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## Guest Comment: Leukaemia & Lymphoma Awareness Month

DR. PREETY GUPTA <sup>id</sup>

Every year, the month of September is celebrated as Leukaemia & Lymphoma Awareness Month. This is done to increase the general public's understanding regarding cancers of hematologic origin and their early warning symptoms. The main aim of making this effort is to enhance the people's knowledge about the prevalence of these life-threatening conditions, and also to point people to trusted information resources, so that the likelihood of early detection is increased and better outcome is achieved. Many of the affected people are able to successfully get treated and overcome these conditions and are also able to maintain a high quality of life, all due to recent research advances.

The cancers that affect the blood or bone marrow are scientifically known as leukaemias and lymphomas.

Leukaemia is a kind of cancer that initiates in the blood forming tissues and most of the blood cells develop from stem cells found in the bone marrow. Leukaemia cells are abnormal white blood cells that are formed in a person suffering from leukaemia. These leukaemia cells don't die when they should, unlike normal blood cells. They make it hard for normal blood cells to do their work.

According to federal statistics, in 2019, adult leukaemias are expected to account for around 3.5 percent of all new cancer cases, with leukaemia being the most common cancer in children less than 15 years of age.

Leukaemia's are classified into four major types: AML, acute myeloid leukaemia, that affects myeloid cells and has a quick growth; CLL, chronic lymphocytic leukaemia, affecting lymphoid cells and has a slow growth; ALL, acute lymphocytic leukaemia affecting lymphoid cells and has a quick growth; and lastly CML, chronic myeloid leukaemia which has an effect on myeloid cells and usually has a slow growth initially. Adults are mainly affected by AML and CLL while ALL is the most common leukaemia affecting

the children.

Despite successful treatment, childhood leukaemia stands as the principal subtype of paediatric cancer with enigmatic etiology. Researchers have proposed a plethora of candidate environmental exposures, but almost all of them lack a biological rationale or consistent epidemiological evidence.<sup>1</sup>

Lymphatic system is a part of the human immune system where the lymphomas originate. Lymphoma can initiate anywhere in the human body due to throughout presence of the lymphatic tissue. These can be basically classified into two categories, Hodgkin and non-Hodgkin lymphomas.

The presence of a Reed-Sternberg cell in the lymph nodes is the marking characteristic of Hodgkin lymphoma and this lymphoma may occur commonly in patients affected by acquired immunodeficiency syndrome.

Categorized by scientists typically as either slow-growing or aggressive, Non-Hodgkin lymphomas include a vast, diversified group of cancers of immune system cells, with diffuse large B-cell lymphoma and follicular lymphoma being the most common types of NHL in adults. According to the National Cancer Institute, these lymphoma represents approximately 4.2 percent of all new cancer cases in the United States of America. Both kind of lymphomas can occur in children and adults.

Timely and accurate estimation and detection followed by precise assessment of therapeutic treatment response is of prime importance for the optimal management of subjects affected with lymphoma. Over the last 5 decades, drastic advances in technological development has led to establishment of imaging as the cornerstone for evaluation of disease. But the appropriate application of current techniques requires thorough knowledge of their strengths and weaknesses, along with the



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appreciation of the huge diversity of neoplasms of lymphoid tissue.<sup>2</sup>

In the year 1949, a society was established as the de Villiers Foundation. In the year 2000, its name was changed from The Leukaemia Society of America to The Leukaemia & Lymphoma Society (LLS). This initiative was taken to emphasize the commitment of society against fighting all blood-borne cancers. The inaugural edition of the Report to the Nation on Blood Cancer: Leading the Way to Cancer Cures in 2017 was released to provide education and get people engaged in the battle against blood cancers namely, lymphomas, leukaemia's and myelomas which stand at third position in the list of leading causes of cancer related deaths in United States of American. In the same year, the U.S. Food and Drug Administration approved unrivalled treatment options (eighteen in number) for subjects who were in urgent need. For all

of these advancements, the Leukaemia & Lymphoma Society has played a vital role and in recent decades, the research supported by this body has significantly contributed to almost every new blood cancer treatment strategy and innovative approach including immunotherapy and precision medicine.<sup>3</sup>

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# Herbs for Oro-Dental Health: Nature's Own Remedy

SUNYANA BHAGAT

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Since ages, man has been using herbal medications for prevention and cure of countless diseases. Before the start of civilization, medicines were probably available in the natural forms. The use of herbs for oro-dental care can be rooted from ancient civilizations. Over the past few years, herbal medications have been into consideration across the globe mainly due to their high safety profile as compared to modern medicines. Most of herbal derivatives have medicinal properties mainly being anti-inflammatory, antimicrobial, antiseptics, antibacterial and anti-oxidant. Some also help to control plaque, reduce irritation and tackle infection related to oral cavity with very few adverse reactions as compare to modern day medicines. Future research should be carried out to study the action mechanism, efficacy and safety of these abundant natural resources of plant origin. The review highlights the herbs which can be used for preventing and curing dental diseases.

**KEYWORDS:** Herbs, Dentistry, Herbal Medicines, Oral Health

## INTRODUCTION

Plants sources have been used since long treatment of many diseases in the Eastern region countries.<sup>1</sup> and have also been able to draw attention in United states of America, Europe and Japan.<sup>1,3</sup> Herbal extracts are being used in traditional medicine for thousands of years.<sup>4</sup> Herbal drugs are those that originate from the plants and are used to treat diseases attaining or maintaining the condition of improved health.<sup>5,6</sup> The roots of traditional medicines are grounded deep in the history and these have been used in India since times immemorial. There are many medicinal systems in India, the most popular being the Ayurveda. The traditional healers in India use around 2,500 plant species and a 100 species of plants act as a regular source of medication.<sup>7</sup> The herbal medicines are widely used for the treatment of systemic diseases. They contain compounds called phytochemicals that can be considered as an effective substitute to antibiotics and a promising approach towards preventing and treating for infections of oral origin.<sup>8</sup> Moreover, the economic benefits in the treatment of various diseases are also considerable if indigenous medicines are developed and medicinal plants are used.<sup>9</sup>

Oro-dental disorders directly impact the oral health related quality of life. More than 750 species of bacteria are found in the oral cavity and a few of these lead to causation and progression of oral diseases thus having a detrimental effect on oral

health.<sup>10</sup> The anti-inflammatory medicines, analgesics and antibiotics being used to treat dental diseases are reported to have countless adverse reactions ranging from mild rash to life-threatening anaphylaxis and DRESS syndrome. Antibiotic resistance is a universal issue. Because of valid reasons like safety concerns, drug resistance and high costs of synthetic medication, natural and herbal medicaments can be considered as an upcoming substitute to modern day medicines.

The traditional medical systems have described many procedures for maintenance of good oral hygiene Twigs, most commonly those of neem tree (botanical name *azadirachta indica*) have been considered as a brushing tool since ages and are still being regularly used in rural areas. Although it has got a bitter taste, it contains volatile oils which stimulate blood circulation and tannins which help in cleaning of gums and other soft tissues of the oral cavity. It also helps to inhibit the growth of *S. Mutans*. These neem twigs have got antiseptic, astringent, and antibacterial properties.<sup>11</sup>

Cinnamaldehyde from cinnamon has got antifungal and antibacterial properties, which help in decreasing the chances of infections and help prevent dental caries and halitosis.<sup>11</sup> A few chewing gums available in the market have got cinnamon essence which acts as a flavouring agent due to its refreshing taste.

