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Siddha KAP in rural Nanjanadu, Nilgiris, India: A cross-sectional study

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Abstract:

Underutilization of Siddha services within primary healthcare persists in Tamil Nadu, India even as childbirth, postpartum and other traditional practices remain informally maintained in rural communities. A knowledge, attitude, practice study in Nanjanadu, Nilgiris district of Tamilnadu identified high awareness of Siddha medicine but low knowledge of (Public health center) PHC-based Siddha services and poor participation in outreach camps. Despite this, community members continued to depend on traditional bone-setters for fractures and resorted to Siddha remedies during epidemic or outbreak situations. These patterns suggest a clear mismatch between community trust in Siddha and its organized delivery through government health facilities, resulting in missed opportunities for systematic, equitable access to care. Thus, data shows that improving PHC integration, targeted outreach, media-based awareness and standardized practice guidelines are critical to convert cultural acceptance of Siddha into accessible, regulated services for rural populations.

Keywords: Siddha medicine, personalised medicine, knowledge, attitude, practice (KAP) survey, Nanjanadu, Tamil Nadu policy

Background:

Traditional systems of medicine play a central role in maintaining health across rural India [1], where access to modern healthcare services is often limited or inconsistent [2]. The Siddha system, among the world's oldest comprehensive indigenous medical traditions rooted in Tamil culture [3], emphasizes personalized therapy [4]. Based on the principles of balancing the three humors - *Vali/Vatham* (air), *Azhal/Pitham* (fire) and *Iyyam/Kabam* (water) [5], Siddha medicine employs herbs, metals, minerals, diet and lifestyle modifications to treat illness and promote well-being [6]. The system also gives major importance to *pathiyam* and *apathiyam*, meaning appropriate dietary and lifestyle regulation during illness and treatment [7]. This makes Siddha not only a therapeutic system but also a framework for daily health behaviour and community wellness [8]. Although the Ministry of AYUSH officially recognizes Siddha medicine, numerous household remedies in rural communities remain undocumented and excluded from formal Siddha literature [9]. These remedies, often transmitted orally through generations, are widely used for common ailments such as fever, cough, indigestion, skin conditions and minor injuries [10]. These practices, akin to classical Siddha formulations yet ambiguously deemed "recognized Siddha practices," span the gap between communal usage and the formal system, leaving vital cultural traditions unacknowledged [11]. Knowledge, attitude and practice (KAP) studies are useful in Siddha because many Siddha recommendations depend on how well patients and practitioners understand and apply them in real life [12]. KAP surveys help identify whether people know the principles of Siddha, believe in them and actually follow them in practice [13]. In the culturally rich rural Nanjanadu region of Nilgiris district, families rely on inherited household remedies for daily health needs, sustained by limited healthcare access and entrenched ancestral traditions [14]. The need for KAP assessment in rural Nanjanadu, Nilgiris is therefore timely because community health decisions are strongly shaped by

local beliefs and access to culturally acceptable care. [15]. However, scholarly efforts to systematically document these remedies, compare them with classical Siddha formulations and evaluate their recognition within the Siddha system remain scarce. [16]. Moreover, community awareness of alignment between household practices and formal Siddha principles varies by socio-demographic factors [17]. This survey is not only academically relevant but also useful for planning, health education and policy development in the state [18]. Therefore, it is of interest to preserve these traditions and inform strategies for incorporating them into official healthcare systems.

Materials and Methods:

The study adopts a cross-sectional descriptive design aimed at exploring and documenting unrecognized Siddha household remedies practiced among the rural population of Nanjanadu village in the Nilgiris district. This design is appropriate for obtaining data, allowing for the assessment of both the prevalence of these home remedies and the level of awareness regarding their Siddha origins. The descriptive approach will help capture the socio-cultural context of these practices and facilitate comparison between traditional knowledge and classical Siddha formulations.

Study area and population:

The research was conducted in Nanjanadu, located approximately 13 km from Udthagamandalam (Ooty) in the Nilgiris district of Tamil Nadu. The village, predominantly inhabited by the Badaga tribal community, has a population of 15,869 according to the 2011 census, with agriculture being the major occupation. The study will focus on adult members of this community, aged 18 years and above, who are permanent residents and possess knowledge or experience related to household remedies for common health issues. This setting provides an ideal context for examining the coexistence of indigenous healing practices with recognized Siddha medicine.

Sample size and sampling technique:

A total of 300 participants were included in the study, representing both genders and various occupational and educational backgrounds. A stratified random sampling method was employed to select participants proportionally from different groups based on gender, age and educational level. This approach minimizes selection bias and ensures that various subgroups within the community are adequately represented. The sample size is considered sufficient to identify meaningful associations between socio-demographic factors and the level of awareness regarding Siddha practices.

Inclusion and exclusion criteria:

The study includes adults aged 18 years and above who are permanent residents of Nanjanadu. Individuals who are unwilling to provide informed consent were excluded. These criteria ensure that only relevant and reliable participants contribute to the findings.

Data collection tools and techniques:

Data collection was conducted through field visits. The investigator began from the residence of the village head and then started covering other houses. After obtaining informed consent, participants were interviewed using a structured questionnaire designed by the investigator. The questionnaire included both closed-ended and open-ended questions covering demographic details, knowledge, attitude, practice (KAP) towards Siddha Medicine and the household remedies followed for common ailments. Each participant's responses were recorded accurately by the investigator. Additionally, field notes were taken to document specific home remedies, ingredients, preparation methods and their cultural context. These recorded remedies were later compared with classical Siddha texts such as *Theraiyar Yemaga Venba* and *Agasthiyar Gunapadam* to identify overlaps and unrecognized Siddha practices.

