IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Analysis Of Diagnostic Tool With Standardization Of Vatham, Pitham & Kapham In Siddha Medicines Through Digital Medium – A Review

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Abstract

The Siddha system of medicine, an ancient tradition rooted in the Indian subcontinent, emphasizes a holistic approach to healthcare. Central to Siddha medicine are the principles of Vatham, Pitham, and Kapham, which govern the physiological functions of the human body. These principles, collectively known as Tridoshas, reflect the elemental composition of an individual and their susceptibility to disease. In recent years, there has been a growing interest in integrating digital technologies into traditional medical practices to enhance diagnostic accuracy and treatment efficacy. This review explores the development and analysis of diagnostic tools aimed at standardizing the assessment of Vatham, Pitham, and Kapham within Siddha medicine using digital mediums. By examining current research and advancements in digital diagnostics, this review evaluates the potential of these tools to provide objective measurements of Tridosha imbalances, thereby facilitating personalized and effective therapeutic interventions.

Keywords. Siddha diagnostic tools, Vatham, Pitham, Kapham, Digital mediums.

Siddha medicine, an ancient system of healing that originated in South India, is considered one of the oldest systems of medicine in India. The term "Siddha" means established truth, and it is believed that Siddha medicine came to South India when the Dravidian people, potentially the original inhabitants of the Indus Valley, migrated southward [1]. The Siddha system is based on a combination of ancient medicinal practices, spiritual disciplines, alchemy, and mysticism [1]. The Siddhars, the individuals associated with establishing the Siddha school of thought, recorded their mystical findings in medicine, yoga, and astrology in Tamil [2][3]. Siddha medicine is known for its safe and effective treatments for various common and rare diseases, such as psoriasis, eczema, diabetes, warts, and vitiligo [2]. The diagnosis, etiology, treatment, and prognosis in Siddha medicine are based on the Eight Methods of Examination [2]. The principles of Siddha

medicine are rooted in the theories of Five Elements (Ayempootham/panchapootham) and Three Forces/Faults (Mukkuttram), which form the basis for understanding health and disease [3]. Lifestyle modifications, including diet, are considered essential in Siddha medicine, emphasizing the importance of living in harmony with nature and following a set of rules known as pathiyam and apathiyam [4]. Siddha medicine also emphasizes the combined use of plants and minerals for treatment, distinguishing it from other traditional systems such as Ayurveda [1]. Overall, Siddha medicine holds a significant place in Tamil culture and has a long history dating back to the earliest Tamil writings [1].

1. Traditional diagnostic tools in Siddha medicine

The traditional diagnostic tools used in Siddha medicine are unique and specific to this ancient system of medicine. One such diagnostic tool is the Manikkadai nool, which is a thread used to measure the circumference of the wrist [5]. The Agasthiyar Soodamani Kajiru Soothiram, written by Saint Veadammamuni in the Pathinen Siddhar Naadi Nool, explains the use of Manikkadai nool as a diagnostic tool [5]. This method involves measuring the circumference of the wrist using a thread, and then dividing the measured circumference by the patient's finger to determine the diagnosis [5]. The measurement obtained through Manikkadai nool can provide valuable information about the patient's health and prognosis. For example, a measurement falling in the range of 10-10.75 finger breadths is associated with a higher predilection for cardiac diseases and uterine fibroids [5]. On the other hand, a measurement of 11 finger breadths indicates a stout person with a healthy life expectancy [5]. In contrast, a measurement between 4 to 6 finger breadths suggests a bad prognosis and high severity of illness, potentially leading to death [5]. These traditional diagnostic tools used in Siddha medicine play a crucial role in identifying diseases and their causes. They provide valuable insights into the patient's health status and help in determining appropriate treatment strategies. The use of such unique diagnostic methods showcases the rich heritage and extensive knowledge of Siddha medicine [5].

