

Oral Hygiene Myths and its Association with Gingival Health Status among Patients in Aseer Region of Saudi Arabia: A Cross-sectional Study

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ABSTRACT

Aim and objective: The aim of the study is to assess “Myths in dentistry related to Oral Hygiene and its association with Gingival Health Status among patients visiting Institutional diagnostic clinic in Aseer region of Saudi Arabia.”

Materials and methods: The present study was a cross-sectional study done on 152 subjects attending Institutional diagnostic clinic in Aseer region Saudi Arabia. Myths in dentistry related to oral hygiene were assessed by using a ten-item, multiple-choice, close-ended structured questionnaire and Gingival Health Status was assessed using gingival index described by Loe and Silness on the Ramfjord teeth. For the comparison of proportions, a Chi-Square test was used with continuity correction whenever appropriate. “*p*” value of <0.05 was taken to be statistically significant for the purpose of analysis.

Results: A total of 152 study subjects were included in the study, of which 60.5% were males and the rest 39.5% were females. Eighty-two percent of the study subjects believed that myths do affect the oral hygiene of the person. Combinational use of household ingredients (like apple vinegar, turmeric, lemon, baking soda, coal, honey, and sodium bicarbonate) was seen among 40% of the subjects. A majority of 48% learned from family as a source of information and 53% believed that use of household ingredients would improve the esthetical value (bleaching) of the tooth. Eighty-two percent of the study subjects believed that myths do affect the oral hygiene of the person. 40.8% had some form of gingival health problem. There was no statistically association observed between myths in dentistry related to oral hygiene and gingival health.

Conclusion: The present study revealed that myths in dentistry related to oral hygiene are quite prevalent in society. The use of household ingredients can influence oral health status and one has to ensure the judicious use if good oral health is to be expected.

Clinical significance: Myths in dentistry related to oral hygiene can influence a lot on oral health and this can augment the health of the individual in any direction. So as a responsible clinician, it is very important to address these issues and bring in more health awareness among the study population to achieve the social goal—“health for all.”

Keywords: Gingival health, Myths in dentistry, Oral hygiene.

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INTRODUCTION

In today’s context, the world is convinced of the fact that nothing rises above *health*. Even the World Health Organization in its global agenda has made health a fundamental human right. It sees oral health as a part of general health.¹ In order to achieve this fundamental goal, effort has to be a continuous process and at times has been made complicated with our own drawbacks. One such shortfall runs through the very word—*myth*. The word “myth” originates from the Greek word “mythos” which means stories shared by a group of people, which are part of their cultural identity having a strong influence in seeking treatment during illness.²

A myth is commonly held but a false belief, a misconception, or a fictitious or imaginary understanding of a thing or a person and has no relevance with reality. Innumerable myths are associated with many things and persons all around the world. In a country like Saudi Arabia, Aseer region, the cultural ethos is deep-rooted and difficult to understand. Myths breed on a human’s ignorance and imagination about what he/she does not know. Reasons for harboring a myth vary from an individual’s ignorance to a society’s cultural, quasireligious, educational, and overall setup.³

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The stories are passed on from one generation to the next. Why, when, and how myths came into existence is still a mystery. In spite of the development of science and technology, there are many people who are superstitious and credulous in their beliefs. Lack of education, irrational beliefs, and socio-cultural factors could be the possible factors for the development of false perceptions and myths.⁴⁻⁶

Globally oral diseases are highly prevalent affecting a significant proportion of the world's population. This burden of oral diseases lies on disadvantaged and poor people. Among the disadvantaged population, majority of them are illiterate. Their awareness and knowledge about the importance of oral health are usually low. People believe in spiritual treatment or alternative forms of medicine; they prefer visiting a *hakim* (local traditional practitioner) over a doctor. All these factors influence the prevalence of myth which added up to growing problems in any society. Also the people here in Aseer region of Saudi Arabia, the burden of oral diseases is quite alarming. The literature search reveals that gingival health condition (gingivitis) in this part of the region seems to be high and quite prevalent. Efforts are made to reduce the disease burden but myths add up to the existing problems.^{8,9}

Marginal gingiva being very sensitive is the first soft tissue to get damaged if household ingredients are not used properly resulting in inflammation of gingival tissues. The sequela of this can have a devastating effect on the supporting periodontal setup.¹⁰⁻¹² Since there are no data available in this part of the region, a sincere effort is made with the aim of assessing the "Myths in dentistry related to Oral Hygiene and its association with Gingival Health Status among patients visiting Institutional diagnostic clinic in Aseer region of Saudi Arabia."

