

Perceived Benefits and Factors Influencing Adoption and Practise of Oil Pulling in Maintaining Oral Hygiene and Overall Health

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Abstract

Oil pulling, an ancient technique, is believed to be a natural way for maintaining good oral hygiene which is followed in several countries. In recent years, oil pulling using gingelly oil has become popular. Hence, this research focuses on studying the perceived benefits of gingelly oil for improving oral hygiene and overall health. This research also attempts to find out the factors that influence the adoption of oil pulling among the existing users of this practice. A structured questionnaire was delivered to 171 respondents who had the practice of oil pulling. Chi square test was performed to examine the relationship between demographic variables. A multivariate Generalised Linear Model is adopted to compare the group differences between the respondents and Bonferroni post hoc test is conducted to identify where the differences lie between the individual groups. The results of the research suggest that there is no significant difference in the practise of oil pulling between respondents differentiated by education and occupation. However, there is a significant difference in oil pulling among older and younger respondents. Most of the respondents were practising for more than a year and have ranked oral hygiene and freshness of breath as important factors. Most feel that, oil pulling takes a long time to complete and they forget to do oil pulling regularly.

Keywords: oil pulling, health benefits, influencers, regularity, Multivariate Generalized Linear Model

1. Introduction

Almost all individuals are very keen on maintaining good oral hygiene and the most popular and prevalent method is brushing the teeth with toothpaste and using mouth wash. However, there are other means through which people try to maintain good oral hygiene such as using herbal powders and extracts, crushed neem twigs as brush and oil pulling [1]. Oil pulling is the practice of swishing/swilling and rinsing the mouth thoroughly for a few minutes with any edible oil and then spitting it out [2] [3]. Commonly available oils in the households like sunflower oil, groundnut oil, sesame oil or gingelly oil, coconut oil, Irimedadi taila [3] etc., can be used for oil pulling. Also whey from milk and extract of gooseberries (amla) are used for rinsing the mouth [4]. In Ayurveda, oil pulling is prescribed as a means to achieve holistic health apart from maintaining good oral hygiene [5].

The mouth of individuals or technically the oral cavity serves as the most predominant form of entry point for most pathogens into the human body [6]. For example bacteria that enter the human body through mouth, colonises other parts of the body such as the stomach, intestine or liver and may cause serious health issues. Further, it is a self-evident truth that bad oral hygiene leads to dental caries (or tooth decay) which in turn significantly affects the systemic health and quality of life of individuals [7]. Lack of good oral hygiene leads to an increase in colonization of virulent microbes of the oral biofilm and this may lead to other health complications [6] [8]. Thus, lack of oral hygiene will lead to many other health issues

not just pertaining to oral health such as tooth decay or gingivitis but may bring forth other ailments in other organs of the body. Oral hygiene habits are instilled in individuals, right from the childhood and they tend to carry this practice for a life time. This phenomenon is found to be factual among all individuals, irrespective of their nationality or geographic location.

In India, it is presented in Ayurveda and in many researches that oil pulling is beneficial to health and helps humans to lead a healthy life [9]. The benefits of oil pulling are well established [2] [4] [10] [11] [12] [13]. However, the practitioners of oil pulling need to perceive the benefits of the practice to its full extent so that they adopt the practice of oil pulling regularly. Also the factors that influence the adoption of oil pulling have to be identified so that the benefits of oil pulling may be made to reach a wider audience through effective promotional strategies.

2. Review

There are multiple researches that have studied the effect of oil pulling and have listed the outcomes. In one such study by Amith et al. (2007), the influence of oil pulling on plaque formation on teeth and gingivitis (gum inflammation) was scrutinised and it was found that there was a significant reduction in gum inflammation after regular use of oil pulling [14]. It was also found that there was a notable reduction in the total count of disease causing bacteria in the mouth of individuals after rinsing/oil pulling with sunflower seed oil [15], sesame seed oil and subsequently there was a significant reduction in tooth decay (dental caries) in the individuals considered in the study [16]. Another recent study has concluded that there is a significant improvement in oral hygiene of adolescents who regularly practise oil pulling [17]. Also it is found that oil pulling prevents many diseases by creating a barrier in the oral cavity of individuals and can be used as preventive home therapy in developing countries [18]. When oil pulling is practised properly and regularly, it is observed to bring significant improvement in oral hygiene. Available research on dental hygiene and other related diseases show promising benefits of oil pulling on oral hygiene [19].

