

## **Effect of Oil Pulling Over Inflammation and Gum Health**

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## ABSTRACT

Background- mouth is considered as the mirror to our whole body. Any disease shows its early symptoms in our oral cavity like ulcers, white patches, bleeding and many more. At the same time any early vague symptoms may lead to severe complications in the future. Oil pulling is an age-old oral hygiene practice to maintain proper gum health. There are various mechanisms, benefits found by oil pulling with essential oils which are economically feasible, easily available. Materials and methods- a well structured questionnaire with a set of 10 close ended questions were created and surveyed among 100s of south indian population through survey planet link. The results are collected, analysed and represented in pie charts. Result- though there are low levels of knowledge and awareness regarding oil pulling, there exists a positive attitude towards it in the prevention and treatment of inflammation and maintaining gum health. Conclusion- there exists a significant level of awareness and knowledge regarding the practice of oil pulling in overcoming inflammation and maintaining gum health. Further studies should focus on finding the disadvantage of oil pulling present, if any, analyse the benefits of oil pulling in day to day life and spread awareness about the same.

Key words : questionnaire, inflammation, gum health, gum health.

## INTRODUCTION

Oral cavity is believed to be the mirror of the body. This explains that various systemic diseases show their early symptoms as oral manifestations of the diseases before showing the actual symptoms of disease. early diagnosis of the oral abnormalities and rooting its cause helps us to prevent the severity and onset of the diseases. For instance, leukemia causes gingivitis and bleeding gums, thrombocytopenia causes hemorrhagic bullae and purpura, there is a strong association with diabetes mellitus and periodontal diseases, dental caries during skin diseases. These manifestations if left unnoticed may lead to the onset of diseases and cause future consequences. (1)oral cavity is said to be the window of general health, we can't have good health without good oral health, mouth is a part of the body; these statements tell the effect of oral conditions as manifestations for several systemic diseases. There are more than 100 systemic diseases, 500 medications which have oral manifestations. To mention a few, atherosclerosis causes periodontal diseases, bacteremia, preterm, low weight birth shows low gingival index having periodontal diseases (2). At the same time, there is also a theory proposed by Hunter which states that if the simple latent primary symptoms are left untreated may cause serious secondary symptoms damaging our body. To mention a few example, in the case of periodontitis and bacteria accumulated in the periodontal pockets may cause formation of cholesterol blocks in heart causing atherosclerosis, myocardial infarction, the bacteria which deposits in periodontal pockets may enter blood through blood vessels causing bacteremia, there may also be occurrence of rheumatic heart diseases, dental caries may cause skin diseases in future, periodontal diseases in elderly may cause pneumonia, etc. human mouth is seen as a focus of infection -- said by miller. So, this focal sepsis theory proposed by Hunter was further modified as focal infection theory by miller. The investigation in relation between oral and systemic conditions are one the growing areas of research in today's world (3). These concepts and conditions help us to understand the importance of maintaining good oral health and hygiene.

As we discussed the importance of oral hygiene, now there are various equipment which helps us to maintain oral hygiene. They are toothpaste, toothbrush, floss, forceps and gauze, sponge swabs, paraffin, oral cavity moisturizers, etc. this equipment utilized in proper techniques and frequencies helps us to clean oral cavities efficiently. (4). Oil pulling is an ancient folk remedy followed by ancient India in maintaining oral hygiene. The oils used are used from the ones available in households which makes it economically feasible. it is treatment followed in Ayurveda as Kavalagraha where less amount of oil is filled in mouth allowing to gargling it (5). there is no proper mechanism explained and affirmed by any research institutions which tells us how the oil pulling actually works. Generally the oil acts as a cleanser which removes and collects all the debris and bacteria, calculus deposits adhering to the oral cavity while swishing and gets expelled out along with the oil spit. in other ways, while swishing on mechanical stress, oil gets emulsified and its area increases which films over the tooth structures reducing plaque and bacterial adhesion. There are also possibilities where oil and alkalis of saliva react, saponified and forms soapy coating reducing the adhesion and activates the salivary glands to trap toxins within the oil (6). there are previous studies which prove within the limits of study that there is a reduction in plaque score even if oil pulling is done for just 45 days (7). Studies have concluded that coconut oil can be used as an effective, useful and economic technique which reduces plaque formation and can be used as an additional oral hygiene aid (8). several essential oils such as *ageratum fastigiatum*, *citrus aurantium*, *lippiasidoides*, *thymus vulgaris*, etc. that are secondary plant metabolites used extensively in aromatherapy, traditional medical systems, possessing different pharmacological properties helping avoid inflammations. (9)