Ethical considerations:

Ethical clearance for the study was obtained from the Institutional Ethics Committee (NIS/23/IEC/2022/MP/24) prior to data collection. Written informed consent was obtained from all participants after explaining the purpose and procedures of the study. Participation was entirely voluntary and respondents have the right to withdraw at any time without consequence. Confidentiality was strictly maintained and all data was used solely for research purposes.

Data analysis:

The quantitative data collected through the structured questionnaire was systematically entered into Microsoft Excel and further analyzed using SPSS statistical software. Descriptive statistics, including frequencies and percentages, were employed to summarize socio-demographic variables such as age, gender, educational qualification and occupation, as well as awareness-related variables including knowledge of Siddha medicine, recognition of traditional home remedies, awareness of Siddha

wings in Primary Health Centres (PHCs) or Government Hospitals (GHs) and familiarity with professional Siddha courses. Graphs and tables were generated to present the distribution of responses and to provide a clear visual representation of the findings. Cross-tabulation was performed to explore associations between socio-demographic characteristics and awareness of Siddha practices. The Chi-square test of association was used to determine the statistical significance of relationships between categorical variables such as age group, gender, education level and occupation with awareness outcomes, including knowledge of Siddha medicine, recognition of household remedies as part of Siddha practice and awareness of Siddha wings in healthcare institutions. In addition, binary logistic regression models were developed to identify the predictors of Siddha awareness among the study participants. In these models, variables such as awareness about Siddha wing in PHC/GH (Yes/No) served as dependent variables, while independent variables included age, gender, education, occupation and sources of knowledge such as media, relatives and government initiatives. Odds ratios (OR) with 95% confidence intervals (CI) were calculated to identify statistically significant predictors and the strength of their association with awareness levels. In addition to quantitative assessment, qualitative data obtained from open-ended responses and field notes on household remedies were analyzed using thematic analysis. All recorded remedies were compiled, reviewed and categorized according to the type of ailment. Each documented home remedy was cross-referenced with classical Siddha texts including *Agasthiyar Gunapadam*, *Theraiyar Yemaga Venba* and the Central Council for Research in Siddha (CCRS) Siddha Pharmacopeia to assess their authenticity and alignment with established Siddha principles. Remedies that matched classical formulations were classified as recognized Siddha-based practices, while those that exhibited partial resemblance were identified as folk or ancestral adaptations of Siddha knowledge. Practices with no reference in Siddha literature were categorized as unique undocumented community-based practices. Finally, the analyzed data were interpreted within the socio-cultural context of the Nanjanadu Badaga community, emphasizing generational knowledge transfer, local healthcare practices and the awareness gap between traditional usage and formal recognition within the Siddha medical system. The combined quantitative and qualitative analyses thus provided a comprehensive understanding of both the prevalence and perception of Siddha-related practices among the rural population.

Theme 1: Remedies for respiratory ailments:

Communities used simple herbal fixes for coughs and fevers: decoctions of ginger (*Inji / Zingiber officinale*), garlic (*Poondur / Allium sativum*), pepper (*Milagu / Piper nigrum*) and cumin (*Seeragam / Cuminum cyminum*); turmeric-pepper milk; lady's finger (*Vendai / Abelmoschus esculentus*) or camphor (*Karpooram*) steam; or betel leaves (*Vettrilai / Piper betle*)-camphor-coconut oil chest rubs. Seen as first aid over clinic visits in remote hills, these drew from kitchen gardens. Viewed as

routine, not Siddha, they match Siddha cures for cough (*Irumal*), cold (*Ilaippu*) and fever (*Suram*).

Theme 2: Infant health and immune boosting rituals:

Unique infant care practices passed down generations, blending traditional paediatric wisdom. For babies over 45 days, a ghee-fried mix of Sweet flag (*vasambu* / *Acorus calamus*), kalnaar (*Badaga* herb), nutmeg (*jathikkai* / *Myristica fragrans*), gallnut (*masikkai* / *Quercus infectoria*), long pepper (*thippili* / *Piper longum*), mullikkai (*Badaga* herb), musk (*kasturi*), dry ginger (*chukku* / *Zingiber officinale*) and fresh ginger (*inji* / *Zingiber officinale*) with salt was blended lightly with breast milk and given on the tongue every 8 days until age 1. *Thippili* decoction was also common from month 5. Grandmothers guarded these as protective rituals for body and spirit, not just medicine. They echo adapted Siddha tonics like *Urai Mathirai*, *Thippili Rasayanam* and *Vasambu Legiyam* for boosting infant immunity and digestion.

Theme 3: Remedies for reproductive and postpartum health

Women shared targeted remedies for reproductive issues like retained placenta and labour induction. Little Millet porridge (*Sama Kanji*, *Panicum sumatrense*) with ghee and palm jaggery helped expel retained placenta; Curry leaf stalk (*Kariveppilai Eerku*, *Murraya koenigii*), ghee and cumin (*seeragam*, *Cuminum cyminum*) decoction eased labour pains. These highlight women's self-reliance using home ingredients for birth events. They mirror simplified Siddha treatments for *Moolai valippu* and *Soolai noi* (labor disorders).