2. Importance of standardization in Siddha medicine diagnostic tools

Standardization plays a crucial role in Siddha medicine diagnostic tools, as it ensures consistent and reliable results in diagnosing diseases and evaluating treatment effectiveness. Having internationally accepted common terms in Siddha medicine allows for the comparison, assessment, and evaluation of data on a global scale, facilitating international cooperation in research, information exchange, standards, and classifications in Siddha medicine [6]. Standard terminology not only helps in the development of other standards, guidelines, classifications, and regulations but also supports effective communication, healthcare services, and maintenance of medical records in Siddha medicine [6]. Moreover, standardized diagnostic tools contribute to the reliability and accuracy of treatment with Siddha Sasthric Medicines (SSM) by aiding in the identification of derangements in the three humors (Vali, Azhal, and Aiyam) that lead to the development of diseases [7]. The diagnostic tools used in Siddha medicine are part of an eight-fold

examination process known as "Envagai thervu," which includes assessments such as tongue examination, pulse diagnosis, and examination of stool and urine [7]. Various assessment tools, such as Uyir Thathukkal Assessment and Udal Thathukkal Assessment, are employed over multiple days to ensure comprehensive evaluation, while the Siddha YI Tool is used specifically for immune assessment on the first day [7]. By standardizing these diagnostic tools and methods, Siddha medicine can achieve consistent and reliable results in disease diagnosis and treatment evaluation [7]. However, it is important to note that further research is needed to improve the reliability of diagnostic methods in Siddha medicine, similar to Ayurveda, which has faced challenges due to the lack of a systematic objective methodology and precise operational definition in diagnostic methods [8]. Future studies should focus on establishing an objective methodology and ensuring proper training to enhance the reliability of Siddha medicine diagnostic tools [8].

3. Analysis of Vatham, Pitham, and Kapham in Siddha Medicines

Siddha medicine, an ancient traditional system of medicine in South India, recognizes three vital humors known as Vatham, Pitham, and Kapham, which are considered essential for understanding the human body and its well-being [9]. These three humors play a significant role in the physiology and pathological aspects of the vital humors theory in Siddha medicine [10]. Vatham, associated with the element of air, is believed to be predominant in childhood and responsible for the kinetic aspects of the body [9][10]. Pitham, associated with the element of fire, is believed to be predominant in adulthood and responsible for the metabolic aspects of the body [9][10]. Kapham, associated with the elements of earth and water, is believed to be predominant in old age and responsible for the lubricating aspects of the body [9][10]. The primary goal of treatment in Siddha medicine is to restore the balance of these three humors in order to maintain health and prevent diseases [11]. Vatham diseases are the most common diseases treated in Siddha hospitals, and purgation therapy, known as Bhedhi, is the primary treatment for Vatham diseases [11]. It is worth noting that Siddha medicine differs from Ayurveda in terms of the predominance of doshas at each stage of life. While Ayurveda believes in the opposite predominance of doshas, Siddha medicine associates Vatham with childhood, Pitham with adulthood, and Kapham with old age [9]. These terms and concepts have been passed down through generations, with Agasthya being one of the 18 Siddhars who received knowledge from Lord Muruga and Goddess Parvathy [9]. Overall, Vatham, Pitham, and Kapham are vital humors in Siddha medicine that are essential for understanding human health and well-being.

In traditional medicine practices such as Ayurveda and East Asian medicine, the diagnosis and assessment of doshas, or imbalances, rely on various methods, including pulse diagnosis. Pulse diagnosis is a commonly used technique in traditional East Asian medicine to assess and diagnose doshas [12]. However, the reliability of pulse diagnosis alone has been a topic of debate. Some studies have found poor reliability when using pulse assessment alone to diagnose doshas, but improved reliability when multiple diagnostic factors are considered [12]. In Ayurveda, vata, pitta, and kapha are the main diagnostic variables used to

assess doshas, and the examiner observes different pulse attributes to draw a comprehensive picture of the patient's health [12]. The efficacy of pulse diagnostic procedures heavily relies on the proficiency of the practitioners, including their skills and experience [12]. Additionally, the diagnoses of body constitution and pulse are based on mean distance measures and weighted kappa values, indicating agreement in body constitution classification and pulse diagnosis [12]. The diagnostic classification of body constitutions in Ayurveda is useful for tailoring individualized treatment and lifestyle recommendations based on an individual's unique prakriti or body constitution [12]. Pulse diagnosis serves as a confirmatory method to identify any alterations in the three doshas [9]. Overall, pulse diagnosis plays a significant role in the traditional diagnosis and assessment of doshas, but further research is needed to establish its reliability and effectiveness in different contexts and populations.