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Cinnamon has got beneficial effects on oral health and can be used to treat toothache, oral infections, and halitosis.<sup>12</sup>

Triphala is a combination of herbs with three important ayurvedic components. It consists of Amalaka (botanical name *Emblica officinalis*), haritaki (botanical name *Terminalia chebula*) and bibheetaka (botanical name *Terminalia bellirica*). Triphala has got an anti-plaque and anti-caries effect mainly determined by its property to inhibit bio-film formation and aggregations of *S. mutans*. It has also got better antioxidant activity as compared to commercially available dentifrices. Triphala is also known to have anti-cancer properties.<sup>13</sup>

Green tea extract from *Camellia sinensis* is being used worldwide for weight loss. As it is reported to inhibit the growth of *Streptococcus mutans* due to its richness in catechins, it helps in improvement of dental health and also reduces the caries risk, helps in prevention of halitosis and decreases the risk and progression of cancers.<sup>14,15</sup>

Aloe vera has got antibacterial, antifungal and antiviral properties and is effective against *Candida albicans*, *Streptococcus mutans*, *Lactobacillus acidophilus*, *Enterococcus faecalis*, *Prevotella intermedia*, *Peptostreptococcus anaerobius*, *Streptococcus pyogenes*, *Streptococcus faecalis* and *S. mitis*. The plant contains a few anthraquinones which act against many bacteria, fungi and viruses and are also known to have analgesic properties. It can be placed as a medicament in periodontal pockets and helps in treating periodontitis.<sup>16-18</sup>

The *Salvadora persica* tree commonly known as Miswak tree, is popular for its importance in dentistry was established centuries ago. The chewing sticks of this plant were used in Babylonia, Greek and Roman empires and is still the common traditional toothbrush in many countries. Its use is popular in Islamic countries, probably due to some religious principal reason behind the same. The Meswak extract is also used in the formulation of toothpastes due to its antiplaque and antigingivitis activity. Gupta P et al in 2012 found comparable results in a study that was conducted to evaluate the antiplaque efficacy of a Meswak containing toothpaste and a conventional toothpaste.<sup>19</sup> It is rich in tannins, vitamin C, sodium chloride, fluorides, chlorides, calcium oxalate, alkaloids, saponins, sulphur,

flavonoids, salvadorine, silica, trimethylamine, and benzyl isothiocyanate (bactericidal in nature). These components, directly or in an indirect way help in prevention of plaque formation and dental caries. Some of these have antibacterial activity, a few help in strengthening of gingival tissue and inhibition of calculus formation while others provide protection against caries by forming a layer over the enamel. Miswak affects the C<sub>3</sub>T<sub>3</sub> fibroblasts and is an antibacterial agent for *Streptococcus mutans*.<sup>20</sup>

Tulsi (botanical name *Ocimum sanctum*), also known as holy basil contains tannins, carvacrol, essential oils, oleanolic acid, eugenol, ursolic acid, methyleugenol, rosmarinic acid, alpha caryophyllene, beta caryophyllene, methylchavicol, linalool and cineole. It can cure fever, pain, inflammation and ulcers, can stimulate immune system, has got antimicrobial and antihelminthic properties. It acts as a good and long lasting mouth freshener, disinfects the oral cavity and helps in decreasing the extent of periodontitis. It is known to cease the growth of pre-cancerous lesions and cancers of oral origin. It has also got astringent properties that keep the gingival tissue firm preventing tooth mobility and also destroys the bacteria that may result in plaque, tooth decay and bad breath.<sup>21,22</sup>

Turmeric (botanical name *Curcuma Longa*) is a part of every kitchen. It has got antiinflammatory, antiseptic, antioxidant, antimutagenic, anticarcinogenic, antibacterial, antimicrobial, hepatoprotective, and immunostimulant properties. Turmeric includes volatile oils, monoterpenes, sesquiterpenes, zingiberene, curcumin and turmerone. Massaging the teeth with roasted, ground turmeric can help to remove pain and inflammation.<sup>5</sup> Mali AM et al, conducted a study to check the antiplaque effect of 0.1% turmeric mouthwash and its effect on gingival inflammation and reported that turmeric mouthwash can be effectively used in prevention of plaque and treatment of gingivitis.<sup>23</sup> Curcumin, a major constituent of turmeric may inhibit inflammation at molecular level. It has also got good antioxidant potential and works by neutralizing the free radicals and stimulating the body's antioxidant enzymes. It also can result in several changes at a molecular level that may be of great help in prevention and treatment cancer.<sup>24,25</sup>

Coriander has also got antiseptic properties mainly due to its component citronellol. It might also



exhibit antimicrobial and antifungal, anti-ulcer properties and also helps in healing and prevention of bad breath.<sup>26</sup>

Countless herbal derivatives have got beneficial effects on the oral tissues, some of these are known and many yet to be discovered. Nature has provided us with remedies for every disease and disorder, the major concern is to unlock them, conduct trials regarding efficacy and collate data concerning adverse reactions associated with them.

## CONCLUSION

The modern world is inclined towards the discovery of new compounds and treatment modalities, whereas stress should be laid on medicaments of herbal origin. These natural substitutes are better than the current treatments for oro-dental issues. There is a definite need to conduct more research on safety and efficacy profiles of herbal medicines for establishment of their therapeutic benefits, so that enough data is available for meta-analysis, leading to scientifically proven conclusions on the pharmacokinetics and pharmacodynamics of these medicines, eventually making human life happier and healthier with the help of natural resources.

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# Rare Occurrence of Single Rooted Mandibular Left First and Third Permanent Mandibular Molar: A Case Report

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For any practicing clinician, successful endodontic therapy is highly dependent upon complete knowledge of the anatomy and the variations present in the human dentition. There are variances in anatomical configurations in teeth seen across the globe and might needs specialized treatment techniques. The tendency of Asians to show a C- shaped canal morphology has been documented in the literature, however, in contrast to those findings, we report a unique and a rare case of a left mandibular first and third molar having a single root with single root canal morphology in a middle aged Indian female.

**KEYWORDS:** First Molar, Third Molar, Single canal, Single Root

## INTRODUCTION

A dental clinician aims to alleviate the pain of his patients sitting in his dental chair. While certain endodontic procedures are simple to perform due to a known root and canal anatomy, variations in them can pose a serious challenge to these clinicians. Literature relating to reporting of complicated root canal systems rather than simplified canals have been described until the year 1925, and has changed the face of modern endodontics ever since.<sup>1</sup>

The permanent mandibular first molar usually exhibits two roots (one mesial and other distal) with three root canals and variations in the number and configuration of both roots as well as root canals have been extensively documented by various clinicians.<sup>2</sup> The roots can fuse to form a single conical root with varying internal anatomy and often have C-shaped canal configuration and is mostly seen among Chinese, Korean and Indian populations.<sup>3,4</sup>

Therefore, it becomes clear that to treat teeth requiring endodontic treatment, a correct diagnosis (involving the use of X-rays) coupled with appropriate cleaning and shaping of the root canal system including any accessory canal leads to a successful endodontic treatment outcome.<sup>5</sup> Slowey (1974), reports that a major cause of endodontic treatment failures has been attributed to a lack of understanding as well as underestimation of the root canal morphology by clinicians across the globe.<sup>6</sup>

When it comes to the documentation of aberrant root forms, the presence of a single, tapering root form can be found in any molar, most common being second

and third permanent molars which shows a female predilection, for which the cause is still being investigated by researchers.<sup>7</sup>

We present a rare case report, showing the bilateral presence Vertucci's type I (1-1) root canal, having a single root canal with one orifice and one apical foramen in the mandibular left first and third permanent first molar.<sup>8</sup> It is of great clinical importance to note that our case had a single root and a single root canal morphology, which is quite unique and rare.