MATERIALS AND METHODS

A cross-sectional study was conducted among patients visiting the Institutional Diagnostic clinic at College of Dentistry, King Khalid University in Aseer region of Saudi Arabia. The Ethical Committee of College of Dentistry reviewed the proposed study and clearance was obtained. A total of 152 subjects formed the study population based on the inclusion and exclusion criteria. Subjects with severe systemic diseases or conditions, immunocompromised patients, those undergoing orthodontic treatment, subjects who failed to consent, and patients with severe periodontal health were excluded from the study. A consecutive sampling technique was employed. Informed consent was obtained from all subjects participating prior to conducting any interviews or examinations. Participation in this study was entirely voluntary and the participants were allowed to withdraw from the study at any time if they wished to do so. Patients who were aged 18 years and above were included in the study. A specially prepared and pretested format, exclusively designed for recording all the required and relevant general information was used. A pilot survey was undertaken to test the feasibility of the study including the assessment of clarity, validity, and applicability of the questionnaire. Two experts from the department of Diagnostic sciences at College of Dentistry completed the validation of the questionnaire (in Arabic) considered in the study. A survey was systematically scheduled and it was conducted in the month of February 2019. On average 30–40 subjects were interviewed and examined during the scheduled survey period. Duration for data collection for each subject ranged from 8 to 10 minutes. A ten-item, multiple-choice, close-ended questionnaire was prepared and tested before the start of the study. Questions regarding the awareness about the myths in dentistry related to oral hygiene were carefully framed. Common household materials used, source of information about myths, dental benefits, frequency, duration, and side effects were included while structuring the questionnaire. Participants were requested to answer honestly.

Clinically gingival health status was assessed using gingival index (GI) described by Loe and Silness on the Ramfjord teeth.¹³

The mean GI was used to determine categorical gingival status according to Loe as follows:

Score 0	Healthy,
Score 0.1–1	Mild gingivitis,
Score 1.1–2	Moderate gingivitis, and
Score 2.1–3	Severe gingivitis.

Also gingival health status was categorized into two, i.e., localized or generalized based on their clinical appearance. The clinical examination for every subject was comprehensively carried out by the investigator himself. All aseptic precautions were taken during the entire study. Prior to conducting the study, the calibration of the investigator was done in order to limit the intraexaminer variability. The calibration was done by assigning few subjects on whom the investigators applied the self-designed format and recorded the findings. Some of the subjects were randomly called on different days and the investigators repeated his examinations on them. The results so obtained were subjected to the kappa—variability test. The kappa coefficient value of intraexaminer reliability for gingival health status was 0.94. This value reflected a high degree of conformity in observations. Confidentiality of information gathered was guaranteed.

The data so obtained were compiled systematically. A master table was prepared in MS excel worksheet and the total data were subdivided and distributed meaningfully and presented as individual tables along with graphs. Statistical procedures were carried out in two steps:

- Data compilation and presentation and
- Statistically analysis.

Data comparison was done by applying specific statistical tests to find out the statistical significance of the comparisons. The various parameters used for the purpose of analysis were arithmetic mean, standard deviation, and standard error. For the comparison of proportions, a Chi-square test was used with continuity correction whenever appropriate. "p" value of <0.05 was taken to be statistically significant for the purpose of analysis.

RESULTS

The data obtained from the study were subjected to tabulation followed by subsequent statistical analysis. A total of 152 study subjects were included in the study, of which 60.5% were males and the rest 39.5% were females. The mean age of the study population was 38.2 ± 0.72 with ages ranging from 19 years to 58 years.

Educational status of the subjects was as follows, 48% had completed high school, followed by a bachelor degree with 36% and the rest 4% and 8% were middle school and elementary school, respectively. Four percent had no formal education (Fig. 1).

Eighty-two percent of the study subjects believed that myths do affect the oral hygiene of the person. Thirteen percent were not sure of the influence and only five percent believed that it had no role in the hygiene of the person. Various household ingredients commonly available and used in this part of the region include apple vinegar, turmeric, lemon, baking soda, coal, honey, and sodium bicarbonate. When asked, use of which ingredients would influence the oral hygiene of the person, combinational use (40%) of ingredients (all above-mentioned ingredients are included) would influence more, followed by ingredients that were used individually like lemon (30%), apple vinegar (10%), coal (9%), baking soda (5%), sodium bicarbonate (4%), and honey (2%).