4. Challenges in diagnosing and assessing Vatham, Pitham, and Kapham.

Diagnosing and assessing Vatham, Pitham, and Kapham pose significant challenges in Siddha Medicine. One of the primary challenges is the lack of a validated tool for accurate diagnosis and assessment [10]. Without such a tool, it becomes difficult to determine the vitiation of these vital humors and their impact on an individual's health. However, it is crucial to assess Vatham, Pitham, and Kapham on traditional lines using a validated tool to ensure accurate diagnosis [10]. Each of these humors plays a role in the development and progression of various diseases. For example, the vitiation of Vatham, also known as Vali, can be observed through symptoms such as hyperpigmentation of the skin, hyperreactivity to stress, or extreme fatigability [10]. Vali or Vatham humor is also responsible for causing indigestion [13]. On the other hand, the derangement of Pitham can lead to conditions such as vomiting, while Kapham's involvement with Vatham can result in hiccup [13]. Understanding the role of these humors is crucial for diagnosing and assessing diseases. Furthermore, Siddhar Theraiyar emphasizes that imbalances in the doshas can lead to illness and disease [14]. Therefore, a comprehensive assessment of Vatham, Pitham, and Kapham is necessary to determine an individual's constitution and address any imbalances or vitiation that may be present [14][13].

5. Digital Medium for Standardization of Siddha Medicine Diagnostic Tools

Standardizing the assessment of Vatham, Pitham, and Kapham in Siddha medicine is crucial for accurate diagnosis and effective treatment. Digital technology can play a significant role in achieving this standardization. By digitizing Siddha pulse diagnosis, practitioners can obtain more precise findings and enhance the accuracy of their assessments [15]. Additionally, standardizing the drugs used in Siddha medicine is essential as the efficacy of medicines depends on their genuineness. This necessitates the development of methodologies for standardizing these drugs [16]. Furthermore, observational studies can be conducted to standardize Siddha diagnostic tools, such as those used for assessing Kumbavatham (Periarthritis), including the line of treatment and dietary recommendations [17]. The importance and value

of standardization are recognized by regulatory bodies like the Drug and Cosmetics Act and the Indian Council of Medical Research (ICMR) guidelines, which emphasize the need for standardized practices in Siddha medicine [18]. The documentation and quantitative analysis of local knowledge on medicinal plants can also contribute to standardization efforts in Siddha medicine [19]. Overall, leveraging digital technology can provide a platform for standardized assessments in Siddha medicine, ensuring accurate diagnosis and effective treatment.

6. Advantages of using digital tools for diagnosis in Siddha medicine.

In the field of Siddha medicine, the use of digital tools for diagnosis offers several advantages. One such advantage is the critical standardization of Ayurvedic formulations before their marketing. Digital tools allow for the improvement of personalized medicine through the integration of modern technology, enhancing the efficiency and accuracy of diagnoses and treatments.Additionally, the customization and localization of software can be achieved through pilot studies, as demonstrated in the Central Himalayas, where a baseline survey and extensive interviews were conducted to adapt the software to the specific needs of the region.The development and validation of diagnostic tools based on the Ayurvedic classical textbooks also contribute to the standardization of clinical approaches in Siddha medicine.These diagnostic tools have gained significant traction among transnational health foundations and state governments, indicating their effectiveness and potential for widespread use.Furthermore, the integration of various digital tools, such as clinical decision support systems, dose calculation software, prakriti assessment software, and patient data management software, into a complete package enhances the overall diagnostic capabilities in Siddha medicine.Standardization studies have also been conducted on specific Siddha diagnostic tools, such as Kumbavatham (Periarthritis), which provide valuable insights into the line of treatment and dietary considerations.In summary, the use of digital tools in Siddha medicine offers numerous advantages, including standardization, customization, and enhanced diagnostic capabilities, ultimately leading to improved patient care and outcomes.

7. Examples of digital tools used for diagnosing Vatham, Pitham, and Kapham.

In Ayurveda, the diagnosis and treatment of diseases are based on the principles of Vatham, Pitham, and Kapham, which are the three doshas or biological energies believed to govern the functioning of the body. To aid in the diagnosis of these doshas, various digital tools have been developed. Diagnostic tools are commonly used in Ayurveda for predicting, diagnosing, or grading specific disorders mentioned in classical textbooks [20]. These tools can help classify diseases based on parameters such as dosha predominance or stage of the disease, or therapeutic indicators like dosha and dhatu, srotas, Prakriti, Agni, etc. [20]. Ayurvedic literature itself contains signs and symptoms that can indicate a good or bad prognosis, which can be used to predict therapeutic outcomes [20]. Additionally, monitoring or evaluation tools can be used to assess the response to treatment. In some cases, a separate tool might be necessary for this purpose [20].