## CASE REPORT

A 46 year old female patient reported to the OPD of GTB hospital, New Delhi complaining of pain in her lower left back tooth region since 2 days which was extending upto her forehead and was constant in nature. The pain aggravated upon eating anything hot or cold and relief was attained only with medication (analgesic). The medical history of the patient was non-contributory. Upon clinical examination, the left permanent mandibular first molar (tooth number 36) showed no frank carious lesion but tooth number 36 was tender on percussion. An IOPA was taken to check for periapical pathology, which was found to be absent (Figure 1). The IOPA further revealed occlusal caries (radiolucency) from the mesial and distal aspect of tooth number 36 and affecting tooth number 35 from the proximal aspect near the dentino-enamel junction. The apical portion of tooth number 36 showed a conical configuration.

Further analysis revealed that tooth number 38 also



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**Figure 1.** IOPA taken of the affected tooth number 36 revealed a single root and canal in tooth number 38 too.

had a single root profile with a single Vertucci's type I (1-1) root canal configuration and was non-tender, non-carious and revealed a non-conical root configuration with a clinically correlateable pocket of 4 mm. The patient was advised to undergo both periodontal (root planning w.r.t 38) and endodontic treatment for tooth number 36, but she declined to provide any consent for treatment or any blood investigations. The patient was recalled for counselling regarding the condition of the teeth, but she did not report back to the clinic and telephonic follow up revealed that the patient had gotten the tooth extracted from a local village practitioner.

The patient's both maxillary and mandibular arches were partially edentulous in nature and had all her other molars missing and reported getting them extracted due to caries and this claim, however, could not be verified. She also could not provide any records for the extracted teeth (OPD card and any previous IOPA) to check for any bilateral presence of such a condition.

## DISCUSSION

Variations in the anatomy of the configuration of mandibular molars is quite common with Asians reporting a high frequency of single rooted mandibular second molars.<sup>9</sup> Such variations are attributed to disturbances occurring during the canal differentiation phase.<sup>10</sup>

The present case report documents the presence of a single root and canal with a conical (First molar) and non-conical (Third molar) configuration in both mandibular left quadrant of a patient aged 6 years and these findings make the case quite rare in nature.

Munavalli A et al.<sup>10</sup> in their case report highlighted the presence of a rare anatomy in mandibular first molar having a single root and a single canal while Thakar SS et al.<sup>3</sup> documented bilateral single root and single canal in mandibular second molars.

Sabala et al. (1994), stated that the rarer the aberration, there are higher chances of it being bilateral in nature.<sup>11</sup> In the present case, since all the molars were missing, we were unable to assess the finding of the current patient being bilateral or not.

In cases where only one canal is present, its location usually will be in the centre of the root. It is important to take note that a root always has a root canal, even in the most complex cases where the canal is not visible on the radiograph and is difficult to locate as well as negotiate.<sup>12</sup> One of the key factors in the success of endodontic therapy remains instrumentation, hence, a dentist should try to be aware of all the anatomical variants and aberrant canal configurations present in human teeth. A thorough examination of the pulp chamber and ensuring complete debridement of all the canals increases the chance for long-term successful endodontic therapy.<sup>13</sup>

## CONCLUSION

The present case report depicts a rare left mandibular first and third molar having a single root with single root canal morphology in a middle aged Indian female. A keen eye on such occurrences helped us report this case. We hope that this case report shall immensely help our peers as we bring forth a clinical anomaly for them to discuss and relate to in the near future.

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# Observed Risk Factors and the Prevalence of Potential Oral Malignant Lesions among a North Indian Population

VASUDA BHAGAT<sup>\*1</sup>, MEHTAB SINGH BHAGAT<sup>2</sup>

**INTRODUCTION:** The menace of oral cancer has become a public health concern and its prevalence is increasing with every passing day, making it the sixth most common cancer across the globe.

**AIM:** To evaluate the prevalence and risk factors for potential oral malignant lesions in a middle aged north Indian population.

**MATERIALS AND METHODS:** Adopting a Cross-sectional study design, this study examined a total of 944 participants in the Delhi-NCR region and males formed a majority of the population (569, 60.3%). Data was collected using a pre-tested and pre-validated questionnaire. Descriptive statistics was applied and the chi-squared test (for qualitative data) and independent samples t-test (for quantitative data) was applied to find out statistical differences (Using SPSS 21.0), if any.

**RESULTS:** It was reported that 201 (21.29%) of the study population suffered from oral malignant lesions, and the most prevalent lesion was OSMF [115, 12.18%] followed by leukoplakia [49, 5.19%]. The prevalence of oral malignant lesions among males was found to be higher (18.97%) as compared to females. A significant difference was found between the oral lesions and tobacco ever and never chewers ( $p < 0.001$ ).

**CONCLUSION:** The results indicate a need to focus tobacco cessation programmes in the population of Delhi-NCR and reinforce it from time to time to reduce the burden of such Oral Malignant Lesions.

**KEYWORDS:** Leukoplakia, OSMF, Oral Malignant Lesions, Tobacco

## INTRODUCTION

Although similar to human skin, the oral mucosa faces exposure to different kinds of complex environments due the habits and dietary patterns of an individual.<sup>1</sup> This exposure to various kinds of substances have the potential to harm the integrity of the oral mucosa which can cause a change in colour, shape, size and consistency leading to various disorders and/or Oral Mucosal Lesions (OMLs) in an individual.

Although a majority of OMLs are benign in nature and require no specialized treatment, a few lesions might be of concern as they may have certain pathological changes that can transform them into potentially malignant disorder.<sup>2</sup>

The various reasons for the occurrence of such lesions ranges from infections (bacterial, viral, fungal) to local trauma and/or irritation (e.g. traumatic keratosis, irritational fibroma, burns), along with systemic diseases or excessive consumption of tobacco, betel quid and also alcohol.<sup>3</sup> Such lesions have the capacity to significantly impact one's quality of life and increase the burden of these diseases in a society/nation.<sup>4</sup> Treatment of such lesions add an extra financial burden on the individual in addition to regular visits to the treatment centre wasting one's precious time and effort.