It is believed that oil pulling uses saliva in the mouth as detoxifying agent of organs. When one swishes with oil in the mouth, copious amount of saliva is secreted and this gels with the oil and can trap the toxin present in the mouth within the oil particles [9]. Oil pulling is stated to be effective in prevention of a wide spectrum of oral diseases apart from preventing diseases linked to thyroid glands, diabetes, liver disorders, hypertension, heart diseases, respiratory problems and renal disorders etc. It is also claimed to help in the healing of these ailments [20] [9]. Oil pulling also helps in detoxifying and purifying the entire human body [21].

Since practitioners of oil pulling can use oils that are usually available in households such as sesame oil or coconut oil, the factors affecting consumer behaviour of consumer goods can be used to identify the purchase of oils for oil pulling. Identification of those factors will be useful to promote the adoption and regular practice of the same. Thus, a general understanding of consumer behaviour towards products is a vital aspect of marketing [22] that can ensure appropriate adoption of products by consumers. Understanding consumer behaviour is all about how individuals or groups of individuals or organizations select, buy, use, and dispose off goods and services to satisfy their needs or wants [23]. Consumer behaviour for a product purchase could be planned or impulsive, and is influenced not only by family and friends, by advertisers and role models, but also by mood, situation and emotion. All of these factors combine to provide a comprehensive understanding of consumer behaviour that reflects both the cognitive and emotional aspects of consumer decision making [24].

Conventionally, consumer food and food related purchases are motivated by factors such as price of the product, quality, convenience, and brand familiarity [25]. Consumers usually tend to buy products such as oils that are easily available in shops near them. Customers patronize convenience stores primarily because of its proximity to them [26] [27]. Store distance from the consumer has an inverse relation and has negative impact on consumers' purchase decision [28] [29]. Social influencers [30] and individuals closely related to consumers such as family, friends and peers also influence them on the choice of brands and quantum of purchase [31] [32] [33] [34]. Packaging of products is especially important in influencing the customer purchase process [35]. Packaging factors such as ensuring product safety, good quality of packaging and appearance of packaging have a strong influence on customer purchase [36].

Oil pulling brands use agents as influencers to communicate about and convince individuals to regularly practise oil pulling. Influencers are individuals who influence the buying decision of customers/consumers, often by providing in-depth and accurate information about products/brands which will help the customers/consumers in evaluating alternatives [37]. Small sellers concentrate on reaching the key buying influencers [38]. These days, brands collaborating with influencers to promote their products to their target audiences are a common but effective strategy as evidenced from literature [39] [40] [41]. This is because influencers have credibility as well as knowledge and hence consumers are willing to follow the recommendations of influencers [42] [43] [44] [45] [46].

Time pressure on consumers is identified as an important factor in influencing the purchase as well the usage of a product [47] [48] [49]. This is especially true for the purchase of low involvement products [50] such as oils for the purpose of oil pulling. Thus if a product consumes lot of time in the process of its usage, consumers may not prefer to use the product at all.

Promoting oil pulling among the masses could be beneficial for their overall health as indicated by the texts in Ayurveda and previous research. This requires a better understanding of the consumer purchase intention and sustained practice of oil pulling. Hence this research tries to provide a better understanding on the awareness of health benefits of oil pulling among its practitioners along with factors that help sustain the practice of oil pulling. Thus the benefits of oil pulling as claimed by a popular regional brand of gingelly oil such as a) Strengthens gums, teeth and jaw; b) Improves general oral hygiene; c) Freshens breath; d) Cures gingivitis; e) Prevents tooth decay; f) Clears sinuses; g) Cures Thyroid problem; h) Improves sleep; i) Rich in anti - oxidants; j) Cures high blood pressure; k) Increases immunity are considered. Also, factors that influence the adoption and continued usage of oil pulling such as a) availability of oil near home; b) influence of family, friends, and agents; c) comfortable packaging of oil for usage; d) perception that oil pulling takes a long time to complete; e) forgetting to do oil pulling and f) feeling lazy for doing oil pulling were examined.

