



## KNOWLEDGE, AWARENESS AND PRACTICE OF TOOTH POLISHING AGENTS AMONG DENTAL PRACTITIONERS

Sarvesh Kumar J\*, Dhanraj and Anandhi

Department of Prosthodontics, Saveetha Dental College, 162, P.H Road, Chennai, Tamilnadu 600077

### ARTICLE INFO

#### Article History:

Received 8<sup>th</sup> December, 2016

Received in revised form 6<sup>th</sup> January, 2017

Accepted 11<sup>th</sup> February, 2017

Published online 28<sup>th</sup> March, 2017

#### Key words:

Polishing agents, dental abrasives, awareness.

### ABSTRACT

**Background:** Abrasion is a process of wear whereby a hard rough surface like sand paper disk or hard irregular shaped particles plough grooves in a softer material and cause materials from these grooves to be removed from the surface. The abrasive materials used in dentistry are commonly known as dental abrasives and polishing agents. **Aim:** To know the knowledge, awareness and practice of tooth polishing agents among dental practitioners. **Materials and Methods:** The study was conducted among 100 dental practitioners with a questionnaire consisting of 10 closed ended questions and the answers were analyzed and tabulated. **Result and Conclusion:** On analyzing the results obtained from the present study it is clear that there is not enough awareness among dental practitioners about tooth polishing agents, even though many participants were aware of polishing agents they do not have a complete knowledge about it, and further research needs to be initiated in this field and awareness must be created among dental practitioners through conducting various seminars and lectures and CME programs

Copyright©2017 Sarvesh Kumar J., Dhanraj and Anandhi. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### INTRODUCTION

Tooth polishing is done to smooth the surfaces of teeth and restorations.<sup>[1]</sup> The purpose of polishing is to remove extrinsic stains, remove dental plaque accumulation, increase aesthetics and to reduce corrosion of metallic restorations.<sup>[2]</sup> Tooth polishing has little therapeutic value and is usually done as a cosmetic procedure after debridement and before fluoride application.<sup>[3]</sup> Effective finishing and polishing of dental restorations not only result in optimal aesthetics but also provide for acceptable oral health of soft tissues and marginal integrity of the restorative interface.<sup>[4]</sup> Abrasive materials are mainly minerals which are used in Finishing and Polishing a Restoration, Abrasive materials are used to remove the uneven or rough surface on the surface of restorative materials which will lead to debris accumulation and decrease the surface smoothness.<sup>[5]</sup> These Dental Abrasive material particles coat the surface of the burs and act on the tooth or restorative materials by rotation of the bur using a hand piece. Some abrasive materials are used in the form of paste and others as Polishing Strips. The commonly used Abrasive materials in Dentistry are: Natural Diamond: Used for Ceramic and Resin based composite materials Synthetic Diamond: Used on Tooth Structures, Ceramic materials and Resin based composite materials Arkansas Stone: For fine grinding of tooth enamel and metal alloys Chalk:

To polish tooth enamel, gold foil, amalgam and plastic materials Corundum (White Stone): For grinding metal alloys Abrasives: On Composite materials Emery: For finishing metal alloys or acrylic resin Garnet: For Grinding metal alloys and acrylic resin materials Pumice: Polishing tooth enamel, gold foil, dental amalgam and acrylic resins Quartz: Finish metal alloys and to grind dental enamel Sand: Grinding of metal alloys and acrylic resin materials Zirconium Silicate: Component of dental prophylaxis paste and Cuttle: Polishing of metal margins and dental amalgam restorations.<sup>[6]</sup>

### METHODS

- The study was conducted among 100 dental practitioners.
- A questionnaire containing 10 close ended questions was prepared and given to the participants for filling up.
- Answers were analyzed and evaluated results obtained were tabulated in bar graphs