The use of tobacco products has been considered as a prime etiological factor for the formation of OMLs and its easy availability and cheap pricing leads to its increased consumption across the globe. Use of tobacco products among individuals can be due to a variety of reasons which includes use for recreational purposes, peer pressure, to relieve stress, etc. In Asians population, the cause for a steep rise of such OMLs is due to cigarette smoking, excess alcohol intake, and areca quid chewing.<sup>5</sup> Various others factors documented by various researchers across of the globe are Body Mass Index and diabetes coupled with various dietary preferences (low vegetable inclusion, lesser fruit incorporation).<sup>6</sup>

The prevalence of oral mucosal diseases varies from 10.8%–81.3% in different populations<sup>7</sup>, with malignant tumors, representing only a minor percentage among these lesions.

Keeping in mind the harmful effects of various etiological factors in formation of OMLs and its capability to increase the burden of disease significantly in a society, the present study was undertaken with an aim to record and evaluate the Prevalence and risk factors for Potential oral malignant disorders in a



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middle aged North Indian population.

## MATERIALS AND METHODS

This study adopted a cross-sectional designed and data was collected in the region of Delhi-NCR through a pre-tested and pre-validated proforma (adopted & modified from Kumar S et al.<sup>8</sup>) to record data of various patients visiting various oral health screening/ treatment camps. The camps were organized during the months of March 2018- February 2019 (12 months duration) after an ethical clearance was obtained from the institutional review board. It was kept in mind that the participants (aged >18 years) were duly explained about the study objectives and a written consent was obtained from them after they were assured of the confidentiality of the data obtained. Also they were informed that their data recorded could be used for research purposes, however, their individual identities shall remain masked.

The sample size was selected through the prevalence of OMLs obtained in the pilot study done to check for the feasibility of the study. It was observed that approximately 29.4% of the total screened population (125 in number) were having some kind of OML present in them. This prevalence rate was amenable to statistical analysis and using statistical deductions done by a certified statistician, the sample was found to be 783. However, we aimed to include >800 people in the study to account for loss of people/data.

The inclusion criteria was above 18 years as they could legally give consent on participation in the study. Exclusion criteria included participants who did not give their consent to be a part of the study. The part of the proforma first contained data regarding socio-demographic profile, socio economic status (based on Kuppaswamy scale), age and gender of the participants. A total of 944 participants were included in the study and the data obtained from them was analysed.

The second sub-section focused on the oral hygiene, the preventive measures taken to maintain it and recorded the adverse oral habits with its detailed noting of the quantified amount along with its quantity consumed. was registered. The third subsection emphasised primarily on the adverse oral habits present in the study population which majorly included data on tobacco chewing, areca nut use, and alcohol consumption. The participants were divided into ever chewers and never chewers with respect to smokeless tobacco.

The examinations were carried out by two observers who had two recoding clerks by their side and all of them were duly standardized prior to the study. Descriptive statistics was applied and the chi-squared test (for qualitative data) and independent samples t-test (for quantitative data) was applied to find out statistical differences (Using SPSS Version 21.0), if any among the study population.

## RESULTS

Of the total 944 participants in the study, males formed a majority of the population (569, 60.3%) and a Greater portion belonged to the middle class (35.5%) or lower class (34.6%) divisional percentage based on their socioeconomic status. 70.6% of the population were using a toothbrush to clean their teeth. (Table 1)

It was documented that 21.29% of the Northern Indian Population which suffered from oral malignant lesions, with the prevalence rates of OSMF being 115 (12.18%) followed by leukoplakia in 5.19%, Lichen Planus in 2.54% and lowest being erythroplakia seen in 1.37 of the study subjects (Table 2).

CHARACTERISTICS	CATEGORIES	NUMBER (%)
GENDER	MALE	569 (60.3%)
	FEMALE	379 (39.7%)
SOCIO ECONOMIC POSITION	UPPER INCOME GROUP	376 (29.8%)
	MIDDLE INCOME GROUP	448 (35.5%)
	LOWER INCOME GROUP	436 (34.6%)
BRUSHING METHODOLOGY	TOOTHBRUSH	890 (70.6%)
	FINGER	156 (12.3%)
	OTHER DENTRIFICES	214(16.9%)
BRUSHING FREQUENCY	ONCE A DAY	887 (70.3%)
	TWICE A DAY	235( 18.6% )
	THRICE AND MORE A DAY	138(10.9%)

**Table 1.** Socio demographic and oral hygiene inclination and maintenance by the subjects.



PREVALENCE	NUMBER %
OSMF	115 12.18%
LEUKOPLAKIA	49 5.19%
LICHEN PLANUS	24 2.54%
ERYTHROPLAKIA	13 1.37%
TOTAL	201 21.29%

**Table 2.** Prevalence of oral probable malignant disorders in the northern Indian Population

The prevalence of oral malignant lesions among males was found to be higher(18.97%) as compared to their female counterparts (18.1.91%), but the difference was found to be non-significant. It was observed that in both groups, most the study population brushed once a day and this<sup>202</sup>

was found to be statistical significant. Tobacco consumption was another factor that was found to have a significant statistical significance ( $p < 0.001$ ) among those found with and without oral mucosal lesions. Although the results were non significant, it was observed that almost all people used a toothbrush to brush their teeth and only 02(0.2%) people reported using other methods of cleaning their teeth (Table No 3).

FACTORS	CATEGORIES	PRESENCE OF OML (n,%)	ABSENCE OF OML (n,%)	p VALUE
GENDER	Male	183(18.97%)	386 (40.88%)	0.24
	Female	18 (1.91%)	361 (38.24%)	
		201	743	
SOCIOECONOMIC STATUS	Upperclass	44 (21.9%)	286 (38.5%)	0.375
	Middle class	212(30.8%)	212(28.5%)	
	Lower class	245(47.3%)	245(33.0%)	
CLEANING METHOD	Tooth brush	193(96.1%)	739(99.5%)	0.481
	Finger	07(3.48%)	03(0.40%)	
	Others	01(0.41%)	01(0.1%)	
BRUSHING FREQUENCY	Once	188(93.53%)	701 (94.3%)	0.01*
	Twice	13(6.47%)	40(5.38%)	
	Thrice	0(0%)	02(.03%)	
ALCOHOL CONSUMPTION	Ever consumer	147(71.3%)	312(42%)	0.456
	Never consumer	54(28.87%)	431(58%)	
TOBACCO	Ever consumer	121(60.2%)	216(27.05%)	<0.001*
	Never consumer	80(39.8%)	542(72.94%)	

**Table 3.** Interrelations of sociodemographic traits, oral hygiene maintenance and adverse oral Habits with oral probable malignant disorders

## DISCUSSION

The present study, with an aim to record and evaluate the prevalence and risk factors for potential oral malignant disorders in a middle aged North Indian population found varying results with 21.29% of the total screened population presenting with some kind of potential oral malignant lesion. This is in agreement with Faraz SA et al (27.84%)<sup>8</sup>, higher as compared to Cebeci ARI et al.<sup>9</sup> and lower as compared to Priya MK et

al. (42.4%)<sup>10</sup> and Chung et al.<sup>11</sup> (12.7%). This variance could be attributed to factors including but not limited to genetic predisposition, geographic factors, consumption of tobacco, habits etc.

Most of the population screened comprised of males 569 (60.3%) and this result was supported by Kamble KA et al. [416 (70.8%)].<sup>12</sup> We postulate that females,



with their busy schedules and aiming to maintain their work-home balance find very little time to attend such camps, or go out of their homes/offices and get their check-up done.

