



A SURVEY ABOUT AWARENESS AND KNOWLEDGE ABOUT ORTHODONTICS AMONG NON CLINICAL DENTAL STUDENTS AND CLINICAL DENTAL STUDENTS

J.Rubika

Undergraduate student, Saveetha Dental College, Saveetha University, 162, Poonamallee High Road, Chennai - 600077, Tamilnadu, India.

Dr. Sumathi Felicita*

Reader, Department of orthodontics, Saveetha Dental College, Saveetha University, 162, Poonamallee High Road, Chennai - 600077, Tamilnadu, India.*Corresponding Author

ABSTRACT **Aim:** Malocclusion is known to contribute overall health status, as well as affecting individual's psychosocial health. The main aim of this study is to evaluate and compare the knowledge and attitude about orthodontic treatments among the non clinical dental students and clinical dental students who are studying in a private dental college. **Materials:** A set of 60 non clinical dental students and 60 clinical students has been taken for the research purpose and are requested to fill a questionnaire formulated for the purpose. It is a self-complete questionnaire consisting of 15 questions which reveals about the knowledge and attitude regarding the orthodontic therapy among the non clinical and clinical dental students who are studying in a private dental college. Then the information was collected from each dental student and analyzed. **Method:** In the following study bar graph method is used to estimate and compare the knowledge and attitude about the orthodontic therapy among the non clinical and clinical dental students who are studying in a private dental college. Through this survey, the percentage of awareness and knowledge about the orthodontic treatments among clinical dental students and non clinical dental students will be recorded. The primary concern is to evaluate the attitude of the dental students in terms of the orthodontic principles and practice of the orthodontic therapy. And this study has been conducted to know if there is any need for more theoretical oriented teaching and training in terms of orthodontic principles and treatments.

KEYWORDS : Dental students, attitude, malocclusion, knowledge, orthodontic treatment, awareness

INTRODUCTION:

Malocclusion is a term which refers to malalignment of teeth and incorrect relationship between the upper and lower arches(1). Patients with malocclusion have no specific signs and symptoms, but may complain about esthetics, difficulty with speech and mastication. Measuring and recording the prevalence of malocclusion and treatment need in a population was useful for the planning of orthodontic services(2)(3)(4). Without a satisfactory estimate of the need and demand for the treatment, it was difficult to develop and organise meaningful orthodontic services. Orthodontic treatment was often carried out to improve the patient's dental appearance(5)(6). The main factors influencing the decision for treatment were esthetic improvement and psychological aspect. But malocclusion is still not considered to be a dental problem because more priority is given to treatment of dental caries and periodontal diseases due to pain experienced by them(7). Most malocclusion cases are still not treated properly due to ignorance of patients, parents, inadequacy of resources, lack of knowledge about malocclusion and other influencing factors like literacy rate and socio-economic status(8).

The orthodontist routinely evaluates his patients and prescribes treatment plans in order to satisfy the often stated goals of good dental function, stability of teeth and jaw position, and dental esthetics(9)(10). The non clinical and clinical dental students are going to play an essential role of education and motivation of their patients about the principles and practice of orthodontic treatment, which can be very beneficial to the patient's lifestyle. It is, therefore, important to identify their level of their knowledge and attitude towards orthodontic treatment. The present study supplements enhanced focus on the details of current status and situation regarding the knowledge and attitude of the dental students in terms of the orthodontic principles and practice of the orthodontic therapy. And this study has been conducted to know if there is any need for more theoretical oriented teaching and training in terms of orthodontic principles and treatments.

MATERIALS AND METHODS:

A set of 60 non clinical dental students and 60 clinical students has been taken for the research purpose and are requested to fill a questionnaire formulated for the purpose. It is a self-complete questionnaire consisting of 15 questions which reveals about the knowledge and attitude regarding the orthodontic therapy among the non clinical and clinical dental students who are studying in a private dental college. The data for this study were collected visiting to the class rooms and were requested to complete a structured questionnaire. Then the information was collected from each dental student and analyzed.