There are various diseases associated with the oral cavity. Dental caries is due to the accumulation of plaque and calculus. The periodontal diseases like gingivitis, periodontitis, etc. may be prevented by the control of plaque accumulation; oral cancer can be prevented by not smoking. Halitosis or bad breath occurs due to plaque and calculus which creates bad breath and can be controlled by proper oral hygiene (10). gingivitis is the inflammation of gums due to accumulation of plaque – plaque induced gingivitis. The symptoms may be bleeding, swollen gums, loosening of teeth due to malocclusion. There are various other factors which may cause gingivitis- stress, pregnancy, genetics, puberty, faulty dentistry etc. (11). There are also non plaque induced gingivitis caused due to bacteria, fungal and viral infections, drugs, allergic reaction, trauma like oral manifestations of systemic diseases. there are modifying factors like local, systemic, drugs and malnutrition (12). Periodontal diseases are due to a wide range of inflammatory action on the supporting structures of the tooth. It may cause systemic inflammation in the future. The severity of the periodontal diseases can be decided by modifiable environmental factors like smoking and non-modifiable host risk factors like genetic susceptibility, etc. there are new treatments proposed like antimicrobial therapy, host modulation therapy, laser, tissue engineering, etc. (13). Knowing the main etiological factors which create various oral diseases can be prevented from occurrence by proper oral maintenance and hygiene.

## **MATERIALS AND METHODS:**

The present study was conducted in 2020 over an online setting among the south Indian population. The study design was cross sectional questionnaire study. It was approved by the institutional review board. It majorly involves 100 active participants of the south Indian population. A well-structured questionnaire consisting of a set of self-evaluation questions were prepared to be surveyed among participants. The questionnaire comprises 10 close ended

questions. The questions validity checking was done by the faculty members of the institution. The data was uploaded and collected from the survey planet software used.

## RESULTS AND DISCUSSION

In the present study, the effect of oil pulling over inflammation gums and gum health and its awareness among the study population was analyzed where 100s of people were surveyed to understand their level of knowledge and awareness about the same. The results of the questionnaire surveyed are statistically analysed by pie chart representations. The study population had 16.5% 10-15 years aged, 61.9% of 15-25 years aged, 13.4% 30 -40 years aged, 8.2% 40 years and above aged from the south indian population.

About 57.1% of the population have reported to be aware of the term oil pulling( figure1), though only 32% of them (figure2) have reported to practice oil pulling on a regular basis. This shows that oil pulling is not put into use even within the range of its awareness level. Among the participants practicing oil pulling, about 61% of them (figure 3)do it once or twice daily. About 21.6% ( figure 4)of the population have reported to suffer from inflamed gums situations and about 33%( figure 5) of the population have reported to have unhealthy gums. This shows the prevalence of occurrence of abnormal gum health and conditions. About 50% of the population believe oil pulling can help overcome this inflammation and unhealthy gums situation while 46.5% of the population agree that oil pulling would be the best treatment to treat and avoid inflammation and unhealthy gums, naturally. This shows that there exists a positive attitude towards practicing oil pulling even though there are no specific facts and low awareness towards it. Even when questioned about the other means of avoiding and treating unhealthy and inflamed gums, if any, there were not many diverse responses rather than other oral hygiene aids and synthetic drugs and medication to treat abnormal situations.