The results of the present study that from the total prevalence of total oral malignant lesions was 21.29%, out of which the most prevalent lesion was OSMF [115, 12.18%], and this percentage is higher as compared Kamble KA et al (5.96%).<sup>12</sup> The second most lesion found to be prevalent was leukoplakia [49, 5.19%], and this percentage is in partial agreement to Mathew AL et al. (1.59%).<sup>13</sup> Such variances in the prevalence of oral mucosal lesions is seen across the globe and it has been stated in the literature that males are at a higher risk of developing such potential oral malignant disorders as compared to their female counterparts (Nair et al.).<sup>14</sup> This is attributed to the increased consumption of tobacco related products among males.

The study has certain limitations one of which is that the diagnosis of a person suffering from any potential oral malignant lesions was made on presumptive tests provided in textbooks and solely on the clinical manifestations examination. No Biopsy or confirmatory tests were conducted among the examined subjects. Another limitation is the societal pressure (i.e. social desirability bias) faced by the women as they are unable to admit their adverse oral habit, leading to underreporting of data.

## CONCLUSION

The results of the present study document a high prevalence of Oral Malignant disorders among the population of Delhi-NCR, thus warranting a need to provide tobacco cessation counselling from time to time so that the burden of such disorders is significantly reduced in the general population.

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# Prevalence of Dental Anxiety among Patients Visiting a Dental Institution in Telangana, South India

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**BACKGROUND:** Anxiety and fear are common problems frequently experienced by patients during undergoing dental procedures across the globe.

**AIM:** The present study aimed to assess the prevalence of dental anxiety among the patients attending the Out Patient Department (OPD) of a Dental Institution in Telangana, South India

**MATERIALS & METHOD:** A sample of 300 adults (Females =149, Males = 151) with age ranging from 15 years to 60 years were enrolled in the study. Data was collected by using the Modified Dental Anxiety Scale (MDAS). Chi Square test and ANOVA was used to find significant comparisons between the different variables assessed in the study (age, gender, educational qualification, income, previous dental visits, previous dental experience and postponement of visit). Futher, Spearman's Correlation was used to analyse these variables with the mean anxiety scores of the patients.

**RESULTS:** The prevalence of anxiety among patients in was found to be 3.6%. Reportedly the level of anxiety was found more in females than in males. It was revealed that while age depicted an inverse relationship, postponement of the dental treatment had a direct effect on dental anxiety.

**CONCLUSION:** Various dental procedures such as drilling the tooth for restorative procedures, injection techniques for various anaesthetic procedures are the most common reasons which cause dental anxiety to patients. Younger adolescents and patients who belong to lower socioeconomic groups were more anxious. Efforts need to be directed towards alleviation of this anxiety to provide quality dental care to one and all.

**KEYWORDS:** Dental Anxiety, Modified Dental Anxiety Scale, Dental Health, Dental Procedures, Negative Dental Experience

## INTRODUCTION

Anxiety and fear are problems which commonly experienced by patients undergoing dental procedures across the globe. Despite increasing standards of dental materials and advanced technology, it has brought only little or a negligible change in the percentage of dental anxiety suffered by patients.<sup>1</sup> Anxiety can be categorized as psychological and physiological which further is classified into behavioural, emotional, somatic and cognitive components.<sup>2</sup>

Dental anxiety is a common problem for dental practitioners as well as the public. It affects all ages in different social classes which can lead to poor oral health by little or no cooperation, irregularities in availing dental treatment and complete avoidance from any dental treatment. Several factors like family and social environment, overall fearfulness, pain and traumatic factors, an unpleasant experience(s) in the dental clinic, patient behaviour and dental attitude also influence dental anxiety of a patient.<sup>3</sup> Several authors have also documented that anxious patients were the ones who mostly avoided or postponed their dental visit.<sup>4-7</sup>

Factors responsible for anxiety vary from person to person and hence, it becomes crucial to identify dentally anxious patients for their successful management and satisfactory treatment. Patients with dental anxiety can be usually characterised by their frequent postponement of appointments and upon visiting the dental office, they usually sit on the edge of the dental chair, tend to keep fidgeting, show pacing movements with or without repetitious limb movement, are startled to noise, display generalised muscle tension which can be termed as "white knuckle syndrome" and exhibit eye fixation which is termed as a "deer in headlights" appearance.<sup>8</sup> Similarly in children, dental anxiety leads to reduced dental visits which can lead to the use of sedatives and hypnotics.<sup>9-12</sup>

The present study was aimed to assess the prevalence of dental anxiety among patients visiting the Out Patient Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad, Telangana, India.

## MATERIALS & METHOD

The present study was cross sectional conducted in Out



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Patient Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad, Telangana, India. The study was conducted to assess the level of dental anxiety by using the Modified Dental Anxiety Questionnaire (MDAS) which was translated and back-translated into Hindi for better comprehension and understanding of the patients who belonged to rural areas. The study was conducted from 1<sup>st</sup> September 2018 to 31<sup>st</sup> October, 2018. A total of 300 patients who gave informed consent and were aged between 15 to 60 years were enrolled in the study. Patients who were uncooperative, edentulous and those who did not give consent were excluded from the study.

Data was collected through the Modified Dental Anxiety Scale (MDAS) adapted from Corah NL.<sup>13</sup> The MDAS is commonly used scale for screening and diagnosis of patients who suffer with dental anxiety and it was developed primarily from the Corah Dental Anxiety Scale (CDAS). Demographic details of the patients which included patients age, gender, educational qualification, occupation, current income and any favourable/unfavourable past dental experience(s) prior to administration of the questionnaire. The questionnaire was pre-tested and pre-validated through a pilot study and its Cronbach's Alpha value was found to be 0.83. An ethical clearance was duly obtained from the ethical committee of Dental Institution.

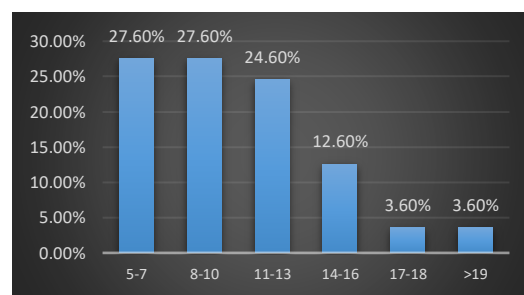
The data collected was tabulated and analysed using SPSS 21.0 The Chi-square test was used find significant differences between patients having a bad and/or good previous dental experience while ANOVA was used to compare the significance the level of dental anxiety between different age groups. Spearman's correlation was further used to find correlation between the variables assessed in the study with their mean anxiety scores.

## RESULTS

The present study had a total of 300 patients who participated in the study, out of which 149 were females and 151 were males. The age of the participants ranged from 15 to 60 years divided into three age groups with a majority (68.3%) of the patients being 15-30 years old (Table 1). Analysis using one-way ANOVA showed a significant difference between the three age groups in relation to their mean total anxiety scores ( $p=0.03$ ) which showed a decreasing trend as age of the patients increased. No significant differences were seen upon analysing the educational status, income and dental

visits to the dentist with the anxiety scores of the patient. However, most patients who had visited the dentist before showed a "good" previous dental experience, which was significant ( $p=.001$ ) as compared to those who had a "bad" previous dental experience (Table 1.)