Theme 4: Herbal interventions for physical ailments

For musculoskeletal problems like swelling, bruises and fractures, common topicals included tamarind (*Puli* / *Tamarindus indica*) leaves with fenugreek (*Vendhayam* / *Trigonella foenum-graecum*); lime-honey-sugar mixes; and *Morundha* (*Badaga* herb) leaf paste warmed in sesame (gingelly) oil, rubbed on affected spots. Salt-soaked rice water, heated as a compress (*ottradam*), soothed pain and swelling. These draw from easy-access plants, aligning with local views of *Vatham* (*Vali*) imbalance causing pain per Siddha principles. *Morundha* and *Puliyaarai* leaves echo classical Siddha topicals for *Thol Noi* (skin/muscle disorders).

Theme 5: Psychosomatic and ritual remedies

For psychosomatic issues like anxiety, trauma-induced palpitations and fear (*Thodam*), locals used *Kurali* (*Badaga* herb) leaf juice with a hot iron knife dipped in before drinking to soothe nerves. Another internal mix: wood sorrel (*Puliyaarai* / *Oxalis corniculata*) leaves, jaggery, salt, cumin, small onions and cow dung for mental unrest. These blend ritual, symbolism and herbs for healing. Lacking direct Siddha texts, they fit its mind-body harmony and hot-cold balance for emotional calm.

Theme 6: Testing herbs and prognostic beliefs

Unique remedies doubled as diagnostics/prognostics. *Gymnema* (*Siru Kurinjan* / *Gymnema sylvestre*) leaf juice tested

terminal patients' vitality: tolerance without indigestion signalled recovery; rejection foretold death. Black nightshade (*Manathakkali* / *Solanum nigrum*) leaf juice on day-9 infants gauged survival odds. These fuse observation, culture and ritual—gauging health/fate via body response, not labs. Sacred oral traditions passed by elder women.

Comparison with codified Siddha formulations:

Local remedies often matched Siddha texts: cold/cough/fever cures echoed *Inji chooranam* and *Milagu rasayanam*; infant boosters resembled *Urai Mathirai* and *Vasambu legiyam*. Unique ones—like hot iron knives or prognostic herbs lacked direct equivalents, akin to folk "*Surasam*". This shows a seamless blend of formal Siddha and community tweaks as accessible adaptations. Qualitative insights reveal thriving unrecognized Siddha in *Nanjanadu* from infant prevention and ailment care to reproductive aid, psychosomatic relief and ritual diagnostics. Rooted in Siddha theory yet orally transmitted (mostly matrilineally) and undocumented, they're seen as *naattu marundhu* (village meds) or *paati vaithiyam* (granny cures), not Siddha. Younger, educated folks knew less, favouring clinics and fearing dosage errors. Custodians: women over 50, homemakers, low-education—highlighting age, gender, education and job as key influencers.

Results:

A total of 300 individuals representing households from Nanjanadu village, Nilgiris district, participated in the survey. The results were organized in terms of frequency and percentage distributions to illustrate the socio-demographic characteristics and levels of knowledge, attitude and practice (KAP) toward the Siddha system of medicine. The Nanjanadu community continues to preserve Siddha-based household remedies passed down through generations, supporting both preventive and curative care in line with the *Vatham-Pitham-Kabam* framework [19]. Participants ranged in age from 18 to 80 years, with a mean age of approximately 41.7 ± 13.6 years. Participants were grouped into four age categories: 16.3% (25) were between 18 and 30 years, 29.7% (94) between 31 and 45 years, 28.0% (99) between 46 and 60 years and 26.0% (82) were 61 years or older. The largest age group was 31–45 years, suggesting a sample predominantly composed of adults, with a relatively balanced representation of younger and middle-aged individuals. Among the 300 respondents, 43.6% were males and 56.4% were females as summarized in **Table 1** and **Figure 1**, reflecting more female participants than males. The predominant occupation group was homemakers (38.6%), followed by farmers (26.3%), while others were engaged in government services (9.7%), daily wage labor (7.7%) and miscellaneous jobs (9.7%). Smaller proportions (8%) were unemployed as on **Figure 2** (represented in participant frequencies, not as percentages). These findings indicate that the population surveyed primarily consisted of households involved in domestic activities. A significant 75% of respondents were aware of the Siddha system of medicine, while 25% were unaware of it. Among those aware, the major source of information was television (37.3%), highlighting the importance

