



## Original Research

# Knowledge and Awareness About Effects of Sesame Oil Pulling and Its Health Benefits Among Dental Students of IGIDS, Puducherry: A Cross Sectional Study

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### ABSTRACT

The purpose of this study was to evaluate knowledge and awareness about effects of sesame oil pulling and its health benefits among dental students. A Questionnaire containing 16 questions was distributed to 200 clinical dental students (under graduates from 3rd year to interns and postgraduates). They were asked about their attitudes toward oil pulling in general and their knowledge regarding specific sesame oil pulling. Of the 200 students responding to the survey, 77.5% know what is oil pulling. However, 12.5% don't know what is oil pulling. 53.5% agreed to the statement "Dentist (practitioner) should advise oil pulling for patient with moderate oral health for maintenance", whereas 10.5% of the disagreed and 36% were not sure whether dentist should advise oil pulling for patient with moderate oral health for maintenance. The results of this survey provide insight into the Knowledge and awareness of clinical students both undergraduates and postgraduates towards effect of sesame oil pulling and its health benefits. This study highlights need for educational interventions and the importance of providing awareness about sesame oil pulling among clinical students..

**Key Words:** Oil pulling, Sesameoil, Chlorhexidine, Dental Caries , Halitosis.

## Introduction

Mouth is considered as the mirror of the general health of human body. Many general disease conditions also have oral manifestations that increase the risk of oral disease which, in turn, is a risk factor for a number of general health conditions<sup>1</sup>. So it is very important to maintain oral health. Antibiotic resistance, adverse effects and toxicity to modern medicines has prompted scientists to research on natural products. Oil pulling is claimed to improve oral health<sup>2</sup>. Sesame oil is considered to be the queen of oil seed crops because of its beneficiary effects<sup>3</sup>. Sesame oil has various advantages over chlorhexidine. Such as no staining, no lingering aftertaste, and no allergy. Sesame oil is cost-effective than chlorhexidine and is readily available in the household. There are no disadvantages for Oil pulling therapy except for the extended duration of the procedure compared with chlorhexidine<sup>4</sup>. Sesame oil has increased polyunsaturated fatty acids, and lipid per oxidation is reduced there by reducing free radical injury to the tissues. Sesame oil was found to be active in the reduction of bacteria causing dental caries. Sesame oil pulling showed a significant reduction in plaque, gingivitis and reduction in bacteria causing dental caries and halitosis. The aim of this study is to evaluate the knowledge and awareness about the importance of sesame oil pulling and its effect on health of human among dental students. The objective of this

study were to assess the knowledge and awareness among dental students about the importance of sesame oil pulling and its effect on health of human

## Materials and methods

This descriptive cross sectional study was conducted at Indira Gandhi Institute of Dental Sciences, Puducherry, among the postgraduate and undergraduate students. The study was approved by the Institutional ethical committee and was conducted for a period of 2 months. The sample size included all the students who will be present on the day of examination. Selection criteria was based on students who volunteered themselves for the study and if they fit into inclusion criteria which was dental college students from Third years, Fourth Year, interns and Postgraduates who were present on the day of study. For data collection pre-structured questionnaire was used. A 16-item questionnaire with 15 closed items and 1 open ended item was included, the questions were obtained from a pre-validated questionnaire. Explanations were given if the subjects could not understand the items. The instrument used was questionnaire on, knowledge, attitude toward oil pulling and the principal investigator had made herself available for clarifications on the doubts raised by the subjects. To ensure confidentiality all subjects' identity

was coded and stored safely. Subjects were assured of the confidence in the handling of their responses<sup>5</sup>.

### **Ethical Clearance**

"Ethical approval for this study was provided by (ECR/290/Indt/PY/201<sup>8</sup>) Institutional Ethical Committee of Indira Gandhi Institute Of Dental Sciences, puducherry, IGIDSIEC2018NRP14UGKPPHD on 9 April 2018."

### **Statistical analysis**

For data Analysis and Statistical assessment, data collected were tabulated and compiled in MS Excel. Data collected were grouped into data for undergraduates, postgraduates and total summation of the entire sample. Descriptive statistics was used in terms of the frequency and percentage<sup>5</sup>

### **Result**

This study is the first questionnaire study done among dental students, puducherry regarding knowledge and awareness about effects of sesame oil pulling. In this study 200 students had participated in which 182 students were undergraduates and 13 students were postgraduates the mean age of the undergraduates participating in the study was 21.648 years and the postgraduates had a mean age of 26.625 years (Table 1). The number of correct answers given for each question in the questionnaire was calculated and the percentage of correct answers for each question were calculated for the entire sample (Table 2). The sample was unbiased. 77.5% of the participants responded that they are aware about oil pulling, where as 12.5% responded that they don't know what is oil pulling and 9.5% responded not sure. It is found that most of the students are aware about oil pulling from the maximum percentage of answer given for first question (77.5%) Do you know about oil pulling? Nearly 38% think oil pulling can replace usage of chemical mouthwashes for maintenance of oral health. 82.5% of the participants said that sesame oil is the most commonly used oil to perform oil pulling. Though 77.5% of them said they know what is oil pulling and 59% of them accepted that oil pulling can be practiced daily. But when it comes to practice based question 35.5% gave wrong answer for the question when oil pulling should be done either morning, before or after brushing or should be done in night before bed (question 4). nearly 29.5% agreed the statement that "chronic usage of oil pulling stains the teeth" and 45% were not sure for the above statement. 48.5% gave wrong answer for the question (question no 6) Ideal time to spit oil after doing oil pulling. 47% were not sure whether chronic

