

## RESEARCH ARTICLE

# Analysing the Practice of Ancient Tamil Traditional Medicine in Management of Oral Diseases: A Survey of Siddha Practitioners in Chennai

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## ABSTRACT

**Background:** Siddha is an ancient Indian traditional medicine system that originated in Tamil Nadu and is known to the world as a safe and effective alternative to western medicine. Based on medicinal alchemy, it strives to impart power and longevity to people. It has applications in a wide range of human ailments including dental diseases. There is need for research in the use of Siddha medicine in dentistry. Our study aims to assess the knowledge, awareness and practice of dentistry in Siddha practitioners in Chennai, India.

**Methods:** Standardized and validated questionnaire to assess the knowledge, awareness and practice of dentistry in Siddha practitioners was employed to random practitioners of Central Siddha Institute, Chennai. We assessed their attitude towards oral diseases, treatment methodology and to determine the types and parts of herbs used for management of oral diseases.

**Results and conclusions:** 93 professionals provided valid responses. Pertinent data was obtained on the most common dental complaints of patients, the common dental diagnoses, various plants used, the medicinal part of the plants, the mechanism of action, the mode of preparation, use of metals and preservatives etc. This study, being one of the first in eliciting unique responses from Siddha practitioners regarding dentistry, could pioneer further research in developing safe and effective traditional therapies for dental disorders.

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## INTRODUCTION

In the practice of Traditional medicine worldwide, India has had a pivotal role with roots dating beyond 500 BC. In India 2500 plant species are identified to have medicinal properties and among them 100 species of these plants are routinely used as sources of medicine, known as ethnomedical plants. Ayurveda, Siddha and Unani are the widely practiced Indian traditional medical systems. The Siddha system of medicine is a traditional Tamil system of medicine in which alchemy is a natural and an integral part. This term is derived from the Sanskrit word Siddhi which means power, longevity and attainment of magical abilities through penance. Here, any ailment of an organ is not treated individually; rather it is seen as an outcome of systemic degeneration. The objective of Siddha maruthuvam (medicine), is to impart immortality (Vajrakaya) to the diseased human body. Siddha is part of the AYUSH system of the Indian Medical Departments, and traditional systems are regulated and promoted by a separate AYUSH ministry under the federal government.<sup>1-6</sup>

There is lack of adequate dental practitioners and non-affordability of dentistry in rural regions. Millions of people are still dependent on traditional healers for their healthcare needs. The World Health Organisation reported that 80% of the world's people are dependent on Traditional medicine for their

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primary healthcare needs as they are affordable, accessible and culturally appropriate. In South India acceptance and awareness of Siddha medicine for routine health disorders, including dental diseases, is high and increasing. People who are illiterate and economically disadvantaged seek these traditional healers for management of dental pain and disorders. There is much literature and studies on practice of Ayurveda for oral diseases but very few works on contemporary Siddha practice. There is a lack of understanding, knowledge and practice of Siddha maruthuvam for management of dental ailments.<sup>7-11</sup>

The aim of this questionnaire study was to evaluate the current use of ethnomedical plants by Siddha practitioners for treatment of oral diseases. The objectives are to assess their attitude towards oral diseases, treatment methodology and to determine the types and parts of herbs used for management of oral diseases.

## METHODS

### Study Design

This study was conducted as a cross-sectional survey in a systematic manner. It was undertaken to determine the herbs used to manage oral diseases, and to assess their mode of treatment.

### Study Setting

This study was conducted in the National Institute of Siddha, Chennai, which has more than 200 traditional Siddha practitioners.

### Participants

The study included Siddha practitioners with a post-graduate degree, and students pursuing post-graduation in the same field.

### Instrument

A group-administered questionnaire was used to gather information from the participants. Negative, leading and loaded questions were avoided, keeping it civil and ethical. Personal and objective statements were not used in order to prevent non-response bias. The questions were reviewed by professionals of Siddha and Dental studies for content validation. The purpose of the survey was explained to the participants beforehand. The information collected was demography of the study participants, their attitude, local names of the herbs used, their routes of administration, methods of usage, and awareness about drumstick plant. The primary data collected were either in the nominal or ratio scale.

### Procedure

Theoretical samples were collected from these practitioners. Individual respondents within the sample were picked at random to achieve a satisfactory effect. The group-administered questionnaire involved approaching the respondents at the end of their academic lectures, or in the out-patient ward, or in the patient ward, and recording their responses. If the questions seemed unclear, they were explained again. This method helped achieve a higher response rate.