of media in health communication. Other sources included relatives (25%), government campaigns (3.6%), social media (4%), YouTube (1.3%), newspapers (0.6%) and friends (3%). In terms of origin, 61% recognized Tamil Nadu as the birthplace of the Siddha system, affirming its cultural association with the state. However, 12.3% were unsure and 1.7% said the origin to other regions, reflecting partial knowledge gaps as on **Table 2**. When asked about immediate measures taken during illness, 72% of participants preferred hospitals, while 28% relied on home remedies, demonstrating co-existence of traditional and modern medical practices. Despite a strong cultural background, only 4.7% reported the presence of a traditional *Vaidyar* (traditional practitioner) in their locality and just 2.7% had received treatment from such practitioners. For specific conditions such as fractures, a notable 89% of respondents preferred traditional bone setters who were 60 kms away, while 11% opted for hospital treatment, suggesting a continuing belief in indigenous orthopedic methods and created a demand for Siddha orthopedic unit. During disease outbreaks such as COVID-19 or dengue, a striking 97.7% of participants reported consuming Siddha medicines without knowing it as Siddha, often provided through government channels, indicating a high level of trust during public health crises as given in **Table 3**. **Table 4** summarizes 82.3% were aware of nearby Government Hospitals (GH) or Primary Health Centres (PHCs). However, only 34.7% knew about the presence of a Siddha wing within these institutions, while 64.3% were unaware, indicating a need for improved visibility of Siddha services. Merely 10% had received treatment in Siddha wings of PHCs, whereas 24.7% had not and the remaining 65.3% did not respond or were unaware. Among the reasons for not availing Siddha services, 21% cited unawareness, 1% mentioned fear and 6.3% stated situational constraints. This shows that lack of awareness remains the key barrier rather than mistrust in the system. The analysis revealed a generally low level of awareness and accessibility regarding Siddha infrastructure among the surveyed population. Although a few respondents had some knowledge of nearby Siddha facilities, the overall utilization remained poor. About 21% of participants cited unawareness as the primary reason for not availing Siddha medicines, while a small proportion (1%) reported fear of treatment and 6.3% mentioned the lack of opportunity or necessity. Nearly 39.3% of respondents were aware of a Siddha clinic in their vicinity, whereas 34% were unsure and 26.6% reported that no such clinic existed nearby as provided in **Table 5**. Chi-square analysis revealed significant associations between socio-demographic factors and both awareness variables as on **Table 7**. Age was found to have a strong influence on awareness levels. Older respondents were significantly more likely to know about Siddha medicine and the existence of Siddha wings compared to younger participants. The association between age and knowledge of the Siddha system ($\chi^2 = 11.67$, $p = 0.0086$) and between age and awareness of Siddha wings ($\chi^2 = 12.83$, $p = 0.005$) indicates that traditional health practices are better known among the elderly, possibly due to cultural continuity and experience with indigenous systems over time. Younger participants, particularly those

below 30 years of age, showed the lowest level of awareness, emphasizing a generational gap in traditional medicine knowledge. Gender also showed a significant association with awareness of Siddha wings ($\chi^2 = 31.87$, $p < 0.001$), with female respondents reporting greater awareness compared to males. This pattern may reflect women's higher engagement in community health activities or their frequent interactions with PHC services, which might increase their exposure to Siddha facilities. However, no significant difference between males and females was observed regarding general knowledge of the Siddha system itself. Education emerged as a strong determinant of awareness. Participants with higher education had significantly greater knowledge about both Siddha medicine ($\chi^2 = 47.38$, $p < 0.001$) and Siddha wings in PHCs or GHs ($\chi^2 = 54.43$, $p < 0.001$). Nevertheless, awareness was also appreciable among individuals with secondary-level education, indicating that Siddha knowledge is not limited to the highly educated, but is also culturally embedded among moderately educated groups. Occupation, on the other hand, did not show a significant relationship with awareness, suggesting that Siddha familiarity cuts across occupational categories such as homemakers, farmers and daily wage workers. The source of information played a crucial role in shaping awareness levels. Respondents who reported learning about Siddha through television, relatives, or government programs were significantly more likely to have knowledge of both the Siddha system and its institutional wings. The association was highly significant for both outcomes ($\chi^2 = 251.54$, $p < 0.001$ for knowledge of Siddha system and $\chi^2 = 40.73$, $p < 0.001$ for awareness of Siddha wings). This highlights the strong impact of mass media and interpersonal communication in spreading information about traditional medicine. Binary logistic regression analysis was conducted to identify predictors of Siddha awareness after adjusting for other variables as given in **Table 8** and **Table 9**. In the model assessing knowledge of the Siddha system, age and education remained significant predictors. Participants below 30 years of age had markedly lower odds of awareness (OR = 0.026, 95% CI: 0.003–0.242, $p = 0.001$) compared to older individuals. Similarly, respondents with only secondary education (OR = 0.161, 95% CI: 0.049–0.528, $p = 0.003$) and higher secondary education (OR = 0.242, 95% CI: 0.073–0.798, $p = 0.020$) were significantly less likely to know about Siddha medicine compared to those with higher education. Gender was not a significant predictor in this model. Notably, sources of information such as television, relatives and government awareness programs were positively associated with higher awareness, reinforcing the results of the chi-square test. When asked about known Siddha clinics, 22.7% identified Ooty as the nearest centre, followed by M. Pallada (14.3%) and Ithalaar (2.3%), suggesting that accessibility is largely limited to nearby towns rather than within the village itself. Awareness regarding the availability of Siddha medicines in government health facilities was also minimal—only 8% believed that medicines were sufficient, while 90% were uncertain. Similarly, most participants were unaware of the source locations for Siddha drugs, with just 36% citing Ooty and 16.4% M. Pallada as common supply points. Nearly half of the respondents (46%) did