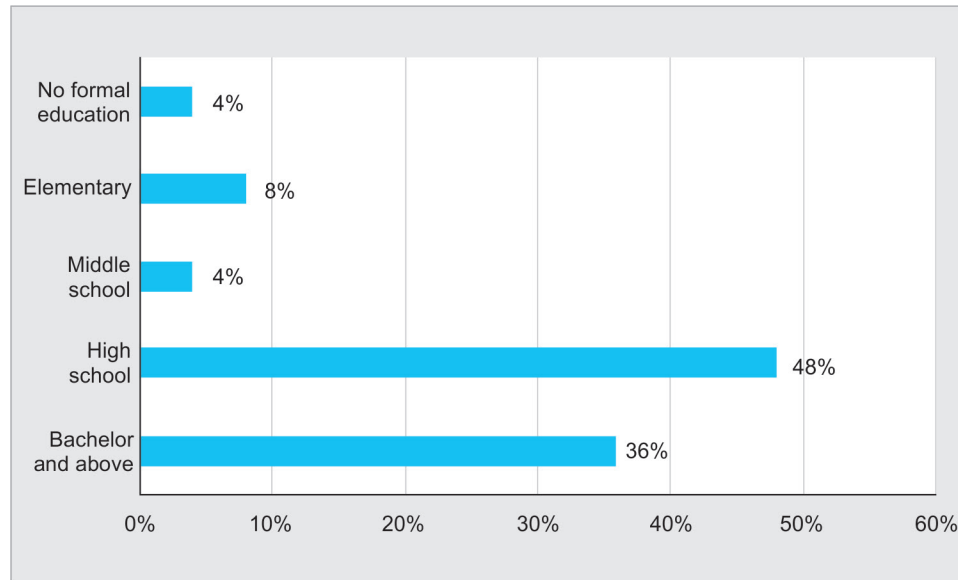


Fig. 1: Distribution of the study subjects according to their educational status

When asked from where did they learn about these myths, a majority of 48% responded that they learned from family, followed by friends (32%), electronic media (like internet/Google) (13%), and print media (books/magazine) (7%).

When asked what dental benefits they achieved by the use of these above ingredients, a majority of 53% said it improved the esthetical value (bleaching) of the tooth, followed by reduction in gum infection (21%), reduction in tooth decay (15%), and reduction in calculus formation (11%). Regarding the frequency of usage of these ingredients, 42% used once a week, followed by 32% who used once fortnightly, daily (18%), and once a month (8%). Regarding the duration, a majority of 62% used between 1 and 5 minutes, followed by 31% who used less than a minute and the rest 7% used it more than 5 minutes.

When assessed whether the benefits were appreciable, most of the subjects (72%) agreed that it did benefit, followed by 18% who were not sure, and the rest 10% said it had no role. Regarding the drawbacks, a majority of 38% said no drawbacks and 42% were not sure of it and the rest 20% said there are drawbacks observed. Those who reported significant drawbacks of side effects like pain, sensitivity, discoloration, a majority of 22% had combination side effects, followed by 21% who had sensitivity, discoloration (10%), and pain among 9% of the subjects (Table 1).

When assessed whether oral health awareness programs are necessary, 98% of the subjects felt the need of it and the rest 2% were not sure of the need.

Of the total 152 subjects examined, 40.8% had some form of gingival health problem while the rest 59.2% had good gingival health. Of the 40.8% affected, 30% were having localized gingivitis and the rest 10.8% had generalized gingivitis. Among the subjects affected, a majority of 55% had a moderate form of gingivitis, followed by mild form 26%, and the rest 19% had a severe form of gingivitis (Tables 2 and 3).

Association between myths in dentistry related to oral hygiene and gingival health: When the results were subjected to statistical analysis, it was found that there was no association observed between oral hygiene and gingival health with a *p*-value more than 0.05.

Table 1: The distribution of the study subjects according to various myths in dentistry related to oral hygiene

Ingredients used	n
Apple vinegar	15 (10%)
Turmeric	-
Lemon	46 (30%)
Baking soda	8 (5%)
Orange peel	-
Coal	14 (9%)
Honey	3 (2%)
Sodium bicarbonate	6 (4%)
Combination of above	60 (40%)
Total	152 (100%)
Source	
Family	73 (48%)
Friends	48 (32%)
Electronic media (internet/Google)	20 (13%)
Print media (books/magazine)	11 (7%)
Total	152 (100%)
Dental benefits	
White teeth/bleaching	80 (53%)
Stops gum infection	32 (21%)
Reduces tooth decay	23 (15%)
Reduces calculus formation	17 (11%)
Total	152 (100%)
Frequency	
Daily	27 (18%)
Once a week	64 (42%)
Once fortnightly	49 (32%)
Once a month	12 (8%)
Never	0 (0%)
Total	152 (100%)

Contd...

Contd...