3. Methodology

The objective of this research is to find the perception of benefits of oil pulling among the existing users of this practice and also the factors that influence the adoption of oil pulling. To address the objectives taken up for the research, a descriptive research design is used. In this design, to study these perceived benefits and sustainability by the practitioners of oil pulling, data was collected through a structured questionnaire from 171 respondents who have the practice of oil pulling. However in the sample, most respondents have a regular habit of oil pulling, while some don't have so. A database of customers subscribing to sachets of gingelly oil from a popular regional brand of gingelly oil manufacturer was obtained. From

this database, the subscribers were selected randomly by generating random numbers, thus ensuring that every member of the population had an equal opportunity to be included in the sample. Data thus collected was checked for flaw and after ensuring that the data was error free, it was entered in Microsoft® Excel®. After data entry, further examination was carried out to ensure that the data was completely error free. Analysis of data was done with IBM SPSS®.

To examine the relationship between the demographic variables, chi-square (χ^2) statistic is used. Chi square test is used in this research to test if there is a significant difference between the different demographic groups on the opinion of the respondents on perceived benefits and factors associated with the adoption of oil pulling. Chi-square test is the foremost computation used for testing the statistical significance of variable tabulated in the form of cross-tabulation [51]. Chi-square test examines if variables considered for the test are independent or not. If the variables have no relationship (or independent), the outcome of test will be “non-significant” and the researchers “are not able to reject the null hypothesis”, which means that there is no relationship between the variables. If the variables are related, then the results of the test will be “statistically significant” and the researchers “are able to reject the null hypothesis”, meaning that the researchers can conclude that there is some relationship between the variables.

The chi-square value is computed as: $\chi^2 = \left(\frac{f_o - f_e}{f_e} \right)^2$

where,

f_o is the observed frequencies in each cell and

f_e is the expected frequencies in each cell given the assumption that the two measures are not related to each other (independent).

In simpler terms $\chi^2 = \frac{(\text{Observed value} - \text{Expected value})^2}{\text{Expected Value}}$

In order to examine and compare the group differences between the respondents, a Multivariate Generalized Linear Model (GLM) [52] [53] is used and to find where the differences lie between the individual groups, Bonferroni post hoc test is carried out using IBM® SPSS Statistics®. GLM is a flexible statistical model that incorporates normally distributed dependent variables and categorical or continuous independent variables.

4. Results and discussion

In the initial part of the analysis, a description of the sample is done before the actual analysis part begins. As a part of data description, the age of respondents, education level, occupation, marital status and monthly income of the respondents are studied.

The spread of the respondents based on their demographics is as follows. Totally 100 male users of oil pulling and 71 female users of oil pulling were included in the sample. Most of the regular practitioners of oil pulling are above thirty years of age. The spread of the respondents based on their age is given in Table 1.

Table 1. Distribution of Age of respondents

Age	Number of practitioners of oil pulling
Below – 20	5
20 – 30	13
31-40	25
41-50	42
51-60	33

Above 60	53
Total	171

It can be seen from Table 1 that, 90% of the respondents (153 respondents) are in the age group of above 30 years. Thus it can be tentatively concluded that only mature respondents use oil pulling regularly by realising its benefits. To test the hypothesis that there is significant difference between the groups of respondents in the above 30 age group and below 30 age group, a chi-square test on the cross tabulation between the age of respondents was carried out.

Table 2. Cross tabulation and chi square test results on distribution of age of respondents

Regular habit of oil pulling	Age		Total
	Above 30 years	Below 30 years	
Yes	133	14	147
No	20	4	24
Total	153	18	171
Pearson Chi-Square: 7.435			
Asymp. Sig. (2-sided): 0.006			

The results of the test (Table 2) proves that there is a significant difference in the practice of oil pulling between the older and younger age group of respondents (with a α value of .006 and a Pearson Chi-Square value of 7.435). The Phi value is 0.629 which shows that the effect of age on the practice of oil pulling is very substantial and significant.