Figure 1 highlights the mean dental anxiety scores of the study patients. The questionnaire contained 5 questions based on a 5 point likert scale ranging from "Not Anxious" to "Extremely anxious". The range of the scores lied from 5 to 25 and according to the Corah NL, the cut-off point was set as 19, above which indicated a highly dentally anxious patient, possibly dentally phobic.<sup>13,14</sup> Dental anxiety was observed in only 11(3.60%) of the study patients, which was less as compared to the rest of the study patients.



**Figure 1.** Dental Anxiety Scores of the Study Patients

Table 2. Depicts responses of 82.6% of the patients who were willing to postpone their dental visit due to dental anxiety. The Chi Square and one way ANOVA analysis showed a significant difference in the mean anxiety score between patients with respect to their postponement of dental visit ( $p=0.001$ ).

Correlation between the variables assessed and the dental anxiety scores of the patients is depicted in Table 3. The analysis highlighted that Spearman's correlation showed a significant correlation between the mean anxiety score when compared with gender and postponement of dental visit. In contrast, age and income showed a significant negative correlation with anxiety score. The  $r$  values again emphasised the results achieved above that while age depicts an inverse relationship, postponement of the dental treatment has a direct effect on dental anxiety.

## DISCUSSION

The present study, aimed to assess the prevalence of dental anxiety among patients visiting the Out Patient

VARIABLE	NUMBER OF SAMPLES	PERCENTAGE	STATISTICAL ANALYSIS OF ANXIETY SCORES
<b>1. Age</b>			
15-30 years	205	68.3	ANOVA
31-50 years	68	22.7	F 3.430
>51 years	27	9.0	P=0.03*
<b>2. Gender</b>			
Male	151	50.3	ANOVA
Female	149	49.7	F 1.441, p>0.05
<b>3. Educational Qualification</b>			
Intermediate	112	37.3	ANOVA
Undergraduate	158	52.6	F 1.441
Post graduate	17	5.6	p>0.05
Uneducated	13	4.1	
<b>4. Income</b>			
≤10000	116	38.6	ANOVA
11,000-15000	16	5.3	F 1.560
16000 -20000	10	3.3	p>0.05
>20000	22	7.3	
Nil	136	45.3	
<b>5. Have you ever visited a Dentist before</b>			
Yes	198	66.0	Chi Square
No	102	34.0	p>0.05
<b>6. Previous dental visit experience</b>			
Good	183	92.3	Chi Square
Bad	15	7.6	P=0.001*

**Table 1.** Demographic Details of Patients with Statistical Analysis of Anxiety Scores

Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad showed a low level of dental anxiety among dental patients (3.60%). However, a high percentage of patients (82.6%) would like to postpone their dental visit due to dental anxiety. The present study used the Modified Dental Anxiety Scale (MADS), which has been used different languages, and the Cronbach alpha values found to be 0.91 in the Turkish version<sup>15</sup>, 0.88 in the Spanish version<sup>16</sup>, 0.90 in Greek version<sup>17</sup>, 0.78 in an Indian version<sup>18</sup> coincide with our value of 0.83 respectively, making the questionnaire itself as a reliable means to assess dental anxiety in patients.

Based on factors affecting dental anxiety and beliefs in an Indian population, Acharya et al. 18 found out that the score of level of anxiety was higher in less educated patients than in educated patients and, the patients who had an unpleasant experience during dental treatment showed a higher level of anxiety & more negative beliefs, which was in agreement to our results. Similar findings were shown by Malvania et al<sup>19</sup>, but, in

contrast, Pavi et al.<sup>20</sup> and Stole et al.<sup>21</sup> showed contradictory results to our findings.

VARIABLE	NUMBER OF SAMPLES	PERCENTAGE	STATISTICAL ANALYSIS
<b>1. I would like to postpone my dental visit</b>			
No	52	17.3	ANOVA, Chi Square
Yes	248	82.6	p=0.001

**Table 2.** Patients Willing to Postpone Their Dental Visit Due to Anxiety

Moore et al.<sup>4</sup> conducted a study on the prevalence and characteristics of dental anxiety in Danish adults, and found out that the high dental anxiety was associated with income, occupation and education, which was in agreement to our findings. Similar findings were also found in the study done by Armfield et al.<sup>22</sup> Consecutively, in agreement to our results, Santosh Kumar et al.<sup>23</sup> tried to find associations between influence of dental anxiety on oral health related quality



Variables	Spearman's Correlation	p value
Gender and mean total score	0.93	0.03*
Age and mean total score	-0.143	0.001*
Education and mean total score	0.044	0.33
Income per month and mean total score	-0.130	0.004*
Postponement of dental visit and mean total score	0.193	0.000*

**Table 3.** Correlation Between Variables Assessed in the Study and Their Mean Anxiety Scores

of life, and it was revealed that females had poor influence of anxiety on oral health related quality of life than in males, with prevalence of anxiety being more among females as compared to males, which was also supported by Morse et al.<sup>24</sup>

In agreement to our results, Udoye et al.<sup>25</sup> attempted to assess anxiety among patients undergoing various dental treatments in a Nigerian teaching hospital, and found out that the dental anxiety scale decreased with an increase in age, and similar findings were shown by Schwarz and Birn<sup>26</sup>, Neverlien et al.<sup>27</sup>, Locker and Lindell<sup>28</sup>, Stabholtz and Peretz.<sup>29</sup>

While our results revealed that dental anxiety was a potential factor for postponement of dental procedure, similar findings were also documented by Skaret et al.<sup>30</sup> and Hagglin et al.<sup>31</sup>

The main limitations of this study could be, but not limited to recall bias, social desirability bias and interviewers' bias. Also, since cross sectional studies document data that was recorded only at one point of time, longitudinal studies are expected to bring out the real nature of changing attitudes regarding dental anxiety in patients. However, our study with its limitations provides a true assessment of dental anxiety faced by the patients visiting a dental college in Hyderabad, Telangana, India.

## CONCLUSION

The present study concluded that prevalence of dental anxiety were less in the patients who visited the Out Patient Department (OPD) in Dental Institute. It was also found out that the level of anxiety had an inverse relationship with increased age.

It is advised that efforts be directed by the dental college and practitioners alike, to alleviate such anxiety of the patients by providing a healthy and an interactive environment along with proper education and motivation of such patients so that every dental visit encourages the patient to seek further dental care when required without any anxiety or fear regarding the dental procedure in the patients' mind.

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# A Study to Assess Career Satisfaction among Dental Practitioners in Kanpur City, U.P., India

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**BACKGROUND:** For almost every health worker, job satisfaction is an important determinant for motivation, retention and performance, and all of these are primarily important to improve the functioning mechanism of health systems in countries of low- and middle income categories.