Questionnaire:

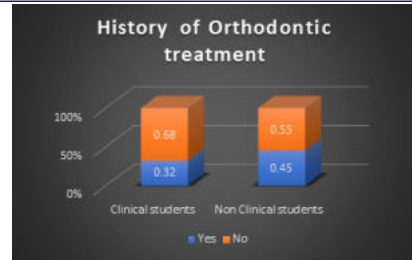
- 1) Have you undergone any orthodontic treatment before?
A) Yes B) No
- 2) Do you know the eruption timing thoroughly?
A) Yes B) No
- 3) When does the first deciduous tooth erupt?
A) 3 months B) 6 months
- 4) In mixed dentition, what type of teeth can be seen?
A) Primary teeth B) Permanent teeth C) Both primary and permanent teeth
- 5) Who is considered as 'Father of orthodontics'?
A) Edward angle B) Thomas M. Graber
- 6) Do you know about the uses of Hawley's appliance?
A) Yes B) No
- 7) Do you know about Angle's classification?
A) Yes B) No
- 8) Which one is used to control mouth breathing?
A) oral screen B) activator
- 9) Which one is the clinical feature of thumb sucking?
A) proclination of upper anteriors B) flattened, fractured, chipped teeth
- 10) Finger Spring is used for
A) mesio distal movement B) buccolingual movement
- 11) Self correcting malocclusion refers to ?
A) Ugly duckling stage B) Leeway space of nance
- 12) First published cephalometric analysis was
A) Downs analysis B) Steiner analysis
- 13) Z Spring is otherwise called as
A) double cantilever B) activator
- 14) Short labial bow uses
A) anterior space closure B) posterior space closure
- 15) Gonial angle is a valuable indicator to diagnose
A) growth pattern B) gender

Table : 1

QUESTIO NNAIRE	OPTIONS	CLINICAL DENTAL STUDENTS				NON CLINICAL DENTAL STUDENTS			
		NO.OF STUDE NTS(A)	%	NO.OF STUDE NTS(B)	%	NO.OF STUDEN TS(A)	%	NO.OF STUDE NTS(B)	%
Have you undergone any orthodontic treatment before?	A)Yes B) No	19	32%	41	68%	27	45%	33	55%
Do you know the eruption timing thoroughly?	A)Yes B) No	58	97%	2	3%	15	25%	45	75%
When does the first deciduous tooth erupt?	A)3month B)6months	3	5%	57	95%	38	63%	22	36%
In mixed dentition, what type of teeth can be seen?	A)Primary teeth or Permanent teeth B)Both primary and permanent teeth	0	0%	100	100%	34	47%	26	43%
Who is considered as 'Father of orthodontics'?	A) Edward angle B) Thomas M.Grabber	45	75%	15	25%	32	53%	28	46%
Do you know about the uses of Hawley's appliance ?	A)Yes B) No	60	100%	0	0%	39	65%	21	35%
Do you know about angle's classification?	A)Yes B)No	60	100%	0	0%	42	70%	18	30%
Which one is used to control mouth breathing?	A) oral screen B) activator	54	90%	6	10%	40	66%	20	34%
Which one is the clinical feature of thumb sucking?	A) proclination of upper anteriors B)flattened,fractured, chipped teeth	56	93%	4	7%	47	78%	13	22%
Finger Spring is used for	A) mesio distal movement B) buccolingual movement	47	78%	13	22%	40	66%	20	34%
Self correcting malocclusion refers to?	A) Ugly duckling stage B) Leeway space of nance	38	63%	22	37%	29	48%	31	52%
First published cephalometric analysis was	A) Downs analysis B) Steiner analysis	34	37%	26	43%	26	43%	34	57%
Z Spring is otherwise called as	A) double cantilever B) activator	54	90%	6	10%	33	55%	27	45%
Short labial bow use	A) anterior space closure B) posterior space closure	57	95%	3	5%	50	83%	10	17%
Gonial angle is a valuable indicator to diagnose	A) growth pattern B) gender	31	51%	29	49%	18	30%	42	70%