In the next part of the exploration, it was proposed to test if the education level and the occupation of the respondents had any impact on their habit of oil pulling. Here too, a chi square test for the cross tabulation on the above mentioned factors was carried out and the results are presented in Table 3.

Table 3. Cross tabulation and chi square test results on distribution of Education and occupation of respondents

Habit of oil pulling	Education					Occupation				
	Below 10 th	10 th	12 th	UG	PG	Business	Government	House wife	Private	Student
Yes	17	29	14	64	23	50	6	45	41	5
No	0	3	3	12	6	5	3	6	9	1
Total	17	32	17	76	29	55	9	51	50	6
Pearson Chi-Square: 4.794						Pearson Chi-Square: 4.256				
Asymp. Sig. (2-sided): 0.309						Asymp. Sig. (2-sided): 0.372				

In this case, the null hypothesis is accepted based on the results of the chi square test since the $\alpha > 0.05$, and it can be inferred that there is no significant difference in the practise of oil pulling among the various groups of respondents segregated based on their education and occupation. This means that all the respondents with various educational background and occupation exhibit the same behaviour when it comes to the practice of oil pulling.

4.1 Awareness on benefits of oil pulling among respondents who don't have the regular habit of oil pulling and those who have regular habit of oil pulling

In the section, awareness of benefits of oil pulling among those respondents who don't have the regular habit of this practice and those who practise oil pulling regularly is discussed. As mentioned already, a brand of gingelly oil (sesame seed oil) manufacturer claims that there are eleven benefits using oil pulling with gingelly oil. The benefits claimed are a) Strengthens

gums, teeth and jaw; b) Improves general oral hygiene; c) Freshens breath; d) Cures gingivitis; e) Prevents tooth decay; f) Clears sinuses; g) Cures Thyroid problem; h) Improves sleep; i) Rich in anti - oxidants; j) Cures Blood pressure; k) Increases immunity. It is attempted to explore the behaviour of individuals on oil pulling that whether they are really aware of the benefits and really believe in them or just doing it for the sake of it – maybe out of habit.

Table 4 Awareness on benefits if the subscribers don't have the regular habit of oil pulling and those who have the regular habit oil pulling

Opinion	Non-regular users	Regular users
Aware of benefits	23	147
Not aware of benefits	1	0

From the response sought from users of oil pulling, it is seen that all of the respondents except one, claim that they are aware of the benefits of oil pulling, and some didn't have the regular habit of oil pulling while others are regular practitioners of oil pulling. However the respondent who claims to have no awareness about oil pulling still has this practice albeit irregularly.

4.2 Medium through which the users became aware about the benefits of oil pulling

In the following section, the medium through which the users became aware of the benefits of oil pulling is described.

Table 5 Medium through which the users became aware about benefits of oil pulling

Medium of awareness of benefits	Number of Respondents
Through Agents	63
Through Family members	54
Through Friends	41
Company brochure and other promotion	12

From Table 5 it is understood that majority of the 170 respondents who are aware about the benefits of oil pulling came to know about this through agents of the regional brand (and manufacturer) of gingelly oil. This manufacturer comes out with 10ml sachets of gingelly oil specifically meant for the use of oil pulling and actively uses these agents to spread the practice of oil pulling. These agents are not employees of the manufacturer and are not paid any salary/wage by the company but work on a voluntary basis to spread a good word about the benefits of oil pulling claiming that they are already practising oil pulling and have experienced the aforementioned benefits of oil pulling. Since the survey area is semi-urban and is a close knit community, most of the respondents know these agents personally and believe the words of these agents about the benefits of oil pulling. Thus these agents act as influencers in the process of spreading the benefits of oil pulling among the masses. The next major force that influenced the respondents was their family members and friends. When the family members and friends talk about the benefits of oil pulling, obviously it convinces the respondents about its benefits. Company brochure and other promotion materials used by the company have very little impact in convincing the respondents about the benefits of oil pulling. There is strong evidence that consumers believe in word of mouth more than company sponsored promotion material.

4.3 Duration of practising oil pulling

The duration for which the practitioners have been using oil pulling is examined and the results of which are presented in Table 6.