**AIM:** This study was conducted to estimate the level of job satisfaction among registered practicing clinical dentists in Kanpur city, U.P., India

**MATERIALS & METHOD:** A cross sectional study was conducted among 204 practicing registered dentists. A questionnaire was distributed manually to the participating dentists for measuring dimensions of job satisfaction. A 5 point Likert format with a score range from 1 (described as strongly dissatisfied) to 4 (described as strongly satisfied) was used to describe the items. Analysis of data was analyzed using SPSS software 21.0 and student t test was applied for measuring the difference of means between the subgroups for each dimension.

**RESULTS:** A significant difference ( $p < 0.005$ ) in levels of satisfaction for various dimensions of job satisfaction within gender, educational qualification and work status was found on analysis. The postgraduates were found to be more satisfied as compared to graduates with a difference in job satisfaction level between genders which was related to the personal time dimension. It was also derived from the study that dentists working full time expressed dissatisfaction in terms of family time, thus to issues in their personal relationships.

**CONCLUSION:** Overall, it was found that the dentists have a high level of job satisfaction and the socio demographic factors deeply influence this domain of career.

**KEYWORDS:** Career, Job, Satisfaction, Practice, Dentists

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## INTRODUCTION

Satisfaction is said to be associated with motivation or attitude, or may be a result of the psychosocial working environment. Health, performance and satisfaction at work is deeply influenced by factors like work environment, workers' needs and skills, working conditions of the organization, culture and personal choice.<sup>1</sup> Career satisfaction has been previously defined as the "positive emotional state resulting from the appraisal of one's job or job experience, and is related to many aspects of patient care and outcomes of health system as well as to contentment in general life and job related performance.<sup>2</sup> The speedy random changes in healthcare services and policies, have increased the rate of job dissatisfactions among the healthcare professionals. Job gratification can stress on better organizational commitments of workers, which indirectly speeds up the overall success and progress of the organization and decreases the levels of intentions that provoke the employees to quit their association with the organization. Professional satisfaction, salaries, delivery of care, respect and job timings are also significantly associated with job satisfaction.<sup>3</sup> Those workers who are dissatisfied are more prone to leave the organization and this impacts the thoughts of the staying workers who might show poor

performances and may also sabotage the targets and quit their roles from the job.<sup>4</sup>

Dentistry provides is a unique social interaction influenced by specific demands of the clinical practice, exposure to an intimate and very sensitive area of the human body, personal characteristics and emotions of a health care provider and its recipient.<sup>5</sup> Over the years, research has identified dentistry as being one of the most stressful professions, with high levels of work-related stress linked to poor working relationships and low job satisfaction.<sup>6</sup> Researchers have also reported that pressure due to time-bound work, heavy workloads, financial issues, anxious and difficult patients, problems with staff, limitation of the resources, poor conditions at workplace and the monotonous nature of the job are the most common provoking factors.<sup>7</sup> A high turnover of dentists and dental auxiliaries may result from low job comfort that further may result in productivity loss and quality of care while treating patients.<sup>2</sup>

A variety of factors may influence fulfilment in the job and there have been a number of international studies examining dentist job satisfaction and job stressors but



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levels of job satisfaction among dentists practicing in private and public sectors, difference between male and female genders as well as among graduates and post graduates are still some of the key issues to be assessed. Dentists' job satisfaction can be enhanced by finding out and getting some indication in the existence of any systematic variation in levels of satisfaction governed by these factors. Hence, the main reason behind the present study was to assess career satisfaction among registered dentists who are practicing in Kanpur city, Uttar Pradesh (U.P.), India.

## MATERIALS AND METHODS

**Study setting and design:** A cross sectional study was conducted among 220 dental registered practicing dentists.

**Ethical clearance:** Ethical approval was received from the institutional review board. The informed consent was obtained from all the dentists participating in the survey.

The questionnaire used in this research was taken from a study conducted by Rebecca V. Harris in the year 2008.<sup>8</sup> This is a 28-item questionnaire concerning questions regarding staff, personal time, intrinsic satisfaction, community where dentist is working, compensation, administrative responsibilities and available resources. The participants indicated their perception level of agreement or disagreement along with the concerned statements on a 5-point Likert scale with '1' indicating strong disagreement (strong dissatisfaction) and '5' indicating strong agreement (strong satisfaction).

A pilot study was conducted on 20 study participants to pretest the questionnaire followed by assessing the reliability of the questionnaire by using Test-Retest. The measured value of Kappa (k) and Weighted Kappa were found to be 0.86 and 0.9 respectively. Internal consistency of the questionnaire was assessed by applying Chronbachs-Alpha ( $\alpha$ ) and the value 0.78 was measured. The dentists were selected from register of Indian Dental Association of Kanpur branch and each dentist was approached by the study Investigator at their clinic for requesting their participation in the survey. Dentists who consented their participation were given a print copy of the questionnaire in person and were requested to respond back within 15 days. They were also explained about the study design. Selected dentists were given gentle reminders through phone calls before the deadline. Out of 220, 204

completed the questionnaire giving the response rate of 89% and thus subjects who were non-contactable (6%) and filled incomplete questionnaire (5%) were excluded from the study. Statistical analysis: All the collected data were entered in Microsoft excel and analyzed using the SPSS 21 version for descriptive and inferential statistics. The mean weighted scores and Standard deviation were calculated for each dimension of job satisfaction based on responses to the items of each dimension. To analyze the difference of means between the subgroups for each dimension, the student t test was used. For the present study, the confidence interval was fixed at 95%.

## RESULTS

Table 1 describes the characteristics of the population. A total of 204 dentists completed the questionnaire out of which 50.53% were postgraduates and rest (49.47%) were graduates. Over 23.4 % of respondents reported working in sector. There were less female study participants as compared to males.

The overall mean dimension/sub-scale scores for Job satisfaction (weighted mean data) are shown in Table 2. The three highest mean scores reported by dentists were for the autonomy, personal time and administrative responsibility (Table 2).

While examining mean job satisfaction scores for each dimension/sub-scale of gender, female dentists reported a higher average score compared to male dentists in a personal time dimension ( $3.09 \pm 0.88$ ) whereas the male showed significant difference values in the autonomy ( $2.87 \pm 0.9$ ) and administrative responsibilities dimensions ( $2.83 \pm 1.13$ ). (Table 3)

There were significant differences seen as expressed by graduate and post graduate dentists in relationships with colleagues ( $2.01 \pm 0.98$ ), patients ( $2.99 \pm 1.44$ ) and intrinsic satisfaction ( $3.45 \pm 0.92$ ) and thus represented that the post graduate practitioners were more gratified with their jobs as compared to graduates. (Table no. 4)

Table 5 shows the differences in mean scores of the nine dimensions of the job satisfaction scale by work status defining the number of hours spend by the practitioners at practice. Full time dentists reported feeling more adequately met with their devotion of time to the patients and work as compared to the services provided by part time dentists. However, dissatisfaction in the time spent with their family was also documented by full time dentists who also reported to suffer from

CHARACTERISTICS		N	%
Age group	25-34 years	21	19.63
	35-44 years	63	59
	45-54 years	13	12.02
	55 above	10	9.35
Gender	Male	54	51.6
	Female	53	48.4
Area of practice	General practice (BDS)	38	33.6
	Registered specialist practice (MDS)	45	43
	Public sector practice (Govt. Hospitals)	24	23.4
Educational Qualification	Graduate	53	49.53
	Postgraduate	54	50.47
Work-status	Full-time (working for > 50 hours /week)	58	53.7
	Part-time (working for < 50 hours /week)	49	46.3
Geographic region (where they are practicing)	Metropolitan	48	44.86
	Non-metropolitan	59	55.14