not know where Siddha medicines could be procured. Furthermore, 47.7% identified Ooty as the site of a known Siddha medical shop, yet 42% had no knowledge of any such outlet. Awareness of outreach activities was notably poor—only 4.7% of respondents had ever heard of a Siddha medical camp being conducted in their area. **Table 6** indicated a mixed attitude and moderate perception of the Siddha system among the participants. While 43% of respondents were aware that Siddha medicine has a recognized professional course (B.S.M.S.), a majority (57%) lacked this knowledge, reflecting the limited dissemination of institutional information about the system. In terms of future orientation, 38.3% of participants expressed willingness to motivate their children to pursue Siddha studies, whereas 61.7% were unwilling. Among those unwilling to suggest Siddha education, 31.4% attributed their hesitation to lack of awareness, while 12% were not interested and 4% cited economic limitations as the main barrier. A smaller percentage (0.3%) mentioned distance to institutions and 14% reported that they did not have children in the relevant age group. In the regression model examining awareness of Siddha wings in PHCs or GHs, similar patterns were observed. Although some estimates showed wide confidence intervals due to small subgroup sizes, the results indicated that female participants, those with higher education and older individuals were more likely to be aware of institutional Siddha services. Exposure to government programs or health campaigns was also positively associated with awareness levels. Overall (**Figure 3**), the findings demonstrate that awareness of the Siddha system is widespread

among the community, but institutional awareness of Siddha wings remains comparatively low. Socio-demographic factors such as age and education, along with exposure to information sources, play a significant role in determining awareness. Younger and less educated individuals exhibited notably lower awareness, indicating a need for targeted interventions to improve understanding of Siddha services among these groups. Television and government-sponsored health programs emerged as effective means of information dissemination, emphasizing their potential for future awareness campaigns. The results collectively suggest that enhancing public awareness through structured educational and media-based initiatives could strengthen the integration and utilization of Siddha medicine within the primary healthcare system. Qualitative exploration revealed that household-based health management remains an integral aspect of the rural lifestyle in Nanjanadu. Approximately 28% of the respondents reported that they rely on home remedies when they fall sick. Among these, 20% primarily used them for minor ailments such as cold, cough and fever, while 4% reported using traditional preparations to boost immunity in infants and another 4% practiced distinct or condition-specific remedies for ailments such as worm infestation, gastritis, anxiety and stroke. These practices, though perceived as ordinary household knowledge, exhibit strong roots in Siddha principles of herbal and holistic healing, albeit without formal recognition or standardization summarized on **Table 10**.

Table 1: Socio-demographic characteristics

Variable	Categories	Frequency (n=300)	Percentage (%)
Gender	Male	131	43.6
	Female	169	56.4
Occupation	Farming	79	26.3
	Homemaker	116	38.6
	Government Sector	29	9.7
	Daily Wage	23	7.7
	Unemployed	24	8.0
	Others	29	9.7

Table 2: Awareness of Siddha

Variable	Response	Frequency (n=300)	Percentage (%)
Knowledge about Siddha System	Yes	225	75.0
	No	75	25.0
Source of Information	Relatives	75	25.0
	Friends	9	3.0
	Television	112	37.3
	Newspaper	2	0.6
	Government Scheme	11	3.6
	Social media	12	4.0
	YouTube	4	1.3
Origin of Siddha System	Skipped	75	25.0
	Tamil Nadu	183	61.0
	Other States	5	1.7
	Unknown	37	12.3
	Skipped	75	25.0

Table 3: Popularity, knowledge and practices

Variable	Response	Frequency (n=300)	Percentage (%)
Measures when sick	Home remedies	84	28.0
	Hospital	216	72.0
Knowledge of Vaidyar in locality	Yes	14	4.7
	No	286	95.3

Treatment from <i>Vaidyar</i>	Yes	8	2.7
	No	6	2.0
	Skipped	286	95.3
Treatment preference for bone fracture	Traditional Bone Setter	267	89.0
	Hospital	33	11.0
Use of Siddha medicines during outbreaks like dengue, COVID-19	Yes	293	97.7
	No	7	2.3

Table 4: Access to healthcare facilities

Variable	Response	Frequency (n=300)	Percentage (%)
Knowledge of GH/PHC	Yes	247	82.3
	No	53	17.6
Knowledge of Siddha Wing in GH/PHC	Known	104	34.7
	Unknown	193	64.3
	No Siddha Wing	3	1.0
Treatment History in Siddha Wing	Yes	30	10.0
	No	74	24.7
	Skipped	196	65.3
Reason for Not taking Siddha Medicine	Unaware	63	21.0
	Fear	3	1.0
	No situation	8	6.3
	Skipped	196	71.6

Table 5: Awareness of Siddha infrastructure

Variable	Response	Frequency (n=300)	Percentage (%)
Knowledge about Nearby Siddha Clinic	Yes	118	39.3
	No	80	26.6
	Not Known	102	34.0
Location of Known Siddha Clinic	Ooty	68	22.7
	M. Pallada	43	14.3
	Ithalaar	7	2.3
	Skipped	182	60.7
Sufficiency of Medicines in GH/PHC	Yes	24	8.0
	No	6	2.0
	Not Known	270	90.0
Source of Siddha Medicines	Ooty	108	36.0
	M. Pallada	49	16.4
	Ithalaar	4	1.3
	Coonoor	1	0.3
	Not Known	138	46.0
Known Siddha Medical Shop Locality	Ooty	143	47.7
	M. Pallada	23	7.7
	Ithalaar	4	1.3
	Mettupalayam	1	0.3
	Coonoor	3	1.0
	Not Known	126	42.0
Knowledge about Medical Camps	Yes	14	4.7
	No	286	95.3