Table 6 Duration of practising oil pulling

Duration	Respondents
More than one year	134
Six months to one year	23
Less than Six months	14

From the above results it is understood that majority of the practitioners were doing so for more than one year. Only a small number of respondents had started the practice of oil pulling in the past six months. This indicates that there is very little conversion of individuals to oil pulling in the recent past and whoever is into oil pulling is doing so, for a long period of time.

4.4 Factors that influence the practice of oil pulling

In this section, the factors that influence the practice of oil pulling by the respondents are described. The factors considered are oral hygiene, having fresh breath, perception of controlling blood pressure, perception of controlling gingivitis, perception of controlling thyroid problems, perception of overall health, strengthens gums, teeth and jaw, prevents tooth decay, clears sinuses, improves sleep, rich in anti - oxidants and they do oil pulling because it's their regular routine.

Table 7 Factors influencing the practice of oil pulling

Factors	Average ranking	Rank
Oral hygiene	1.91	1
Freshens breath	2.21	2
For overall health and immunity	2.86	3
It is in my regular routine	3.30	4
To control blood pressure	5.16	5
To control gingivitis	5.61	6
To control thyroid problem	6.88	7
Strengthens gums, teeth and jaw	7.56	8
Prevents tooth decay	8.34	9
Clears sinuses	9.48	10
Improves sleep	10.11	11
Rich in anti - oxidants	11.26	12

Interaction with regular users of oil pulling revealed that there are many factors that influence their practise of oil pulling. However, the factors mentioned in Table 7 have a recurring mention in the interaction held with the users and those factors are included for the research. Out of the aforementioned twelve factors, eleven are promoted by the manufacturer of gingelly oil and the factor, 'usage of gingelly oil because it is the users daily routine' is also added because most users just do oil pulling habitually since they are already convinced about the benefits of oil pulling. Majority of the users consider oral hygiene and freshening of breath as important factors for practising oil pulling. Almost all of the respondents claim that after starting oil pulling there is a significant reduction in bad breath and their mouths feel fresh and the results are evident immediately. Most of them also claim that after oil pulling, the regular food that they eat daily tastes better. Many also believe that their overall health had improved after oil pulling and perceive that they less often fall sick with ailments like

common cold and flu. Further, most of the respondents also state that they do oil pulling because it had already become their daily routine since they are already aware of the health benefits of this practice. Followed by this are the perception that practising oil pulling help to control blood pressure, helps to control gingivitis, helps to control thyroid problem and other ailments.

4.5 Factors that affect the regularity of oil pulling

In the following section, factors that affect the regularity of oil pulling by the practitioners are described. Here the factors such as a) availability of oil near home; b) influence of family, friends, agents; c) comfortable packaging of oil for usage; d) perception that oil pulling takes a long time to complete; e) forgetting to do oil pulling and f) feeling lazy for doing oil pulling were used. The responses for these factors were sought in a five point rating scale, and the average rating given by respondents on each factor was computed. Those factors that have a larger average rating is considered to be more favourable or sought after than variables with lower average rating. The results of the rating are presented in Table 8.

Table 8 Factors that affect oil pulling

Factors	Average Rating
Takes Long time to do oil pulling	4.52
Forgetting to do oil pulling	4.08
Feel lazy for oil pulling	3.78
Availability of oil near home	2.32
Influence of family, friends, agents	2.06
Comfortable Packaging	1.68

From the above Table it can be inferred that among six factors, practitioners of oil pulling consider that doing oil pulling takes a lot of time. Usually it is advised that a tablespoon of oil is to be taken in the mouth, sipped, sucked and pulled between the teeth for ten to fifteen minutes [54]. Thus almost all respondents feel that oil pulling is time consuming. Further, as it is advised that oil pulling is best if done in the morning, individuals will have to allocate time specifically for this activity for which they may find it difficult since in most households, the mornings are quite hectic. This may explain the fact behind the feeling of time consumption for oil pulling. Also, respondents say that they forget about doing oil pulling daily in the morning. As mentioned already, since the mornings in most households will be quite busy, the practise of oil pulling is skipped by many because they forget about it. In the same way, many do feel lazy to do oil pulling since it takes a lot of effort and time to complete the process.