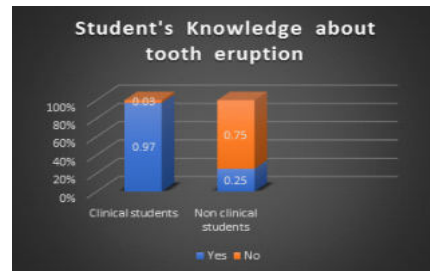
RESULTS:

GRAPH 1 – Percentage of students who undergone orthodontic treatment before



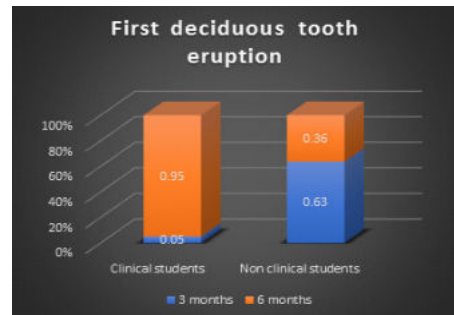
When the clinical and non clinical students are asked about how many students have undergone for orthodontic treatment before, 32% of clinical students only undergone for orthodontic treatment and the remaining 68% students were not treated before. Likewise 45% of non clinical students had treated before and the remaining 55% students are not treated before.

GRAPH 2- Percentage of students who had knowledge about tooth eruption timing



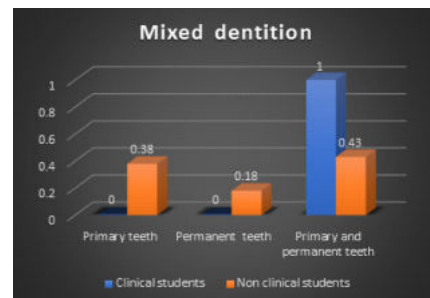
When compared among clinical dental students and non clinical dental students about the knowledge of tooth eruption timing, the clinical students were very much aware of it followed by non clinical students. 97% of clinical students know about tooth eruption timing thoroughly and only 25% of non clinical students know about it.

GRAPH 3 – Percentage of students who had knowledge about the first deciduous tooth eruption



When the students were asked about the time period of first deciduous tooth eruption, 95% of clinical students aware of it and answered six months. In non clinical students only 36% of students were aware of it and the remaining 63% of students answered that three months.

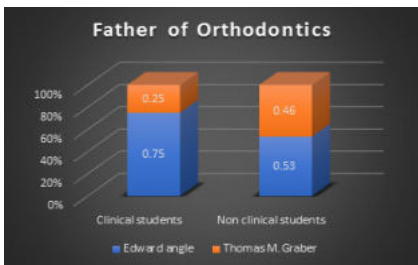
GRAPH 4 – Percentage of students who had knowledge about the mixed dentition



When the students were asked about the mixed dentition, they were very sure about it and 100% of clinical students answered that in mixed dentition both the primary and permanent teeth will be present. But the non clinical students were not that much aware of it, 38% of students

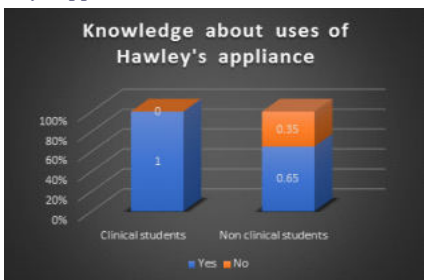
were answered that primary teeth alone present in mixed dentition and 18% of students were answered that permanent tooth alone present in mixed dentition and only 43% of nan clinical students were answered that both the primary and permanent teeth will be present in mixed dentition.

GRAPH 5 – Percentage of students who had knowledge about father of orthodontics



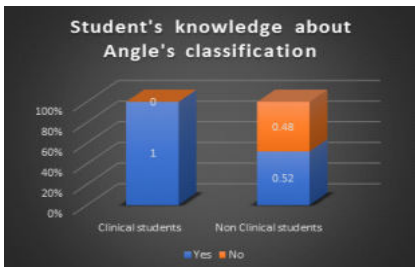
When the students were asked about the 'Father of Orthodontics' 75% of clinical students were chosen Edward angle and the remaining 25% students chose Thomas M. Graber. In non clinical students 53% of students were chosen Edward angle and 46% of students chose Thomas M. Graber.