### Questionnaire

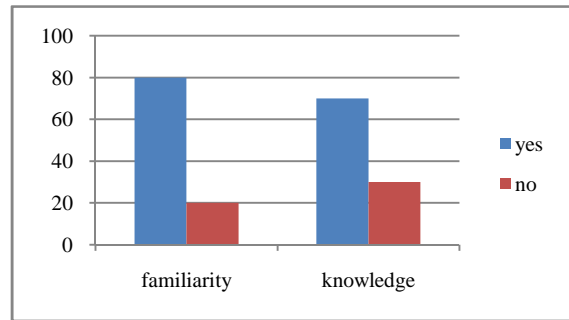
1. Are you aware about tooth polishing agents  
 Yes  
 No
2. Do have enough knowledge about tooth polishing agents  
 Yes  
 No
3. Do you use tooth polishing agents

\*Corresponding author: Sarvesh Kumar J,

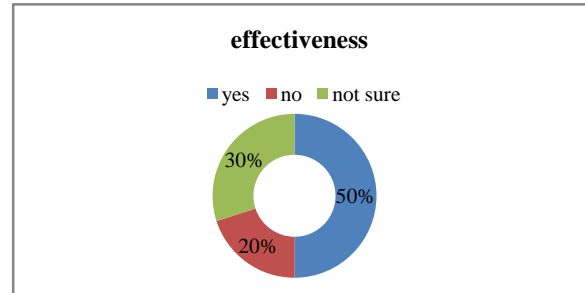
Department of Prosthodontics, Saveetha Dental College, 162, P.H Road, Chennai, Tamilnadu 600077

- Yes
- No
- 4. From where did you get information about tooth polishing agents
  - Curriculum
  - Internet
  - Friends
  - Books
- 5. Do you think tooth polishing agents are effective
  - Yes
  - No
- 6. What are the tooth polishing agents you are aware of (can choose multiple options)
  - Silix (silicic dioxide)
  - Pumice
  - Calcium carbonate
  - Tin oxide
  - Emery
  - Rouge
  - Diamond particles
  - None
- 7. Why do you think tooth polishing agents are used mostly (can choose multiple options)
  - Remove stains
  - Remove dental plaque
  - Promote oral hygiene
  - Increase aesthetics
  - Reduce corrosion of metallic restorations
 Do tooth polishing agents erode enamel
  - Yes
  - no
  - Not sure
- 8. Polishing agents when ingested by mistake do they cause harmful effects
  - Yes
  - No
  - Not sure
- 9. Can polishing agents stay in restorations
  - Yes
  - No
  - not sure

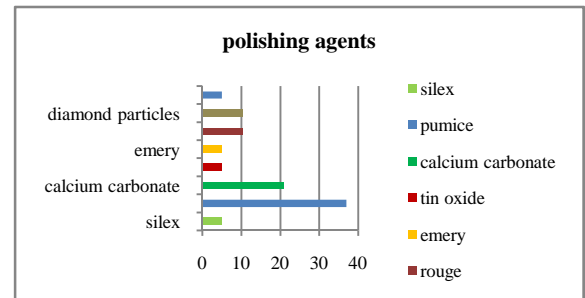
restorations from graph 8. 35% of the population do not use polishing agents in practice from graph 7.