4.6 Impact of age, education and occupation of respondents on their practise of oil pulling

To examine the influence of factors such as age, education level and occupation of respondents on their practice of oil pulling, GLM is used. Here, the perception of oil pulling taking long time to complete, forgetting to do oil pulling, feeling of laziness for oil pulling, availability of oil near the respondents' home influencing oil pulling, influence of family, friends, agents and availability of oil in comfortable packaging influencing oil pulling are considered to be dependent on age, education level and occupation of respondents. Only the results of GLM whose $p \leq .05$ is exhibited in Table 9, and the post-hoc test for those factors are exhibited in Table 10.

Table 9 Impact of age, education and occupation of respondents on their practise of oil pulling

Factor	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Occupation	Takes Long time to do oil pulling	24.266	4	6.067	3.245	.014
	Influence of family, friends, agents	18.227	4	4.557	3.832	.005

From the outcome of the computation it is found that, impact of the attributes, age and education of respondents on the variables a) perception of oil pulling taking long time to complete, b) forgetting to do oil pulling, c) feeling of laziness for oil pulling, d) availability of oil near the respondents' home influencing oil pulling, e) influence of family, friends, agents and f) availability of oil in comfortable packaging, influencing oil pulling is $p \geq 0.05$ in all the cases. Thus in all the above cases, the null hypothesis that age and education of respondents have no impact on factors influencing practice of oil pulling is accepted and it is concluded that age and education of respondents do not significantly impact the same.

However, when the occupation of the respondents is considered, only the variables 'perception of oil pulling taking long time to complete' and 'influence of family, friends, agents' have a significance at $p \leq .05$. Thus it is concluded that occupation has a significant impact on the respondents feeling of oil pulling taking longer time to complete and occupation of the respondents also impacts the influence of family, friends, and agents on the acceptance of oil pulling. The F value suggests that the impact is not very substantial since the F value is relatively smaller. In order to find out what occupation of the respondents exactly influences the perception of oil pulling taking long time and are influenced by friends, family as well as agents, a post-hoc test with Bonferroni method is carried out and the results are exhibited in Table 10.

Table 10. Post hoc test on impact of occupation on the dependent variable using Bonferroni method

Dependent Variable	(I) Occupation	(J) Occupation	Mean Difference (I-J)	Std. Error	Sig.
Long time to do oil pulling	Business	Government	.719	.4917	1.000
		House wife	.281	.2658	1.000
		Private	.764*	.2672	.048
		Student	1.497	.5879	.118
	Government	Business	-.719	.4917	1.000
		House wife	-.438	.4944	1.000
		Private	.044	.4951	1.000
		Student	.778	.7207	1.000
	House wife	Business	-.281	.2658	1.000
		Government	.438	.4944	1.000
		Private	.482	.2721	.781
		Student	1.216	.5902	.410
	Private	Business	-.764*	.2672	.048
		Government	-.044	.4951	1.000
		House wife	-.482	.2721	.781
		Student	.733	.5908	1.000

Influence of family, friends, agents	Student	Business	-1.497	.5879	.118
		Government	-.778	.7207	1.000
		House wife	-1.216	.5902	.410
		Private	-.733	.5908	1.000
	Business	Government	-.044	.3921	1.000
		House wife	.459	.2120	.319
		Private	-.160	.2131	1.000
		Student	1.233	.4688	.093
	Government	Business	.044	.3921	1.000
		House wife	.503	.3943	1.000
		Private	-.116	.3949	1.000
		Student	1.278	.5747	.275
	House wife	Business	-.459	.2120	.319
		Government	-.503	.3943	1.000
		Private	-.619*	.2170	.049
		Student	.775	.4706	1.000
	Private	Business	.160	.2131	1.000
		Government	.116	.3949	1.000
		House wife	.619*	.2170	.049
		Student	1.393*	.4711	.036
Student	Business	-1.233	.4688	.093	
	Government	-1.278	.5747	.275	
	House wife	-.775	.4706	1.000	
	Private	-1.393*	.4711	.036	

Considering the p values (at $p \leq .05$) in Table 10, it is observed that private employees and business people consider that oil pulling takes a long time. This may be because of the reason that both private employees and business persons are hard pressed for time and need to start their day quite early and their day ends quite late. Thus spending close to half an hour on dental/oral hygiene may seem to be a waste of time for these individuals.