There are various previous researches done with focuses over the importance of oral hygiene and its relevance to the overall body health, impacts of oil pulling over positive and negative aspects. It is proven that there are various oral manifestations exhibited by diabetes mellitus like periodontal diseases, dry mouth, root caries, oral candidiasis, pulp necrosis, periodontal abscess, delayed wound healing, etc. which are explained via separate mechanisms for each. Though there is no adequate research or information about the association diabetes mellitus and its oral pathology (14). It is also believed that oil pulling helps cure allergy, asthma, chronic fatigue, diabetes mellitus, migraines, headaches etc. (15). There was in vitro study done over chlorhexidine, sesame oil, coconut oil to know their effect over *Streptococcus mutans* in saliva. It was proven that there is a significant decrease in *Streptococcus* in saliva, greater activity of chlorhexidine followed by sesame oil and then finally coconut oil. This concluded that oil pulling with edible oils can be used as a preventive home therapy to maintain oral hygiene in developing countries (16).

This study on a survey basis gave various opinions and points of views over the effect of oil pulling in inflammation and gum health. The results statistically analyzed. On considering the previous studies, the results of the survey prove that there is awareness regarding oil pulling and its effect over the inflammation and gum health. but there is no proper ratio between the percent of awareness and its day to day practice. There are various possible reasons for less percent of the population to practice oil pulling. Oil pulling is an ancient, age-old oral hygiene technique.

Though it is economically feasible, it is very time consuming of about 15-30 mins early morning which is not likely possible for a daily basis. One of the beliefs is that the oil which is pulled traps all the toxin particles and is being spit out, so this oil shouldn't be swallowed and spit out which isn't guaranteed by young children. This rules out children from oil pulling. There is not much studies which focuses over the negative impact of oil pulling or the effects of oil pulling in overall oral hygiene. Due to lack of adequate information, there is no significant belief in oil pulling as a daily habit. This study shows there is a significant effect of oil pulling over the inflammation of gums and gum health. The future studies should focus on proving the minimal disadvantages of oil pulling, prove adequate and reasonable information about the impacts of oil pulling. Awareness should be created about the actual effectiveness of oil pulling. It should be proved that oil pulling is effective enough to be a habit when its disadvantages are being taken care of.

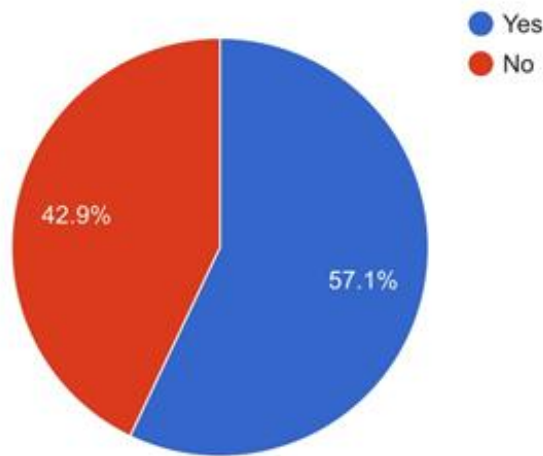


Figure 1- pie chart representing the responses over the awareness of the term- oil pulling. About 57.1% of the respondents were aware. Blue represents yes, red represents no.

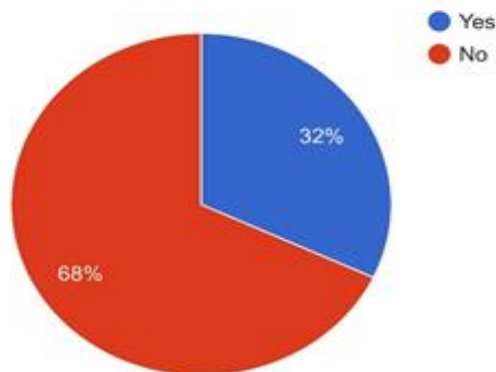


Figure 2- pie chart showing the responses about having the habit of oil pulling in day to day life. About 32% of the respondents have reported to do oil pulling on a regular basis. Blue represents yes, red represents no.