These digital tools provide a systematic and standardized approach to diagnosing and treating diseases based on the principles of Ayurveda, allowing practitioners to provide personalized and effective care to their patients.

8. Benefits and Limitations of Standardizing Siddha Medicine Diagnostic Tools through Digital Medium

Standardizing diagnostic tools through digital mediums in Siddha medicine holds several potential benefits. One of the key advantages is the ability to utilize modern techniques for physicochemical analysis of complex materials like Bhasma medicines. This can greatly aid in the standardization of Bhasma medicines, ensuring consistency and quality in their composition and effectiveness [21]. Additionally, the use of internationally accepted common terms in Siddha medicine can facilitate the comparison, assessment, and evaluation of data on a global scale. This can enable researchers and practitioners to share knowledge and findings more effectively, ultimately leading to advancements in Siddha medicine as a whole [6]. Furthermore, the integration of digital tools can enhance the holistic approach of Siddha medicine by providing a comprehensive and systematic approach to diagnosis and healing. This aligns with the fundamental principles of Ayurveda, which emphasize the interconnectedness of body, mind, and spirit in achieving overall well-being [22]. Lastly, the automation of diagnostic processes through digital mediums can offer significant advantages over manual methods, particularly in projects that require high-throughput and reproducible results within short time frames. This can improve efficiency and accuracy in diagnosing and treating patients, leading to better outcomes and patient care [23]. Overall, standardizing diagnostic tools through digital mediums has the potential to revolutionize Siddha medicine by enhancing standardization, global collaboration, holistic approaches, and efficiency in diagnosis and treatment.

9. Limitations in implementing digital standardization in Siddha medicine

Implementing digital standardization in Siddha medicine faces several limitations and challenges. One of the key challenges is the critical standardization of Ayurvedic formulations before their marketing [21]. This is crucial to ensure the safety and efficacy of the medicinal products. Additionally, the use of Internet of Things (IoT) technology is rapidly increasing in healthcare development and smart healthcare systems [24]. While this technology can offer benefits such as fitness programs, monitoring, and data analysis, its integration into Siddha medicine may require careful planning and adaptation. Another challenge lies in the revival, modernization, and integration of traditional herbal medicine in clinical practice [25]. This process involves addressing the importance of traditional medicine, overcoming challenges, and shaping the future of Siddha medicine. Moreover, quality assessment techniques are essential in ensuring the reliability and effectiveness of Siddha medicine [26]. Academicians and practitioners face different challenges in this regard and must find common ground to establish standardized practices. Furthermore, developing and validating diagnostic tools for diseases mentioned in the Ayurvedic classical textbooks can contribute to

standardizing clinical approaches in Siddha medicine [27]. This process requires extensive research and collaboration between traditional knowledge and modern scientific methods. Lastly, it is important to be aware of the limitations in implementing digital standardization in Siddha medicine, as this can lead to more effective matching of automation solutions with laboratory problems and increase trust in the system [23]. By addressing these limitations and challenges, the implementation of digital standardization can enhance the practice and accessibility of Siddha medicine.

10. Conclusion

To further advance the field of Siddha, several key areas of focus and recommendations for future research have been identified. Firstly, there is a need for fundamental research in Siddha physiology, pathology, pharmacology, and pharmaceuticals in order to enhance our understanding of the underlying principles and mechanisms of siddha medicine [21]. Additionally, the study of the full spectrum of the Srotas, which are channels responsible for the transport of various substances in the body, can provide valuable insights into the structural and functional biology of Siddha [21]. Collaborative research involving multiple disciplines is also recommended to explore the interdisciplinary nature of Siddha and foster innovation in integrative medicine [21]. Moreover, the incorporation of basic sciences such as Physics, Chemistry, Molecular Biology, and Biotechnology can contribute to a more comprehensive understanding of Siddha and its applications [21]. Furthermore, policies should be developed in the healthcare system to support the growth and development of Siddha, similar to the approach taken by China in promoting traditional medicine through government hospitals [21]. It is also important to promote science-based approaches in the education of Siddha and establish widely applicable standards through diverse and accurate research findings [21][28]. By focusing on these recommendations and conducting further research in these areas, Siddha medicine can continue to evolve and contribute to the healthcare system with evidence-based practices and improved patient outcomes.

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