## Ethical Concerns

The study was approved by the Institutional Ethics Committee. The questionnaire was voluntary with its design free of personal and sensitive data. The entries were anonymised in regard to all operators. The validation process of the questionnaire included inputs from the institutional ethics committee.

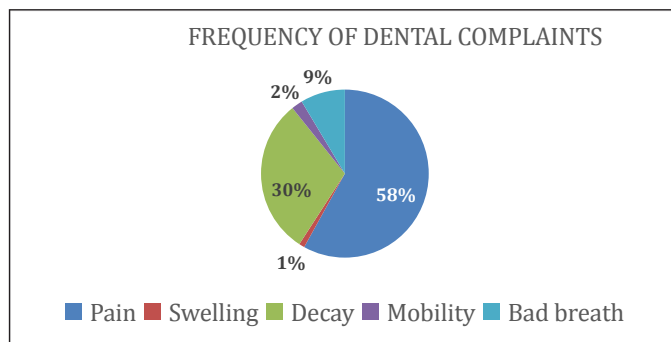
## Data Analysis

The data obtained was analysed and the results were presented as frequencies and percentages.

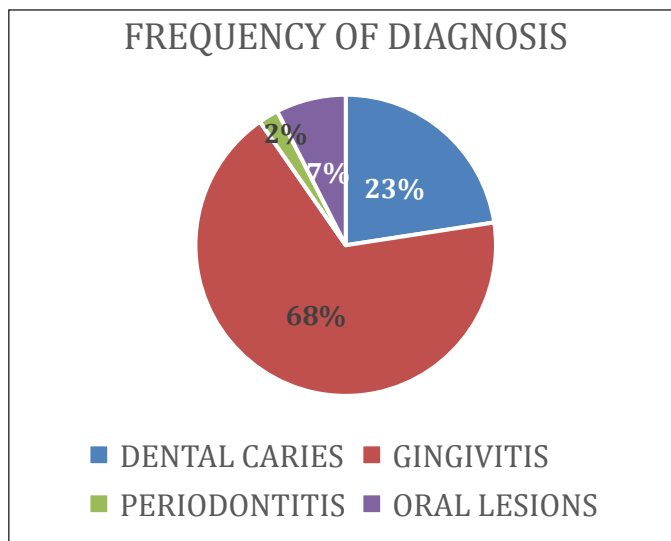
## RESULTS

A total of 93 professionals provided valid responses to the questionnaire. 90 (96.8%) of them identified as postgraduate practitioners. The treatment pertained to strictly oral disease in 2% cases, purely systemic disease in 6.5%, and combined presentation in an overwhelming 91% of cases. Around 70% of practitioners interviewed reported that they have a curriculum for treating oral diseases.

Most common dental complaints patients reported were pain (58%), tooth decay (30%) and other issues like bad breath (~9%), swelling, and mobile teeth (Chart 1). On a weekly basis, 34% of respondents reported a patient inflow of 5-10 patients, and 20% reported 10-20 patients per week. A high percentage of dental patients were women (58%).



**Chart 1:** The frequency of dental complaints reported by patients received by practitioners



**Chart 2:** The frequency of dental diseases of patients diagnosed by the practitioners

Gingivitis was the most frequent disease diagnosed and treated (67%) followed by dental caries (22.6%). Other oral lesions and periodontitis were reported less commonly (Chart 2).

There was a range of Siddha medications prescribed for symptomatic dental problems. Kadukkai (67%) and Triphala (13%) were the most commonly prescribed herbal formulations. More than three fourths of the treatment plan were based on both the nature of the disease and its clinical symptoms.

Of the various plant sources used, the bark of the plant was employed most commonly (52%) followed by fruits, seeds and roots. The medicinal preparations were in the form of powder in almost 90% of responses, followed by decoctions and mouthrinses. Regarding presence of metals in the final preparation, 88% responses were that there were no metallic components in the final preparation.