Table 6: Attitude and Perception

Variable	Response	Frequency (n=300)	Percentage (%)
Knowledge about Siddha Professional Course	Yes	129	43.0
	No	171	57.0
Willingness to Motivate Children to Study Siddha	Yes	115	38.3
	No	185	61.7
Reasons for Unwillingness to Suggest B.S.M.S.	not interested	36	12.0
	economic status	12	4.0
	Distance	1	0.3
	Unaware	94	31.4
	No Children at this Age Group	42	14.0
	Skipped	115	38.3

Table 7: Chi-square association between socio-demographic variables and awareness of Siddha practices

Dependent Variable	Predictor	χ^2 Value	p-value	Interpretation
Knowledge of Siddha System	Age	11.67	0.0086	Significant – older participants showed higher awareness.
Knowledge of Siddha System	Education	47.38	<0.001	Highly significant – awareness increased with education level.
Knowledge of Siddha System	Source of Knowing Siddha	251.54	<0.001	Strongly significant – media and relatives major information sources.
Awareness of Siddha Wing in	Age	12.83	0.005	Significant – older respondents were more aware of Siddha wings.

PHC/GH					
Awareness of Siddha Wing in PHC/GH	Gender	31.87	<0.001	Highly significant – females had greater awareness.	
Awareness of Siddha Wing in PHC/GH	Education	54.43	<0.001	Highly significant – education level strongly influenced awareness.	
Awareness of Siddha Wing in PHC/GH	Source of Knowing Siddha	40.73	<0.001	Highly significant – awareness linked with exposure to Siddha info sources.	
Awareness of Siddha Wing in PHC/GH	Occupation	2.24	0.525	Not significant – awareness levels similar across occupational groups.	

Table 8: Logistic regression results for predictors of Siddha awareness - Dependent Variable: Knowledge of Siddha system

Variable	Odds Ratio (OR)	95% CI (Lower)	95% CI (Upper)	p-value	Interpretation
Age < 30 years	0.03	0.00	0.24	0.001	Younger respondents had markedly lower awareness.
Secondary Education	0.16	0.05	0.53	0.003	Lower awareness compared to higher education.
Higher Education	0.24	0.07	0.80	0.020	Moderately lower awareness compared to higher education.
Gender (Female)	–	–	–	NS	No significant association.
Source of Knowing Siddha	>1.0	–	–	<0.05	Exposure to media/relatives/government programs increased awareness.

Table 9: Dependent variable: Awareness of Siddha wing in PHC/GH

Variable	Odds Ratio (OR)	95% CI (Lower)	95% CI (Upper)	p-value	Interpretation
Age (older groups)	>1.0	–	–	<0.05	Older individuals more aware of Siddha wings.
Education (higher)	>1.0	–	–	<0.05	Higher education linked to greater awareness.
Gender (Female)	>1.0	–	–	<0.05	Females more likely to know about Siddha wings.
Source of Knowing Siddha	>1.0	–	–	<0.01	Awareness improved among those exposed to information.

Table 10: Comparison of local household remedies with codified Siddha formulations among the rural community of Nanjanadu

Category	Local Remedy / Practiced	Key Ingredients	Corresponding Codified Siddha Formulations	Level of Recognition Locals	of by	Observations
Cold, Cough, Fever	Decoction of ginger, garlic, black pepper, cumin; Milk with turmeric and pepper; Steaming with camphor leaves or lady's finger; Betel leaf with molten camphor applied to chest	Ginger, garlic, black pepper, cumin, turmeric, camphor, betel leaf	Inji chooranam, Milagu rasayanam, Thalishathi chooranam	Moderate	–	Common household practice, widely accepted and considered effective
Infant Immune Booster	Herbal paste applied on tongue every 8 days; long pepper decoction for 5th-month infants	Sweet flag, nutmeg, gallnut, long pepper, musk, dry and fresh ginger	Urai Mathirai, Vasambu legiyam, Thippili rasayanam	Low	–	Ritualized care for infants; intergenerational female transmission
Worm Infestation	Neem juice with salt heated with iron knife	Neem leaves, salt, iron ritual	Veppilai chooranam, Vidanga chooranam	Low	–	Combines herbal and ritual components; preventive approach
Retention of Placenta / Labor Pain	Little millet porridge with ghee and palm jaggery decoction; curry stalk, ghee, cumin decoction	Rice gruel, ghee, jaggery, curry leaf stalk, cumin	Soothaga chooranam, Soolai nei	Moderate	–	Locally adapted, safe postpartum care
Loose Stools	Rue (<i>Aruvadhā</i> / <i>Ruta graveolens</i>) leaves juice	Rue leaves	Karunthulasi chooranam, Kutaja chooranam (similar)	Low	–	Rarely linked to Siddha, purely local usage
Sleep Disturbance in Infants	Rue seeds and leaves wrist band (<i>kulisam</i>)	Same as above	–	Low	–	Folk adaptation; mother-to-mother practice
Swelling, Contusion, Fracture	Tamarind leaves with fenugreek; <i>Morundha</i> (<i>Badaga herb</i>) leaves paste with gingelly oil; Salted rice water compress	Tamarind, fenugreek, <i>Morundha</i> , gingelly oil	Thol marunthu thailam, Vatha thailam	Moderate	–	Used externally; overlap with Siddha topical applications
Anxiety, Fear, Thodam	<i>Kurali</i> (<i>Badaga herb</i>) leaf juice heated with iron knife; Mixture of wood sorrel leaves, jaggery, salt, cumin, onion, cow dung	<i>Kurali</i> leaves, wood sorrel ritual heating, jaggery	None (no direct equivalent)	Very low	–	Distinct folk-Siddha fusion; symbolic healing
Bleeding Control	Juice of <i>Naadangachi</i> , <i>Kattangidu</i> (<i>Badaga herbs</i>) leaves, paste of turmeric (<i>Curcuma longa</i>) and sweet flag (<i>Acorus calamus</i>)	Local herbs, turmeric, sweet flag	Vasambu chooranam, Manjal chooranam	Moderate	–	Effective topical applications; plant identity uncertain
Hair Growth	Black nightshade leaves paste applied on shaved scalp	Black leaves, nightshade	Kesathailam, thailam (partial similarity)	Low	–	Household aesthetic care
Ulcer, Gastritis	Gotu kola leaves juice with cow/goat milk	Gotu kola (<i>Centella asiatica</i>)	Vallarai chooranam	High	–	Identified by some as “Siddha leaf”; recognized for memory and digestion
Stroke / Hemiplegia	<i>Kalnaar</i> (<i>Badaga herb</i>), neem bark, jamun bark, palm jaggery decoction used for	Local herbs, jaggery	Kadukkai rasayanam, Vatha chooranam	Low	–	External compress; combination of heating and