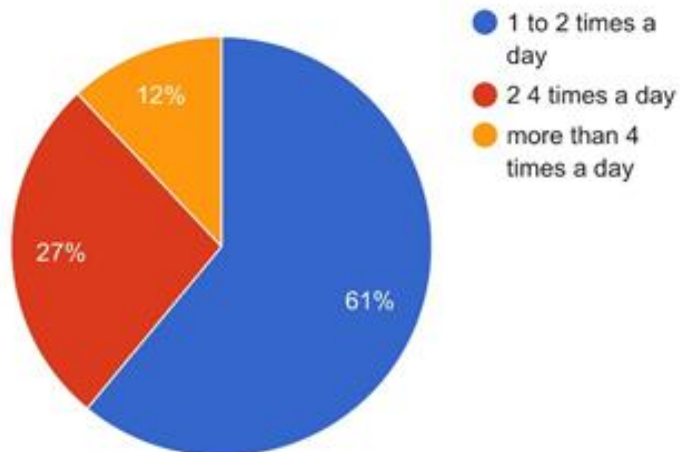


Figure 3- pie chart showing responses about the frequency of practicing oil pulling regularly. About 61% of the respondents reported that they practice oil pulling one or twice daily. Blue represents 1to 2 times daily, red represents 2-4 times daily, yellow represents more than 4 per day.

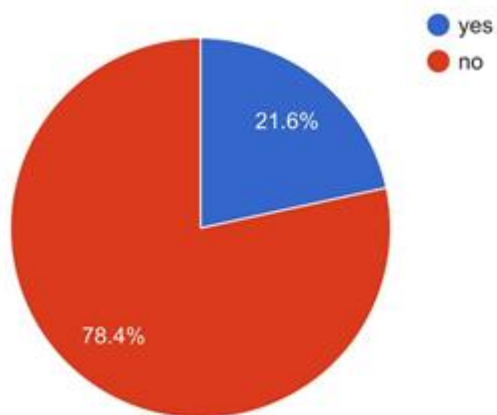


Figure 4- pie chart showing the responses about suffering from inflamed gums conditions. About 21.6% of the respondents reported to have inflamed gums. Blue represents yes, red represents no.

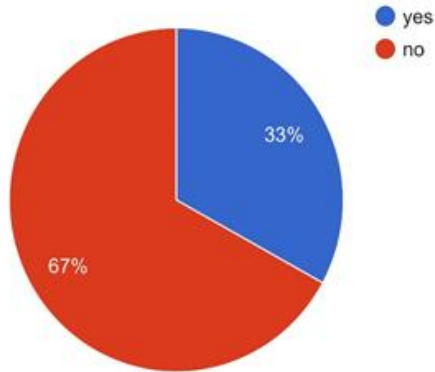


Figure 5- pie chart showing responses about having unhealthy gums. About 33% of the respondents have reported to have unhealthy gums. Blue represents yes, red represents no.

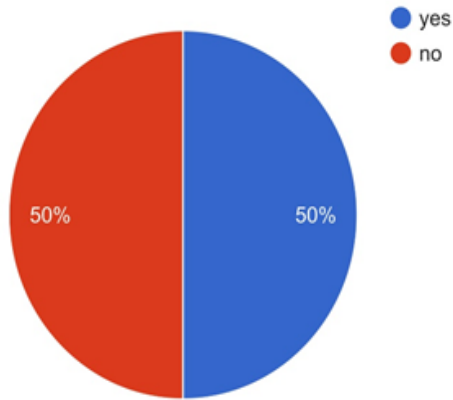


Figure 6- pie chart representing the responses on whether practicing oil pulling helps avoid and overcome inflamed gums. About 50% of the respondents have reported to believe that it can be avoided whereas the other 50% don't. Blue represents yes, red represents no.