usage of sesame oil pulling has effect on systemic disease like peptic ulcer, GERD. 68% of participants agreed that practicing sesame oil pulling improves both general and oral health. But nearly 11% disagreed and 34.5% were not sure to the statement "oil pulling aids in reduction of halitosis". Question number 16 for the statement "Dentist (practitioner) should advise oil pulling for patient with moderate oral health for maintenance". Nearly 53.5% agreed the statement in which 2.5% justified their answer saying that oil pulling has good effect, 10.5% said oil pulling is natural and good effect comparing to chemical mouth washes, 2% said that it is easy to perform and also healthy, 1.5% said since it is a mouth refreshers and another 1.5% justified saying that it is cost effective. But 10.5% disagreed the same statement in which 1.5% justified their answer saying that sesame oil pulling STAINS teeth and another 1.5% said that chemicals are more effective than oil pulling and some said when there are many gold standard chemical mouthwashes why oil pulling should be used. 36% responded not sure for the above statement and 69% did not justify their answer.

### **Discussion**

On the whole the results of the study are in have shown that a gap exists between attitude, the knowledge and practice of sesame oil pulling among the dental students<sup>5</sup>. The results of this study Show that the students of different categories have shown a positive attitude towards the necessity of practicing however the percentage of right answers goes down for knowledge and practice related questions. Oil pulling is a traditional folk remedy practiced in ancient India<sup>4</sup>. The concept of oil pulling was familiarized by Dr. F. Karach in the 1990s in Russia. It is claimed to cure about 30 systemic diseases ranging from headache, migraine to diabetes and asthma<sup>[15]</sup> when practiced regularly and as directed. Due to occurrence of side effects to modern medicines and oral hygiene products, people are increasingly attracted towards complementary and traditional practices. Oil pulling or oil swishing, in alternative medicine, is a procedure that involves swishing oil in the mouth for oral and systemic health benefits<sup>[13,15]</sup>. The exact mechanism of the action of oil pulling therapy is not clear. It was claimed that swishing of oil in the mouth activates enzymes and draws the toxins out of the blood <sup>[14,18]</sup>. Oil pulling should be ideally performed daily morning on empty stomach before brushing teeth and care should be taken that oil is not swallowed<sup>7</sup>. It is contraindicated for children below 5 years due to risk of aspiration<sup>10</sup>. In addition to maintaining oral hygiene it has been claimed to have systemic health benefits and cure systemic diseases. An improvement in oral hygiene is noticed within two weeks of practicing

correct method of oil pulling. Sesame oil is more palatable when compared to other refined edible oils<sup>4</sup>. Oil pulling, this process makes oil thoroughly mixed with saliva. Swishing activates the enzymes and the enzymes draw toxins out of the blood. The viscosity of the oil can inhibit bacterial adhesion and plaque coaggregation. Sesame oil is found to be effective in reducing bacterial growth and adhesion. Toxins and bacteria from the body might be expelled through the tongue and trapped in the oil and removed from the body.

It contains high amounts of unsaturated fatty acids. Linoleic acid and oleic acid are the predominant compositions. Oil-pulling therapy with sesame oil significantly reduced S. mutans counts in plaque and saliva of adolescents within 1 week<sup>8</sup>. It was claimed that the swishing activates the enzymes and draws the toxins out of the blood. Sesame oil has three lignans - sesamin, sesamol, and sesaminol - that have antioxidant properties and potentiate Vitamin E action<sup>9</sup>. Sesame oil has increased polyunsaturated fatty acids and the lipid peroxidation is reduced thereby reducing free radical injury to the tissues. Emulsification is the process by which insoluble fats like sesame oil can be broken down into minute droplets and dispersed in water. Emulsification greatly enhances the surface area of the oil thereby increasing its cleansing action. Sesame oil is relatively high in unsaponifiable substances. The unsaponifiable fraction, a class of substances not found in other fats (sesamin or sesamol) can probably protect the oral cavity from infection and inflammation by its antioxidant property. A study done by Asokan *et al.*<sup>[15]</sup> have concluded that Sesame oil pulling therapy has been equally effective like chlorhexidine on halitosis and organisms, associated with halitosis<sup>7</sup>. Oil pulling therapy has been as equally effective as chlorhexidine against plaque-induced gingivitis. Sesame oil has the following advantages over chlorhexidine: no staining, no lingering after-taste, and no allergy. Sesame oil is 5 to 6 times more cost effective than chlorhexidine and is readily available in most households<sup>3</sup>. In some cases like the cases of mouth ulcer, those who have tendency to vomit, asthma, cough, thirst where brushing is considered to be contraindicated Oil pulling can be used to clean the oral cavity<sup>[10,17]</sup>. A group of researchers compared oil pulling method using sesame oil with chlorhexidine mouthwash for two weeks on twenty adolescent subjects. There was statistically significant reduction in the S.