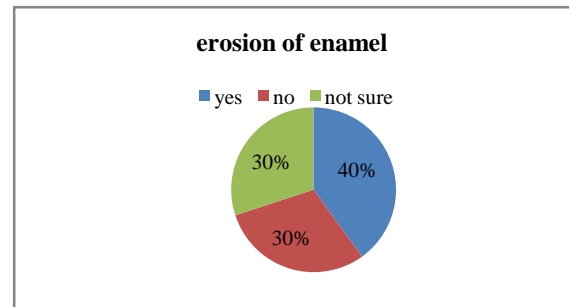
Graph 1



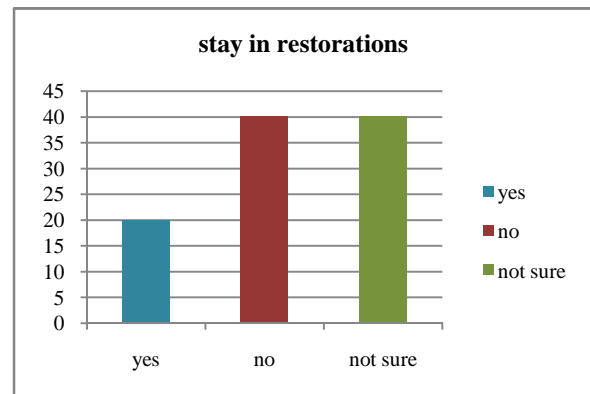
Graph 2



Graph 3



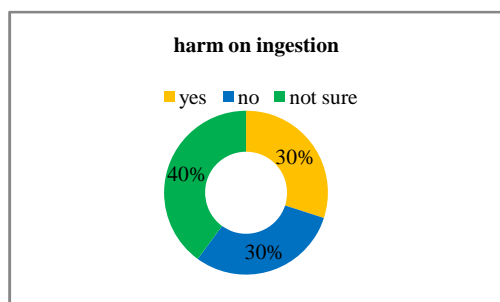
Graph 4



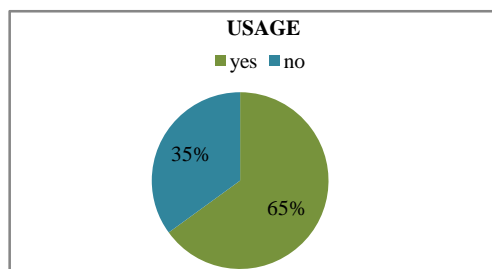
Graph 5

**RESULT**

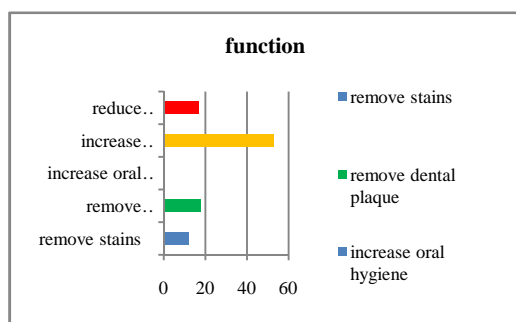
From the study we could infer that 30% of the participants say they do not have enough knowledge about polishing agents from graph 1, and 20% of the participants are not even familiar with polishing agents from graph 1, only 50% of participants think that polishing agents are effective in use from graph 2. 30% of the participants say polishing agents cause harm on ingestion but excess amount of anything ingested will cause harm from graph 6 whereas when minute quantities are ingested they will not cause much harm to the body. More than 35% of the participants are aware of pumice as a tooth polishing agents and 22% of the participants are aware calcium carbonate, 10% of the participants are aware of diamond particles and rouge and only 5% of the participants are aware about emery, tin oxide and rouge from graph 3. 40% of the participants think use of polishing agents cause erosion of enamel from graph 4 and 20% of participants think polishing agents stay in restorations from graph 5. 55% of the participants say polishing gents are used to increase aesthetics, 18% of participants say polishing agents are used to remove dental plaque and reduce corrosion of metallic



Graph 6



Graph 7



Graph 8

## DISCUSSION

James et.al in their research said that After the gross reduction and fine finishing of a composite resin restoration, selecting a system to create the smoothest polish is difficult because high magnification is necessary to compare the surface roughness.<sup>[7]</sup> Kwok et.al in their study said that polishing procedures produced a decrease in the roughness, ranging from 26 to 74%. Relative to the shade guide, the mean color difference values for all the composites after polishing were significantly greater than for the controls ( $p < 0.01$ ) and ranged from 1.08 to 8.15 units.<sup>[8]</sup> Andre et.al in their study said that significant differences were found for the surface roughness and staining, with interaction among composite resins and the finishing systems.<sup>[9]</sup> Duygu et. al in their study said the polishing technique and type of composite resin significantly affected the surface roughness of the composite resins ( $P < .001$ ). While the use of polishing wheels produced the highest surface roughness values when compared to the other polishing techniques ( $P < .001$ ), the nanohybrid composite resin showed the lowest surface roughness values compared to the other composite resins<sup>[10]</sup> Heintze et.al in their study explained that polishing the surface with a polishing machine resulted in a significantly better surface gloss in all materials.<sup>[11]</sup> Sibel.et.al in their study said that different finishing polishing systems provided comparable surface smoothness for composites<sup>[12]</sup>

