patients(50.91%) who reported after the same duration.

According to the results obtained, 62.71% of the middle aged individuals had not used any home remedies for pain relief. Whereas, 35.9% of teenagers had used home remedies which included clove oil application, balm application, heat pack application or in certain cases self medications.

Table 3

Do you know about R.C.T?	Yes	No	Total	P value
Teenagers	134(85.9%)	22(14.1%)	156(100%)	0.58
Middle aged	202(85.59%)	34(14.41%)	236(100%)	Not
Geriatric	90(81.82%)	20(18.18%)	110(100%)	significant

A significant number of middle aged respondents (51.69%) showed their willingness to undergo endodontic treatment in private clinic over a public health care set up due to various reasons which included cleanliness maintenance, lesser number and duration of appointments, provision of better amenities.

Majority of the teenagers (41.03%) who had undergone the treatment reported that they had not experienced anxiety during the procedure. Whereas, 33.33% teenagers felt anxious during the treatment.

Table 4

Where did you come to know about R.C.T?	Dental clinic	Internet	T.V	Radio	Relatives/friends	Not experienced R.C.T	Total	P value
Teenagers	102(65.38%)	0(0%)	0	0	36(23.08%)	18(11.54%)	156(100%)	0.018
Middle aged	154(65.25%)	2(0.85%)	0	0	28(11.86%)	52(22.03%)	236(100%)	Significant
Geriatric	70(63.64%)	0(0%)	0	0	20(18.18%)	20(18.18%)	110(100%)	difference

Table 5

What are the number of visits for R.C.T?	1	2-3	≥4	No knowledge about R.C.T	Total	P value
Teenagers	44(28.21%)	60(38.46%)	32(20.51%)	20(12.82%)	156(100%)	<0.0001
Middle aged	24(10.17%)	110(46.61%)	70(29.66%)	32(13.56%)	236(100%)	Highly significant difference
Geriatric	20(18.18%)	40(36.36%)	26(23.64%)	24(21.82%)	110(100%)	

Table 6

What is the cost for R.C.T?	< than Rs.1999	Rs2000-2999	Rs3000-3999	>Rs4000	No knowledge about R.C.T	Total	P value
Teenagers	32(20.51%)	64(41.03%)	22(14.1%)	22(14.1%)	16(10.26%)	156(100%)	<0.0001
Middle aged	86(36.44%)	86(36.44%)	30(12.71%)	2(0.85%)	32(13.56%)	236(100%)	Highly significant
Geriatric	26(23.64%)	42(38.18%)	14(12.73%)	8(7.27%)	20(18.18%)	110(100%)	difference

Table 7

Have you experienced R.C.T?	Yes	No	Total	P value
Teenagers	74(47.44%)	82(52.56%)	156(100%)	0.60
Middle aged	102(43.22%)	134(56.78%)	236(100%)	Not
Geriatric	46(41.82%)	64(58.18%)	110(100%)	Significant

Amongst the teenage individuals who had undergone the treatment, a significant number of them(48.72%) had not experienced pain during or after the treatment.

Table 8

Do you prefer root canal treatment or extraction after knowing about the procedure?	R.C.T	Extraction	Not experienced R.C.T	Total	P value
Teenagers	108(69.23%)	38(24.36%)	10(6.41%)	156(100%)	<0.0001
Middle aged	178(75.42%)	16(6.78%)	42(17.8%)	236(100%)	Highly significant
Geriatric	72(65.45%)	28(25.45%)	10(9.09%)	110(100%)	difference

Table 9

Do you prefer a specialist or a general practitioner for R.C.T?	Specialist	General practitioner	No Idea	Total	P value
Teenagers	116(74.36%)	34(21.79%)	6(3.85%)	156(100%)	<0.0001
Middle aged	210(88.98%)	14(5.93%)	12(5.08%)	236(100%)	Highly
Geriatric	74(67.27%)	28(25.45%)	8(7.27%)	110(100%)	significant difference

Table 10

Do you prefer private clinic/college or public health care set up? Why?	Private clinic	Public health care set up	No Idea	Total	P value
Teenagers	76(48.72%)	74(47.44%)	6(3.85%)	156(100%)	0.63
Middle aged	122(51.69%)	102(43.22%)	12(5.08%)	236(100%)	Not
Geriatric	58(52.73%)	44(40%)	8(7.27%)	110(100%)	Significant

Table 11

Did you experience anxiety during the treatment?	Yes	No	Not experienced R.C.T	Total	P value
Teenagers	52(33.33%)	64(41.03%)	40(25.64%)	156(100%)	<0.0001
Middle aged	50(21.19%)	60(25.42%)	126(53.39%)	236(100%)	Highly
Geriatric	24(21.82%)	38(34.55%)	48(43.64%)	110(100%)	significant difference

Table 12

Have you experienced pain during or after root canal treatment?	Yes	No	Not experienced R.C.T	Total	P value
Teenagers	36(23.08%)	76(48.72%)	44(28.21%)	156(100%)	<0.0001
Middle aged	44(18.64%)	64(27.12%)	128(54.24%)	236(100%)	Highly
Geriatric	24(21.82%)	34(30.91%)	52(47.27%)	110(100%)	significant difference

Table 13

Have you got a post endodontic (R.C.T) restoration and crown placement done?	Yes	No	Not experienced R.C.T	Total	P value
Teenagers	52(33.33%)	64(41.03%)	40(25.64%)	156(100%)	<0.0001 Highly
Middle aged	50(21.19%)	60(25.42%)	126(53.39%)	236(100%)	significant
Geriatric	24(21.82%)	38(34.55%)	48(43.64%)	110(100%)	difference

A considerable number of teenagers(41.03%) who had undergone endodontic therapy had not got a coronal coverage by post endodontic restoration placement and the prosthetic crown placement.