GRAPH 6 –Percentage of students who had knowledge about the uses of hawley's appliance



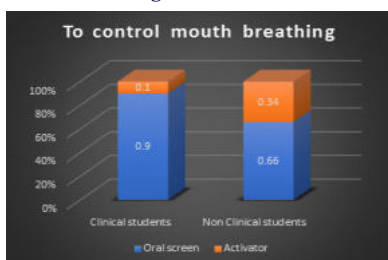
When the knowledge towards the orthodontic treatment among the clinical and non clinical students was compared by asking the do they know the uses of hawley's appliance , 100% of clinical students were aware about the uses and in non clinical students only 65% of students aware of it.

GRAPH 7 – Percentage of students who had knowledge about Angle's classification



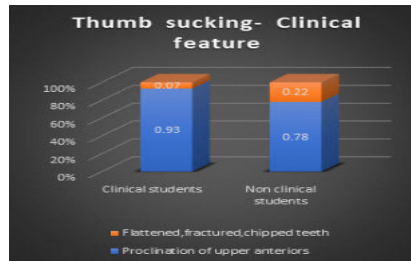
When the knowledge of dental students about orthodontics is tested by asking do they know about angle's classification, 100% of clinical students knows about the Angle's classification and only 52% of non clinical students knows about the orthodontic treatment.

GRAPH 8 –Percentage of students who had knowledge about the treatment for mouth breathing



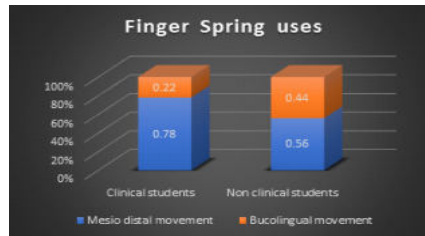
When the knowledge towards orthodontic treatment among the students was compared by asking about the treatment for mouth breathing, 90% of clinical students answered that oral screen will be used for controlling mouth breath and the remaining 10% choosed the activator. Likewise in non clinical students 66% of students choosed the oral screen and the remaining 34% choosed the activator.

GRAPH 9 – Percentage of students who had knowledge about the clinical feature of thumb sucking



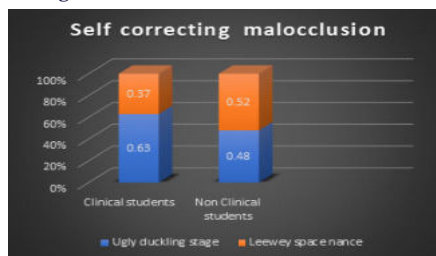
When the students are asking about clinical features of thumb sucking, 93% of clinical students were answered that proclination of upper anteriors will be present and the remaining 7% of students choosed flattened, fractured and chipped teeth. Likewise in non clinical students 78% of students answered as proclination of upper anteriors and the remaining 22% choosed flattened, fractured, chipped teeth.

GRAPH 10 – Percentage of students who had knowledge about the uses of finger spring



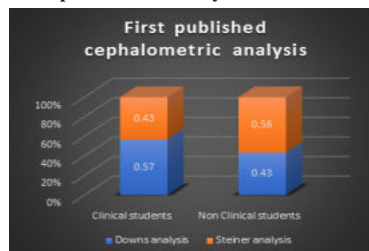
When the students were asked about the uses of finger spring , 78% of clinical students choosed mesial distal movement and the remaining 22% of students answered as buccolingual movement. In non clinical students only 56% of students choosed mesial distal movement and the remaining 44% of students were choosed bucco lingual movement.