Similarly private employees, housewives and students consider the opinion of family, friends, and agents in influencing their practise of oil pulling. These individuals especially house wives and students may have the luxury of time to discuss about the pros and cons of oil pulling and thus they may consider that friends and family play an important role in influencing them to practise oil pulling.

5. Conclusion

In the recent years, oil pulling, an age old technique has gained popularity because of promising benefits in improving the oral hygiene and overall health. This research was conducted to explore the perceived benefits of oil pulling using gingelly oil and the different factors affecting the adoption of this practice. Responses were obtained from 171 respondents through a structured questionnaire. Chi square test was applied to observe the relationship between demographic variables. The results of the research indicate that there is no significant difference in the practise of oil pulling between respondents segregated by education and occupation. It is also found that there is a significant difference in oil pulling among respondents above and below 30 years of age. Thus, the gingelly oil manufacturers can formulate promotional campaigns to promote the use of their oil without segregating the target audience based on their education or occupation. However, they may have to design promotional strategies which may appeal to the differing age group of people. Promoting and

targeting customers for oil pulling will be easier because most of the respondents were aware of the benefits of oil pulling and were regular practitioners of oil pulling. It is also evident that the practitioners became aware of the benefits through the agents (influencers) who work for the manufacturers of gingelly oil who present oil sachets specifically for oil pulling. Since these agents work on a voluntary basis to spread the benefits of oil pulling and as they have experienced those benefits, their testimony bears more credibility in convincing the people to adopt oil pulling on a regular basis. Because of this fact, gingelly oil manufacturers may recruit more volunteers and thus create a viral or buzz regarding the benefits of oil pulling. These promoters can act as influencers.

Further, it can be seen from the data that, almost all respondents are practising oil pulling for more than a year without discontinuing the practice albeit feeling that its time consuming or they feel lazy. This could mean that once they perceive that there are benefits in oil pulling, they tend to continue the practice. Thus the oil manufacturers can highlight this in their promotions.

Most of the respondents have ranked oral hygiene and freshness of breath as important factors that make them continue with the practice of oil pulling. They also perceive that there is an improvement in their overall health and immunity. Many also state that they tend to continue oil pulling because it has become a habit now. This habit formation may not happen if people do not perceive any benefits coming out of this practice. So it can be safely assumed that oil pulling definitely helps in maintaining good oral hygiene and gives freshness in breath.

On the flip side of the practice, most respondents also feel that oil pulling takes a long time to complete. This opinion is prevalent among private employees and business people. As stated already, oil pulling has to be done for 10 to 15 minutes, first thing in the morning. Spending time on this alone may sound bad since mornings are usually a busy time for most individuals. However, if manufacturers suggest that individuals can continue with their other morning tasks along with oil pulling, it may reduce the exasperation caused by this practice. The other factor that is perceived negatively is that the individuals tend to forget to do oil pulling regularly. Even though it has now become a regular practice, they still tend to forget the ritual. In this regard, manufacturers may request the agents to be in constant touch with individuals who tend to forget oil pulling and remind them or encourage them to regularly continue the practice.

The influencers for the practice of oil pulling among private employees, housewives and students are family, friends, and agents. These groups consider the opinion of influencers seriously in the practice of oil pulling. These individuals especially house wives and students may have the luxury of time to discuss about the pros and cons of oil pulling and thus they may consider that friends and family play an important role in influencing them to practise oil pulling. The agents' role becomes all the more important as influencer in persuading individuals about the advantages of oil pulling.

To conclude, the present research shows that the practitioners of oil pulling understand that the practice of oil pulling is beneficial to them. This is because of the extensive campaigns carried out through the agents. The challenging task ahead for marketers is to convince the practitioners that time taken for oil pulling is worth investing, given its benefits. Marketers can find relevant influencers who are close to the families of the users and intimately connect with them and constantly remind them to practise oil pulling and discuss the benefits so that the users do not forget oil pulling and not feel lazy about the same.

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