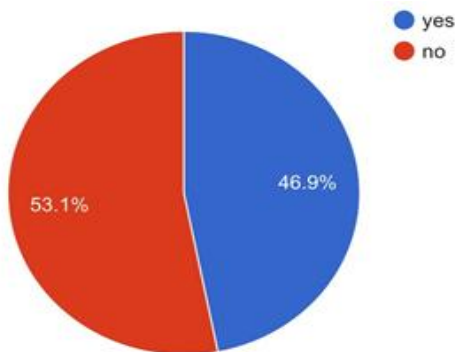


Figure 7- pie chart representing the responses about oil pulling being the best treatment to treat inflamed gums naturally. About 46.5% of the respondents reported that they agree with this statement. Blue represents yes, red represents no.

## CONCLUSION

There are not many studies done over oil pulling. Though it has a very effective impact over gum health, it can be chosen as a valuable supplement towards cleansing the mouth, but can't be an alternative to brushing. Even though having a great impact over gum health, it is highly under-rated. Thus, awareness about oil pulling and its effect over inflammation and gum health should be spread. Further studies should be to make it an essential method of cleansing our mouth in day to day lifestyle.

## REFERENCES:

1. Chi AC, Neville BW, Krayer JW, Gonsalves WC. Oral manifestations of systemic disease. *AmFam Physician*. 2010 Dec 1;82(11):1381–8.
2. Kane SF. The effects of oral health on systemic health. *Gen Dent*. 2017 Nov;65(6):30–4.
3. Barnett ML. The oral-systemic disease connection. An update for the practicing dentist. *J Am Dent Assoc*. 2006 Oct;137 Suppl:5S – 6S.
4. Malkin B. The importance of patients' oral health and nurses' role in assessing and maintaining it. *Nurs Times*. 2009;105(17):19–23.
5. Mythri H. Oil pulling: A traditional method on the edge of evidence. *Dent Hypotheses*. 2017 Jul 1;8(3):57.
6. Pathak S. Oil pulling therapy in dental practice: A short review. *SRM Journal of Research in Dental Sciences*. 2016 Jan 1;7(1):33.
7. Lakshmi T, Rajendran R, Krishnan V. Perspectives of oil pulling therapy in dental practice. *Dent Hypotheses*. 2013 Oct 1;4(4):131.
8. Peedikayil FC, Sreenivasan P, Narayanan A. Effect of coconut oil in plaque related gingivitis - A preliminary report. *Niger Med J*. 2015 Mar;56(2):143–7.
9. Pérez G S, Zavala S. M, Arias G. L, Ramos L. M. Anti-inflammatory Activity of Some Essential Oils. *J Essent Oil Res*. 2011 Sep 1;23(5):38–44.
10. Friel S, Hope A, Kelleher C, Comer S, Sadlier D. Impact evaluation of an oral health intervention amongst primary school children in Ireland. *Health Promot Int*. 2002 Jun;17(2):119–26.
11. Murakami S, Mealey BL, Mariotti A, Chapple ILC. Dental plaque-induced gingival conditions. *J ClinPeriodontol*. 2018 Jun;45Suppl 20:S17–27.
12. Holmstrup P, Plemons J, Meyle J. Non-plaque-induced gingival diseases. *J ClinPeriodontol*. 2018 Jun;45Suppl 20:S28–43.



13. Matthews DC. Prevention and treatment of periodontal diseases in primary care. *Evid Based Dent. nature.com*; 2014 Sep;15(3):68–9.
14. Mauri-Obradors E, Estrugo-Devesa A, Jané-Salas E, Viñas M, López-López J. Oral manifestations of Diabetes Mellitus. A systematic review. *Med Oral Patol Oral Cir Bucal*. 2017;22(5):e586.
15. Asokan S. Oil pulling therapy. *Indian J Dent Res*. 2008 Apr;19(2):169.
16. Priyank H, Rishi R, Mahalakshmi V, Purbay S, Kumar C, Verma A. Effect of oil pulling on streptococcus mutans in saliva-a randomised, controlled, triple-blind in vivo study. *Int j contemp med res*. 2017;4(9):11–5.