DISCUSSION

The branch of endodontics is a fast mushrooming speciality with the availability of recent advances including various modernistic tools which helps in retaining the natural teeth of the patient, thus, conserving the normal form, function and esthetics of the patient.

One of the most common causes of a dental check up is pain, for the alleviation of which a root canal treatment might be carried out. Sisodia *et al* reported that 52% of the patients were familiar with the term root canal treatment (Sisodia N *et al*, 2015), while Habib *et al* stated that 25.3% of the respondents had no knowledge about the treatment, whereas, 21.7% of the respondents knew a lot. In the present study, teenagers (85.9%) followed by middle aged individuals (85.59%) knew about root canal procedure. The knowledge about endodontic treatment came from various sources including visit to the dental clinic, media, friends and relatives. It was demonstrated by Doumani *et al* that only 7% of the respondents gained knowledge from the media (Parikosh M *et al* ,2015).According to the survey conducted by Sisodia *et al*, 52% patients gained knowledge about the treatment through their relatives and friends(Sisodia N *et al*, 2015). Subjects who are unaware of the specialized treatment reported the use of home remedies for relieving pain which comprised of use of clove oil, balm application, self medications and heat pack application who were mainly of the geriatric group(12.73%). Doumani *et al* and Sisodia *et al* reported the use of home remedies by 32% and 40% of the respondents (Doumani M *et al*, 2017, Janczarek M *et al*, 2014).

It is commonly seen that anything unfamiliar and new may cause anxiety, and in case of endodontic therapy various authors have shown it to be closely related to pain(Maggirias J and Locker D,2002, Klages U *et al* ,2004, Okawa K *et al*, 2005, Wijk AJ and Makkes PC, 2008, McNeil DW *et al* 2011,Klages U *et al,* 2006). Al Absi *et al* showed a correlation between anxiety and painful stimulus (Wijk AJ and Makkes PC, 2008). Perkovic *et al* stated that the endless interlinked loop of pain and anxiety can be stopped by providing the affirmative data to patient both before and during the treatment (Perkovic I *et al* ,2014). Individuals with more dental fear had increased chances to postpone or avoid visits to the dental clinics.It was also noticed that a number of individuals cancel or do not report for the appointments (Doumani M *et al* ,2017). Due to the spread of knowledge about root canal treatment, in the study, majority of the middle aged individuals(88.98%) preferred a specialist to perform the treatment. Janczarek *et al* demonstrated that 38% of the subjects preferred a specialist to carry out the treatment (Janczarek M *et al* ,2014).

This study demonstrated that majority of middle aged subjects (51.69%) preferred to get treated in a private clinic rather than a public health care set up due to reasons including long duration of appointments, more number of visits, cleanliness of clinics. There are mainly five factors influencing patient satisfaction which are technical competence, interpersonal factors, convenience, cost and facilities (Al Johara and AL-Hussyen, 2010). Moshkelgosha *et al* concluded that patients prefer dental care having good quality, new and advanced technologies and competent dentists (Moshkelgosha V *et al*, 2014). Iqbal *et al* in their cross sectional study concluded that patients choose the dental service provider based on professional experience, staff courtesy and friendly environment(Iqbal M *et al* ,2014).

In our study, majority of geriatric patients (58.18%) have not undergone any root canal treatments which is in accordance with a previous study carried out by Umanah *et al*(Umanah AU *et al*, 2012).Whereas, 47.44% of the teenagers have experienced root canal treatment the probable cause of which may be the changing dietary patterns combined with poor oral hygiene care.

A successful result can only be obtained when root canal treatment is coupled with a good coronal sealing that is provided by a properly placed restoration after the obturating material is placed followed by a crown placement. In the present study, 41.03% of the teenage individuals who had undergone the treatment have not undergone coronal sealing procedure which may lead to reinfections of the canal system. Sorenson *et al*, in their study reported a failure rate of 24.2% for root canal treated teeth without crowns (Sorensen JA and Martinoff JT, 1985). In yet another study, it was demonstrated that endodontically treated teeth without a crown were extracted at 6 times higher rate (Aquilino SA and Caplen DJ, 2002). Ray *et al* reported that a good restoration combined with good endodontic treatment culminated in nonappearance of periapical inflammation in 91.4% teeth. A combination of poor restoration and poor endodontic therapy showed absence of periapical inflammation in a meagre 18.1% of teeth examined (Ray HA and Trope M,1995).

CONCLUSION

1. The knowledge and awareness regarding root canal treatment among teenage population and middle aged individuals has increased considerably. Mass media which helps to spread awareness should be used to further increase the awareness about the treatment amongst the masses.
2. A specialized practitioner is preferred by most of the middle aged respondents.
3. The importance of coronal coverage should be emphasised on for the improved success rates of endodontic treatment.

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