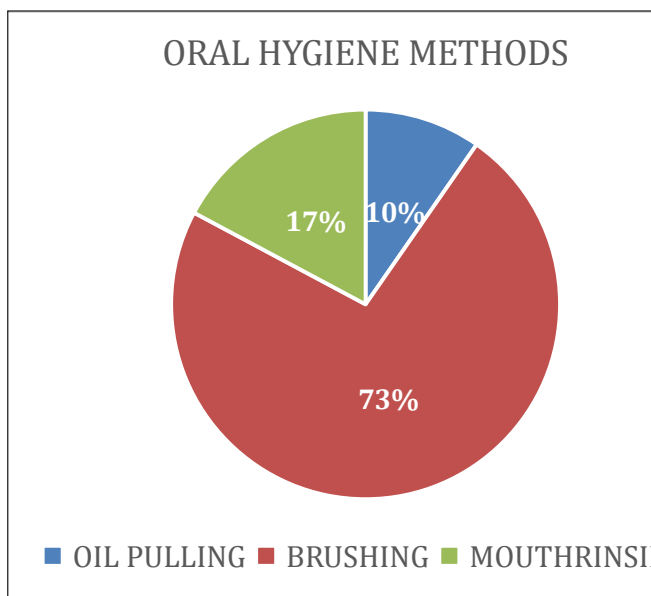
The total duration of dental treatment was around 2-4 weeks in 44% of cases, followed by 1-3 weeks and up to three months. In around 2% cases the duration was beyond 3 months.

More than 75% of the practitioners submitted that the main mechanism of action of medications were anti-inflammatory, followed by 23% which was antibacterial. More than 96% do not report adding preservatives to their formulations.

Recommendations for a staple use of an herb for prevention/management of dental ailments included Nellikai (46%), Terminalia chebula and clove. 29% of practitioners did not recommend any herb as staple food. 87% of them agreed that there was a modality to prevent oral disease. They recommended tooth brushing (73%), mouth rinses (17%), and oil pulling (Chart 3).

More than 40% responders felt that resistance to allopathy was the main reason there is need for alternative medicine. Financial reasons and increased disease occurrence were popular responses. They also felt that patients believed in the efficacy of alternative medicine over allopathy, and thought allopathy had more side effects and cost more (Chart 4).

Moringa oleifera preparations are used by more than half of responders (55%) for systemic diseases and 5% for oral diseases, and around 27% for combined disease. On a scale of 1 to 10, the responders rated the efficacy of MO preparations. Almost 25% of responses were for score of 7, followed by 5. Almost 70% of the responders gave a score of 6 and more for the efficacy of MO preparations.



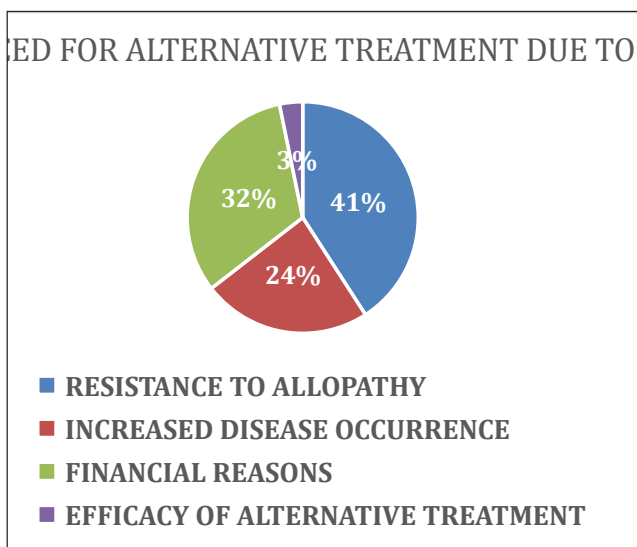
**Chart 3:** The oral hygiene methods recommended by the practitioners

## DISCUSSION

There is a greater awareness of traditional systems of medicine in recent times. People are increasingly preferring local and ancient remedies for their medical needs. This preference stems from the awareness of long term uncertainties and adverse effects of western allopathic medicine. In India, traditional systems are robust, with centuries of research and development. Ayurveda, Unani, Siddha and Homeopathy are recognized by the Indian government, though there may be dozens of local medical systems in the subcontinent.<sup>1-6</sup>

Dentistry has been a part of these traditional systems as well. Certain herbal formulations for management of dental pain and infections, gum disorders, ulcers etc are popular. Though allopathic systems have grown leaps and bounds in the management of dental problems, the traditional systems still hold sway.<sup>7,8</sup> A 2019 review found extensive applications of a number of medicinal plants mainly for their antimicrobial, analgesic antioxidant, anti cancer and immunomodulant properties.<sup>9</sup> Plants like Ficus spp., Emblica officinalis, Syzygium, Acacia, Circuma longa and others have been used for a long time to inhibit growth of oral pathogens and reducing the symptoms of oral diseases. Acacia, Aloe vera and clove oil are popular for their antiseptic and analgesic properties<sup>10</sup>. A 2011 survey found that the most used plants by practitioners were the ones that were widely available in that particular region, thus indicating the local variability in use of medicinal plants. A 2019 Ethiopian research used plants native to the African region, which were not prominently seen in other continents.<sup>11,12</sup>