**Table 1.** Characteristics of Respondents

JOB SATISFACTION DIMENSIONS	NO. OF ITEMS	MEAN ± SD
Autonomy	3	2.35 ±0.9
Relationships with colleagues	2	1.95 ±0.87
Relationships with patients	6	2.32 ±1.12
Relationships with staff	2	2.02 ±0.76
Personal time	2	2.79 ±1.15
Intrinsic satisfaction	5	2.32 ±0.88
Community	3	1.79 ±1.31
Administrative responsibilities	2	2.81 ±0.9
Resources	3	2.03 ±1.03
Total	28	20.38 ±0.75

**Table 2.** Overall Mean Dimension/Sub-Scale Scores for Job Satisfaction

the work burden leading to issues in their personal relationships. There are a number of domains in the practice of dentistry that can lead to the development of satisfaction or dissatisfaction among the practicing dentists. Job satisfaction has also been discussed in relation to issues like high staff turnover, potential productivity loss resulting from turnover and movement away from the dental stream totally.<sup>2</sup>

**DISCUSSION**

In the present study, an overall measure of achievement in the profession indicated that dentists were reasonably satisfied with their job. Satisfaction scores were higher for autonomy, resources and relationships with staff, patients and colleagues, but lower for

personal time, compensation and administrative duties and these findings are in line with the results of a study done by Jeong SH in 2006<sup>9</sup> who suggested that patient relations, personal time, staff, perception of income, and specialty training are important factors at working place for job satisfaction. Similar results were also reported previously in 2005 by Luzzi L<sup>2</sup> who showed significantly lower mean scores for six out of ten dimensions of job satisfaction, namely community, autonomy, relationships with patients and staff, compensation and resources. Male and female dentists showed significant differences on certain dimensions like personal time and administrative responsibilities with female dentists reporting higher scores in the personal time dimension which measured happiness

JOB SATISFACTION DIMENSIONS	MALE (MEAN ±SD)	FEMALE (MEAN ±SD)	p-VALUE
Autonomy	2.87 ±0.9	2.31 ±0.92	0.002*
Relationships with colleagues	1.87 ±0.93	2.09 ±1.02	0.25
Relationships with patients	2.31±1.19	2.86 ±1.41	0.03
Relationships with staff	2.0 ±0.76	2.08 ±0.85	0.61
Personal time	2.45 ±1.02	3.09±0.88	0.002*
Intrinsic satisfaction	2.29 ±0.9	2.4±0.89	0.53
Community	1.78 ±0.9	1.85 ±0.93	0.69
Administrative responsibilities	2.83 ±1.13	2.01 ±1.16	0.0003*
Resources	2.01 ±0.74	2.11 ±0.69	0.47

**Table 3.** Job Satisfaction Dimension/Sub-Scale Mean Scores by Gender

JOB SATISFACTION DIMENSIONS	GRADUATES (MEAN±SD)	POSTGRADUATES (MEAN±SD)	p-VALUE
Autonomy	2.01 ±0.91	2.96±0.95	<0.0001*
Relationships with colleagues	1.94±0.98	2.01±0.98	0.78
Relationships with patients	2.2±1.17	2.99±1.44	0.0023*
Relationships with staff	2.01±0.78	2.07±1.02	0.7
Personal time	3.03±0.95	2.45±1.02	0.003*
Intrinsic satisfaction	2.38±0.894	3.45±0.92	<0.0001*
Community	1.76± 0.90	2.45±0.93	0.0002*
Administrative responsibilities	2.88±1.11	2.78±1.17	0.65
Resources	2.07±0.71	2.47±0.73	0.005*

**Table 4.** Job Satisfaction Dimension/Sub-Scale Mean Scores by Educational Qualification

JOB SATISFACTION DIMENSIONS	FULL TIME (MEAN±SD)	PART TIME (MEAN±SD)	p-VALUE
Autonomy	2.35±0.89	2.45±0.94	0.74
Relationships with colleagues	1.94±0.94	2.01±1.03	0.71
Relationships with patients	2.29±1.19	2.42±1.23	0.58
Relationships with staff	2.04±0.73	2.04±0.89	>0.99
Personal time	2.06±0.93	2.68±0.99	0.0002*
Intrinsic satisfaction	2.85±0.88	2.38±0.92	0.0081*
Community	1.04±0.53	1.9±0.96	<0.0001*
Administrative responsibilities	2.88±1.15	2.79±1.13	0.68
Resources	2.04±0.69	2.08±0.76	0.78

**Table 5.** Job Satisfaction Dimension/Sub-Scale Mean Scores by Work Status

with quality and quantity of time to self and family. Similar results have been found in study done in 2005 by Berdahl and Anderson<sup>10</sup> suggesting that women prefer more egalitarian roles, whereas men feel more comfortable in a hierarchical situation, and women work better in collaborative work teams than do men. It has been also reported in various studies that male

and female dentists differ in their working patterns and career satisfaction and female dentists work significantly fewer hours than male dentists. Also find themselves trying to balance the conflicting demands of a professional career and family responsibilities and hence family commitments tend to be the reason for more women dentists working part-time.<sup>11-12</sup>



The post-graduation qualification obtained by completing masters in dental surgery has a strong consequence on contentment among the dentists. Thereby, higher mean scores were reported in all of the dimensions for job satisfaction except for the relationships with colleagues and staff.

The limitation of this study was that it did not include dentists who were no longer practicing or who had left practice and so as a result mean satisfaction scores may be higher. This study also does not explain the levels of satisfaction according to age difference as it has been observed that dentists who were practicing for longer duration that is who were older would be more satisfied with various aspects of their job compared to their younger counterparts. Also the old aged dentists may be in the peak of the demands placed on them by their dental career and may find themselves under increased stress and pressure associated with building and sustaining a viable practice.

This study has thus revealed that there are various dimensions of fulfilment at work place that may be pertinent to issues impacting on recruitment and retention of dentists in active clinical practice. In the present study, dentists indicated high levels of satisfaction with similar factors (such as autonomy, resources and relationships with staff, patients and colleagues) so these aspects of dentistry could be used to promote the profession to boost recruitment, especially given there is evidence to suggest they play an influential role in the choice to pursue dentistry as a career. Relationship with patients, colleagues and staff can contribute to job satisfaction by developing an effective and stable dental team. The areas of dissatisfaction such as personal time and administrative responsibilities need to be addressed in order for any recruitment campaigns to be effective, and also to retain those already working in dentistry.

This study gives insights into the diverse dimensions of job satisfaction highlighting better job satisfaction among the postgraduate dental professionals. The issue of job satisfaction among the practicing dentist need to be addressed in society to improve recruitment and retention rates of dentists in active clinical practice in different sectors of the dental care system. Workplaces that offer job autonomy, competitive remuneration, flexible working hours and minimum administrative

burden may improve dentist job satisfaction. Educational programs should be directed to help professionals to cope with their professional duties without hazardous effects on their physical and mental health.

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