mutans count in the plaque samples of oil pulling group after one and two weeks. Also there was reduction in the mean scores of salivary S. mutans count after two weeks. However the study noted that the reduction in S. mutans count is more in chlorhexidine group than oil pulling group<sup>[11,12]</sup>. A study done by Nilufar Nekuzada *et al.*<sup>[16]</sup> showed that the use of *Sesamum indicum* in patients under chemotherapy has decreased the phlebitis incidence<sup>[16]</sup>. There are no disadvantages for oil pulling therapy except for the extended Duration of the procedure compared with chlorhexidine. It can be used as a preventive home therapy to maintain oral hygiene.

**Conclusion**

The questionnaire has on the whole given us a view into the general attitude of dental students on sesame oil pulling. We have observed a huge gap between the positive attitudes expressed by the students towards sesame oil pulling and the knowledge and actual practice of this procedure. This study further stresses the need to conduct more educational programmes and create awareness among dental students who are the future clinicians about the about effects of sesame oil pulling and its health benefits. So that practitioners can advise patients to practice sesame oil pulling which helps them to maintain their oral health in cost effective way, overcoming the disadvantage of chronic usage chemical mouth washes and also improving both Oral health and general health simultaneously.

**Table 1: Details of participants**

Number of students (n) 200		
<b>Undergraduates 182</b>		
III year	IV year	Interns
70	62	50
<b>Postgraduates 13</b>		
Gender		
Male 47		
Female 153		
Age (yrs)		
Mean age Ug 21.648		
Mean age Pg 26.625		

**Table 2:** Physicians' responses to questions regarding KNOWLEDGE AND AWARENESS ABOUT EFFECTS OF SESAME OIL PULLING AND ITS HEALTH BENEFITS and outcomes

No	Questions	Responses	% of right Answer
1	Do you know about OIL PULLING? a) Yes b) No c) Not sure	77.5% 12.5% 9.5%	
2	Do you think oil pulling can replace the usage of chemical mouthwashes to prevent and maintain oral health a) Yes b) No c) Not sure	38% 17.5% 44.5%	38%
3	According to you which of the following oil is most commonly used for oil pulling? a) Sesame oil b) Mustard oil c) Coconut oil	82.5% 7% 10%	82.5 %
4	Oil pulling should be done _____ a) Early morning (empty stomach) before brushing b) Early morning (empty stomach) after brushing c) Night time before bed	67.5% 7.5% 4.5%	67.5%
5	Is it advisable for children's below 5 years to practice oil pulling a. Yes b. No c. Not sure	15% 48.5% 35%	48.5%
6	Ideal time to spit oil after doing oil pulling? a) After 10 minutes b) After 20 minutes c) Once oil loses its viscosity and becomes thin and milky	38% 10.5% 51%	51%

No	Questions	Responses	% of right Answer
7	Oil pulling works under _____ mechanism? a) Emulsification b) saponification c) none of the above	43.5% 30.5% 23%	30.5%
8	Do you think chronic usage of sesame oil pulling has effect on systemic issues like GERD, peptic ulcers, diabetes, migraine a) Yes b) No c) Not sure	32.5% 20% 47%	32.5%
9	Oil that is used to swishing around the mouth can be swallowed instead of spiting it out. a) Agree b) Disagree c) Not sure	20% 59.5% 20%	59.5%
10	Practicing Sesame oil pulling improves both general health and oral health. a) Agree b) Disagree c) Not sure	68% 11% 20.5%	68%
11	Oil pulling aids in reduction of halitosis. a) Agree b) Disagree c) Not sure	54% 11% 34.5%	54%
12	Chronic usage of sesame oil pulling stains teeth. a) Agree b) Disagree c) Not sure	29.5% 25% 45%	25%

No	Questions	Responses	% of right Answer
13	13. Oil pulling is very effective against plaque induced gingivitis. a) Agree b) Disagree c) Not sure	49.5% 9.5% 39.5%	49.5%
14	Oil pulling inhibits growth of malignant tumor. a) Agree b) Disagree c) Not sure	25% 23.5% 49.5%	25%
15	Sesame oil pulling can be practiced daily. a) Agree b) Disagree c) Not sure	59% 17.5% 23%	59%
16	Dentist (practitioner) should advise oil pulling for patient with moderate oral health for maintenance. a) Agree b) Disagree c) Not sure  JUSTIFICATION FOR QUESTION 16	53.5% 10.5% 36%	53.5%

**Justification for Question (16) Were**

Responses	% of Answers
1 = oil pulling --) good effect	2.50%
2 = Natural and good effect comparing to chemical mouth washes	10.50%
3 = helps in maintaining good oral hygiene	10%
4= easy and healthy	2%
5 = mouth refresher	1.50%

Responses	% of Answers
6 = cost effective	1.50%
7 = MAY STAIN TEETH	1.50%
8 = CHEMICALS ARE MORE EFFECTIVE THAN OIL PULLING	1.50%

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