GRAPH 11- Percentage of students who had knowledge about the self correcting malocclusion



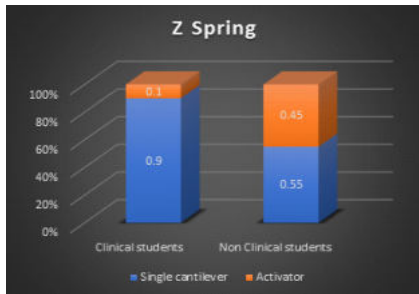
When the student's orthodontic knowledge has been tested by asking about self correcting malocclusion, 63% of clinical students choosed ugly duckling stage and 37% of students were answered Leeway space of nance. In non clinical students 48% of students choosed the ugly duckling stage and 52% of students choosed Leeway space of nance.

GRAPH 12 –Percentage of students who had knowledge about the first published cephalometric analysis



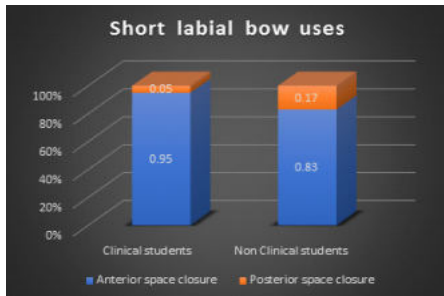
When the students were asked about which was the first cephalometric analysis, 57% of clinical students answered as Downs analysis and the remaining 43% of students choose Steiner analysis. Likewise in non clinical students 43% of students choosed downs analysis and 56% of students choosed Steiner analysis.

GRAPH 13 – Percentage of students who had knowledge about the Z spring



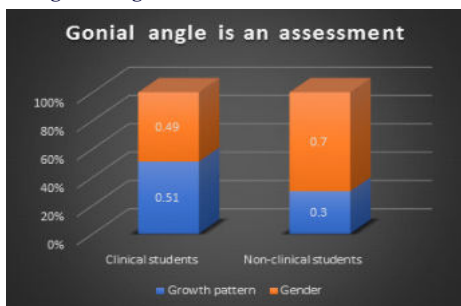
When the students are asked about the other name for z spring ,90% of clinical students choosed the double cantilever and the remaining 10% choosed activator. In non clinical students only 55% of students choosed double cantilever and the remaining 45% choosed the activator.

GRAPH 14-Percentage of students who had knowledge about the uses of short labial bow



When the students orthodontic knowledge was tested by asking about the uses of short labial bow, 95% of clinical students answered correctly as anterior space closure and remaining 5% of students answered as posterior space closure. In non clinical students 83% of students answered as anterior space closure and the remaining 17% of students answered as posterior space closure.

GRAPH 15 –Percentage of students who had knowledge about the assessment of gonial angle



When the student's attitude towards orthodontic knowledge has been evaluated by asking about whether the gonial angle is an assessment for growth pattern or gender. 51% of clinical students choosed growth pattern and the remaining 49% of students answered as gender. In non clinical students only 30% of students choosed the growth pattern and the remaining 70% of students choosed the gender.

DISCUSSION:

After dental caries, malocclusion is the second most common dental problem in children and young adults(11)(12). In India, the prevalence of malocclusion varies from 20% to 43%(13)(14). The improvement of the facial appearance, correction of dental malocclusion is an important factor, that is the main aim of the orthodontic treatment(15)(16). The essential factors having impact on deciding

orthodontic treatment are esthetic improvement and psychological aspect(17).The level of orthodontic knowledge, attitude and dental health behavior are all interlinked, and this ultimately depends on the level of knowledge and positive attitude of the dental students(18).

In the present study, a comparative evaluation was done to assess the knowledge and attitude of clinical students and non clinical students , with the help of specially prepared questionnaire(19)(20). When comparison of knowledge scores between the clinical students and the non clinical students was done, it showed difference between the two groups, which indicates that the knowledge of the clinical students is higher than the non clinical students.