<i>Ingredients used</i>	<i>n</i>
<i>Duration</i>	
<1 min	47 (31%)
1–5 min	94 (62%)
More than 5 min	11 (7%)
Total	152 (100%)
<i>Side effects</i>	
Pain	14 (9%)
Sensitivity	32 (21%)
Discoloration	15 (10%)
Combination of above	33 (22%)
No side effects	58 (38%)
Total	152 (100%)

Table 2: Gingival health status among the study population

	<i>Healthy</i>	<i>Affected</i>	<i>Total</i>
Gingival health status	90 (59.2%)	62 (40.8%)	152 (100%)

Table 3: Severity of gingival health status among the study population

	<i>Mild gingivitis</i>	<i>Moderate gingivitis</i>	<i>Severe gingivitis</i>	<i>Total</i>
Localized	12 (19%)	26 (42%)	8 (14%)	46 (74%)
Generalized	4 (7%)	8 (14%)	4 (7%)	16 (26%)
Total	16 (26%)	34 (55%)	12 (19%)	62 (100%)

DISCUSSION

Myths are deeply seated irrational thoughts in the minds of the masses. They are nonscientific beliefs developed over the years due to shortfall of rational thinking, awareness, education, social behavior, and cultural factors. Hence people lack oral hygiene; they opt for wrong dental treatments from quacks, prefer home remedies, and lack consultation and treatment with a professional dentist as reported by Sharma et al.⁷ So the present study was aimed to assess the “Myths in dentistry related to Oral Hygiene and its association with Gingival Health Status among patients visiting Institutional diagnostic clinic in Aseer region of Saudi Arabia.”

Beliefs regarding myths in dentistry related oral hygiene are quite prevalent in this part of the region. It can be justified to the fact that religious, cultural practices, gender difference in terms of equalities, and many factors support these beliefs. Family and friends make up the main source of information regarding these myths in dentistry related to oral hygiene. The concept of big families and gathering at religious occasions helps them to share the beliefs. Such beliefs are deep-rooted and trusted more easily in this part of the region as reported by Parveen et al.¹⁴

Among the many household ingredients, combination of ingredients like lemon, apple vinegar, coal, baking soda, honey, etc., is quite commonly used. Lemon is most commonly used to improve oral hygiene. The literature review justifies the ease in availability and a common belief that acid in the lemon helps to kill the bacteria as reported by Vignesh et al.¹⁵ Coal is easily available, century-old belief supports its use and even today the

belief stands firm in many parts of the world. Some of the top brand dental toothpaste has incorporated in its content. But what is more important is its judicious use in daily use. The question whether coal is a myth in the modern world is still debatable and draws considerable discussion in the coming days among the experts. Weekly use may be a practical approach so is the result of the study. Many of the subjects preferred 1–5 minutes of usage time. This is equated to the ideal brushing time. There was few or no literature which could explain this concept. Most of them felt good about the outcome of using these household ingredients as they brought visible changes but the only drawback was the long term effects like tooth sensitivity or esthetic concerns which may have developed later as reported by Singh et al.,¹⁶ Afolabi et al.,¹⁷ and Anyanechi et al.¹⁸

Tooth sensitivity and discoloration were the most common side effects encountered. It can be justified to the fact that many of the food ingredients used were having lower pH; longer exposure to such low pH could have resulted in the dissolution of outer tooth structures which could have exposed the sensitive dentine inside. Many modern-day textbooks and literatures support these findings as reported by Boye and Baker.¹⁹

Even though there is widespread use of myths in dentistry related to oral hygiene and gingival health status, the need for oral health awareness program was the most sort of activity. The interest to know more about oral health was appreciable.

Gingival health status revealed that around 40% of the subjects had some form of gingivitis. The most common etiological causes like poor oral hygiene, lack of awareness about oral health, improper brushing, use of home ingredients for dental remedies which are detrimental in nature can all lead to poor gingival health as reported by Roberts–Thomson and Spencer.²⁰

When myths in dentistry related to oral health and gingival health were compared, there were no statistically significant relations. The literature search revealed very little justification. If the home ingredients are judiciously used, they would result in good oral hygiene and better gingival health. But one has to notice that all ingredients may not be in the best interest of keeping good oral hygiene.

LIMITATIONS OF THE STUDY

This study was carefully designed and executed but still we would like to recommend further prospective studies to further augment the evidence of oral hygiene myths and its possible association with gingival health status. Prospective studies are real-time evidence that provides excellent support to the hypothesis tested.

Since it is a hospital-based study, it may not truly represent the population at large, hence community trials are warranted. Also in this study, data collection was confined to one hospital which might affect the generalizability of the study. Hence studies with a multicenter approach are recommended in the future. Since a cross-sectional design is adopted, it limits the ability to identify causality between oral hygiene myths and gingival health status; therefore, longitudinal study designs will be required to explore the cause and effect relationship.

CONCLUSION

The present study revealed that myths in dentistry related to oral hygiene are quite prevalent in society. The use of household ingredients can influence oral health status and one has to ensure the judicious use if good oral health is to be expected.

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