Our survey focused on the attitude and management of dental diseases among a cross section of Siddha practitioners, since most surveys in this respect focused on Ayurveda and were done



**Chart 4:** The responses of the practitioners regarding the need for alternative treatment in dentistry

amongst allopathic practitioners.<sup>13,14</sup> Most of the respondents were postgraduate practitioners, and have been prescribing for dental issues. Overwhelmingly, they treated oral and systemic disorders together, which concurs with the holistic view in Siddha medicine. A good majority of the responders reported having a curriculum for oral diseases. This concurs with the observation by Rajmohan et al (2012) where more than 90% responders felt they were able to treat oral diseases and this was part of the curriculum.<sup>15</sup>

The most commonly encountered dental issues by their patients were dental pain and tooth decay. The most common oral diseases were gingivitis and dental caries. These statistics are similar to patients reporting to dental clinics. A slight female predominance of dental patients was noted. Conversely, Rajmohan et al found halitosis to be the most common oral symptom observed by their responders.<sup>15</sup>

The treatment plan followed by a majority of responders depended on both the symptoms and the nature of the disease. The diagnosis was fairly straightforward and so were the formulations prescribed. Kadukkai and Triphala were the most common preparations. The formulation was in powder form mostly from the bark of the plants. The harmful effects of certain metals and preservatives were also acknowledged since most of the practitioners reported that they were not part of the final preparation. The duration of treatment was mostly less than 4 week in most cases. According to the responders, the main effects of the medications were anti-inflammatory and antibacterial. This is in line with the findings of Gopalakrishnan T et al 2015 and relevant reviews.<sup>1,8,10</sup>

Popular plant sources of medicine for prevention of oral diseases were Nellikai (Indian gooseberry), Kadukkai (*Terminalia chebula*) and clove (*Syzygium aromaticum*). According to most responders, toothbrushing and mouthrinsing were the most recommended prevention methods. Most responders felt that the traditional medicine was preferred due to efficacy, affordability and less side effects. These are similar to the findings of Rajmohan et al 2012<sup>15</sup>. Interestingly, more practitioners recommend brushing teeth and mouthrinsing to prevent oral diseases compared to traditional methods like oil pulling.

*Moringa oleifera* (MO), a well-known medicinal plant, is used for a variety of benefits. Its anti-inflammatory, anti-oxidant and anti-cancer effects are documented. Siddha practitioners routinely prescribe this for many diseases, including oral diseases. Survey responders rate MO preparations high in efficacy in treatment of systemic and oral diseases. This particular plant species has not been much researched in treatment of oral diseases, and holds most potential. The antioxidant, anti-inflammatory and antibacterial effects of the *Moringa* sourced flavonoids are well-documented and can be applied to dentistry.<sup>16-18</sup>

The outcomes of various surveys should be extrapolated into clinical use. In future well designed clinical trials should be conducted in this regard. Awareness among dental practitioners and common people on the application of plant remedies for management of oral diseases must be emphasized. Advanced drug delivery systems like nano technology can be applied in phytotherapy which can be an effective alternative in preventive and therapeutic modalities.

## CONCLUSION

Our survey is one of the first in interviewing Siddha practitioners in particular regarding oral diseases, and has provided valuable insights into their practice. Dental pain and dental caries were most seen and treated within a reasonable time frame by the practitioners. The common medicinal plants and their preparations used for treatment by a majority of practitioners are also brought out. More such surveys nationally and abroad should be done for the benefit of the population, which is increasingly interested in traditional medicine for safe and effective management of oral diseases.

**Ethical approval:** The study was approved by the Institutional Ethics Committee of Sri Venkateswara Dental College (SVDC/IRB/12P/28/2019)

**Consent approval:** Informed consent was obtained from the participants of this survey.

**Authorship Contributions:** Conception and design of the work was presented by Shanmugapriya & Sheeja, data collection was executed by Dr.Lakshmikantham & Mr. Ajit Vikram, data analysis and interpretation was carried out by Dr.Raj, Dr.Muruganandam drafted the article and finally the article was critically reviewed by Dr.Shanmugapriya.

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