The percentage of non clinical student's awareness is increased when compared to the clinical students in treating themselves for the malocclusion. This is because the awareness about malocclusion is increased in upcoming young generations.(Table : 1)

When the percentage of clinical students and non clinical students is compared in the knowledge about the tooth eruption timing , the clinical students are more aware of it than the non clinical students. Because, the non clinical students studied about the tooth structures and formation of tooth mostly, so they are less aware about it.(Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students in the knowledge about the time period of first deciduous tooth eruption . Again it was the same reason ,they are studying about the formation and structures of tooth and not about the eruption timing.(Table : 1)

The non clinical students have less percentage of knowledge than clinical students , when they are asked about mixed dentition. Because they didn't start to treat the patients yet. So they are not aware of mixed dentition.(Table : 1)

Dr. Edward angle is known to be the father of orthodontics. 75% of clinical students and 53% of non clinical students were aware of it and remaining don't. The theoretical knowledge should be improved in both the students.(Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the uses of hawley's appliance. The whole 100% of clinical students were aware of it, because they are doing treatment in the clinics. Only 65% of non clinical students were aware of it and remaining are not aware of it, because they are not doing treatment to the patients. But they had in theories so the remaining 35% of student's knowledge should be improved theoretically.(Table : 1)

Again the percentage of clinical student's knowledge is more when compared to non clinical students in the knowledge about the Angle's classification. Because of clinical exposures and doing treatments for patients, clinical students were well known about identifying the classifications.(Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the appliance which controls the mouth breathing. 90% of clinical students aware of it and only 66% of non clinical students aware of it, because they are not doing treatment to the patients. But they had in theories so the remaining 34% of student's knowledge should be improved theoretically.(Table : 1)

The non clinical students have less percentage of knowledge than clinical students , when they are asked about the clinical features of thumb sucking. 93% of clinical students aware of it because they are working in clinics and treating the patients. (Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the uses of finger spring. Only 56% percentage of non clinical students aware of it, and their there all knowledge should be improved, because they had it in their practical work. (Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the self correcting malocclusion. 63% of clinical students and 48% of non clinical students were aware of the correct answer. The clinical student's

knowledge should be improved theoretically, because they had it in their studies. Non clinical students doesn't know because they are not having in their portions. (Table : 1)

The non clinical students have less percentage of knowledge than the clinical students , when they are asked about the first published cephalometric analysis. The clinical students knows these informations from their studies and obviously non clinical students are not aware of it, because they didn't study about this. (Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the other name of z spring.90% of clinical students were aware of it and only 55% percentage of non clinical students aware it , because they didn't have in their theories. (Table : 1)

The non clinical students have less percentage of knowledge than the clinical students , when they are asked about the uses of short labial bow. Clinical students were well known about the uses due their clinical exposure and treatments they have done. (Table : 1)

The percentage of clinical student's knowledge is more than the non clinical students when they are asked about the assessment of gonial angle. Only 51% of clinical students and 30% of non clinical students ware of it, because it's just a general knowledge about orthodontics other than mentioned in their studies. (Table : 1)

CONCLUSION:

The knowledge about orthodontic treatment in our study was observed to be less among the non clinical students, due to their lack of clinical exposure. They may have some idea about the orthodontic treatment but not in detail. Therefore, the study showed the need for increased clinically and theoretically oriented education on the practice and concepts of orthodontic treatment. For this purpose, the syllabus during under graduation should include more emphasis on therapeutic concepts, and continuing dental education programs can be helpful for the other dental practitioners to upgrade their knowledge of orthodontic treatment.

REFERENCES:

- 1) Espeland LV, Stenvik A. Perception of personal dental appearance in young adults: Relationship between occlusion, awareness, and satisfaction. *Am J Orthod Dentofacial Orthop* 1991;100:234-41.
- 2) Tang EL, So LL. Correlation of orthodontic treatment demand with treatment need assessed using two indices. *Angle Orthod* 1995;65:443-50.
- 3) Mandall NA, McCord JF, Blinkhorn AS, Worthington HV, O'Brien KD. Perceived aesthetic impact of malocclusion and oral self-perceptions in 14-15-year-old Asian and Caucasian children in greater Manchester. *Eur J Orthod* 2000;22:175-83.
- 4) Hunt O, Hepper P, Johnston C, Stevenson M, Burden D. The aesthetic component of the index of orthodontic treatment need validated against lay opinion. *Eur J Orthod* 2002;24:53-9.
- 5) McGorray SP, Wheeler TT, Keeling SD, Yurkiewicz L, Taylor MG, King GJ. Evaluation of orthodontists' perception of treatment need and the peer assessment rating (PAR) index. *Angle Orthod* 1999;69:325-33.
- 6) Cochrane SM, Cunningham SJ, Hunt NP. Perceptions of facial appearance by orthodontists and the general public. *J Clin Orthod* 1997;31:164-8.
- 7) Shue-Te Yeh M, Koochek AR, Vlaskalic V, Boyd R, Richmond S. The relationship of 2 professional occlusal indexes with patients' perceptions of aesthetics, function, speech, and orthodontic treatment need. *Am J Orthod Dentofacial Orthop* 2000;118:421-8.
- 8) Tulloch JF, Shaw WC, Underhill C, Smith A, Jones G, Jones M. A comparison of attitudes toward orthodontic treatment in British and American communities. *Am J Orthod* 1984;85:253-9.
- 9) Goel S. Orthodontic treatment need-an orthodontist's and patient's perception. *J Indian Orthod Soc* 2002;35:28-35.
- 10) Kerosuo H, Abdulkarim E, Kerosuo E. Subjective need and orthodontic treatment experience in a Middle East country providing free orthodontic services: A questionnaire survey. *Angle Orthod* 2002;72:565-70.
- 11) Helm S, Kreiborg S, Solow B. Psychosocial implications of malocclusion: A 15-year follow-up study in 30-year-old Danes. *Am J Orthod* 1985;87:110-8.
- 12) Birkeland K, Bøe OE, Wisth PJ. Relationship between occlusion and satisfaction with dental appearance in orthodontically treated and untreated groups. A longitudinal study. *Eur J Orthod* 2000;22:509-18.
- 13) Bentele MJ, Vig KW, Shanker S, Beck FM. Efficacy of training dental students in the index of orthodontic treatment need. *Am J Orthod Dentofacial Orthop* 2002;122:456-62.
- 14) Beglin Fm, Firestone Ar Vig Kwl, Beck Fm, Kuthy Ra, Wade D.A. A Comparison Of The Reliability And Validity Of 3 Occlusal Indexes Of Orthodontic Treatment Need. *American Journal Of Orthodontics And Dentofacial Orthopaedics* 2001; 120:240-246.
- 15) W.C.Shaw, M.Addy, C.Ray. Dental And Social Effects Of Malocclusion And Effectiveness Of Orthodontic Treatment ;A Review. *Journal Of Community Dentistry And Oral Epidemiology*. Vol 8, Issue No 1, Pg 36-45, Feb 1980.
- 16) D.A.Campbell Reid, FRCS (Eng) (Honorary Consultant Plastic Surgeon), A.H.K.Price, FDS, DOrth, RCS(Eng) (Consultant Orthodontist). Digital Deformities And Dental Malocclusion Due To Finger Sucking. *Br. Journal Of Plastic Surgery* Volume 37, Issue 4, October 1984, Pages 445-452.
- 17) Valeria Luzzi, Marinella Guaragna, Gaetano Lerardo, Matteo Saccucci, Giuliana Consoli, Anna Rita Vestry, Antonella Polimeni. Malocclusions And Non-Nutritive Sucking Habits: A Preliminary Study. *Progress In Orthodontics*. Volume 12, Issue 2, November 2011, Pages 114-118.
- 18) N.W.Berk, H.Dukich Bush, J.Cavalier, R.Kapur, D.Studen-Pavlovich, J. Sciote and R. J. Weyant. Perception of Orthodontic Treatment Need: Opinion Comparisons of Orthodontists, Paediatric Dentists and General Practitioners. *J. Orthod*. December 2002

- 29:287-291.
- 19) S. Niveda , Dr.Saravana Dinesh -A survey of the knowledge, attitude and awareness of principles and practices in Orthodontics among general dentists and non- orthodontic specialists -e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 13, Issue 1 Ver. II (Jan. 2014), PP44-46
- 20) S. Sruthi-Knowledge and awareness about the importance of undergoing early orthodontic treatment, the importance of undergoing functional and myofunctional appliance and acceptance among public-ISSN: 0975-7619. Vol.10.