## CONCLUSION

On analyzing the results obtained from the present study it is clear that there is not enough awareness among dental practitioners about tooth polishing agents, even though many participants were aware of polishing agents they do not have a complete knowledge about it, and further research needs to be initiated in this field and awareness must be created among dental practitioners through conducting various seminars and lectures and CME programs

## References

1. Jones, Trish (July 2016). "Selective Polishing: An Approach to Comprehensive Polishing". [www.Rdhmag.com](http://www.Rdhmag.com). *PennWell Publications*.
2. Stewart, Marcia; Bagby, Michael (2013). *Clinical Aspects of Dental Materials: Theory, Practice, and Cases*. Philadelphia: Lippincott Williams & Wilkins. pp. 205–222. ISBN 978-1-60913-965-0
3. "American Dental Hygienists' Association Position Paper on the Oral Prophylaxis". [www.adha.org](http://www.adha.org). *American Dental Hygienists' Association*. April 29, 1998.
4. Jefferies, Steven R. "Abrasive Finishing and Polishing in Restorative Dentistry: A State-of-the-Art Review." *Dental Clinics of North America* 51.2 (2007): 379-97. Web.
5. Chung, Kwok-Hung. "Effects of finishing and polishing procedures on the surface texture of resin composites." *Dental Materials* 10.5 (1994): 325-30. Web.
6. Stoddard, James W., and Glen H. Johnson. "An evaluation of polishing agents for composite resins." *The Journal of Prosthetic Dentistry* 65.4 (1991): 491-95. Web.
7. James W. Stoddard D.D.S.Glen H. Johnson D.D.S., M.S. An evaluation of polishing agents for composites resins *The Journal of Prosthetic Dentistry* April 1991, Vol.65 (4):491-495, doi:10.1016/0022-3913(91)90286-6
8. Kwok-hung Chung; Effects of finishing and polishing procedures on the surface texture of resin composites; [http://dx.doi.org/10.1016/0109-5641\(94\)90041-8](http://dx.doi.org/10.1016/0109-5641(94)90041-8)
9. André F Reis<sup>a,1</sup>, Marcelo Giannini<sup>a</sup>, José R Lovadino<sup>a</sup>, Gláucia M Ambrosano<sup>b</sup> Effects of various finishing systems on the surface roughness and staining susceptibility of packable composite resins [http://dx.doi.org/10.1016/S0109-5641\(02\)00014-3](http://dx.doi.org/10.1016/S0109-5641(02)00014-3)
10. Duygu Sarac, DDS, PhD<sup>1</sup>, Y. Sinasi Sarac, DDS, PhD, Safak Kulunk, DDS, Cagri Ural, DDS, Tolga Kulunk, DDS; The effect of polishing techniques on the surface roughness and color change of composite resins; <http://dx.doi.org/10.1016/j.prosdent.2006.04.012>
11. S.D. Heintze, M. Forjanic, V. Rousson Surface roughness and gloss of dental materials as a function of force and polishing time in vitro; <http://dx.doi.org/10.1016/j.dental.2005.04.013>
12. Sibel A. Antonson<sup>a,1</sup>, A. Rüya Yazici<sup>b,1</sup>, Evren Kilinc<sup>c,2</sup>, Donald E. Antonson<sup>a,3</sup>, Patrick C. Hardigan ; Comparison of different finishing/polishing systems on surface roughness and gloss of resin composites; <http://dx.doi.org/10.1016/j.jdent.2011.01.006>