	<i>ottradam</i>		(partial)			
Testing Herbs / Prognostic Beliefs	Gymnema leaf juice for terminal patients; Black nightshade leaf juice for newborns	Herbal testing	juice, ritual	None (folk diagnostic)	Very low	detoxification Symbolic, ritualistic, non-codified practice

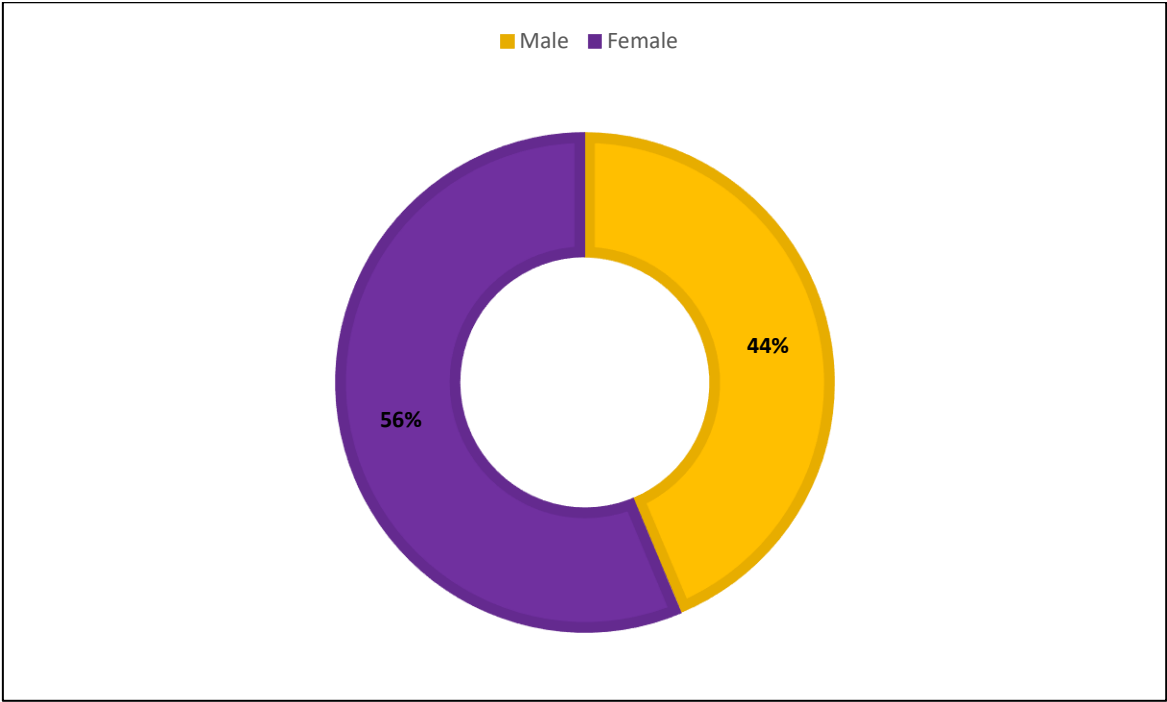


Figure 1: Distribution of gender

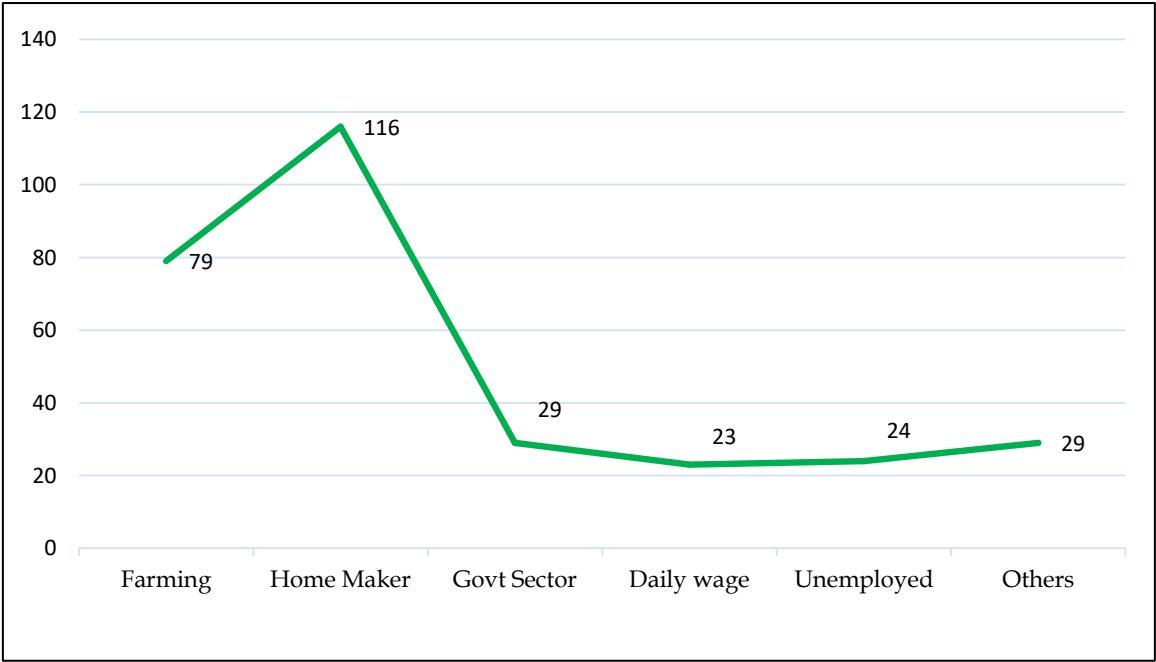


Figure 2: Green line indicates the number of participants in each occupational category

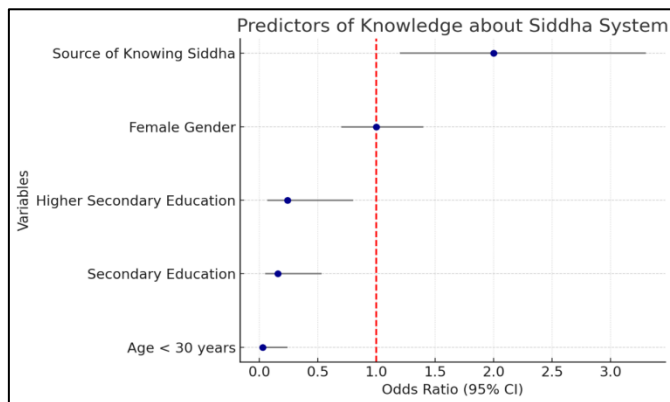


Figure 3: Predictors of knowledge about Siddha system

Discussion:

Table 10 shows that about half of the local remedies align partly or fully with classical Siddha formulations, particularly for digestive, fever and postpartum conditions. The remaining practices such as prognostic tests, ritual-based infant care and anxiety treatments reflect local innovations shaped by cultural beliefs and intergenerational adaptation [20]. States that about 28% of the population relies on home remedies, driven by limited healthcare access, geographic constraints and trust in tradition. These remedies are low-cost, locally sourced and sustainable, consistent with patterns seen across rural Tamil Nadu and the Nilgiris [21]. While fewer than 30% of Indian households use traditional medical systems due to low awareness and perceived need [22], our findings show a clear practice–recognition gap: Siddha-like remedies are widely used but rarely identified as formal Siddha medicine. Awareness is shaped by age, education, gender and information sources, with older individuals retaining more traditional knowledge and media exposure improving awareness. Urban studies show renewed interest in Siddha as complementary care [23–27], but in rural settings, usage exceeds formal recognition. System-level barriers—limited medicines, low clinic awareness and infrequent camps—further restrict uptake [28]. Evidence from [29] studies among indigenous groups such as the Garo community [30, 31] highlight the persistence of rich but under-documented local knowledge, driven by cultural trust and accessibility. Many remedies align with classical Siddha texts like *Theraiyar Yemaga Venba* [32], *Agasthiyar Gunavagadam* [33] and *Siddha Vaithiya Thirattu* [34], particularly for respiratory, digestive and infant care uses, showing strong empirical alignment with codified Siddha principles [35]. However, lack of association with formal Siddha systems calls for targeted awareness efforts through media, PHCs and community programs, along with better integration of Siddha services into primary healthcare [36]. Strengthening outreach and medicine availability could improve recognition and uptake. The strong oral transmission of detailed herbal knowledge underscores its cultural value but also its vulnerability, making systematic documentation essential for preservation, as emphasized in earlier ethnomedicinal studies in Tamil Nadu [11, 37].

Conclusion:

Transform Siddha from a mere reactive solution for outbreaks into a proactive ally in managing general and chronic diseases. Recommendations include leveraging National AYUSH Mission resources (over 650 units in Tamil Nadu) with orthopedic funding, expanding PHC integration across 385+ blocks and conducting outreach events. Standardizing guidelines and intensifying media campaigns targeting youth and less-educated groups to bridge gaps and integrate Siddha into equitable primary care.

Advancement to knowledge:

This study clarifies that high cultural acceptance of Siddha does not automatically translate into utilization of formal PHC Siddha services, highlighting a previously underexplored implementation gap. It contributes empirical KAP evidence from a rural hill community (Nanjanadu, Nilgiris) to show how service-awareness deficits and camp non-participation limit the effectiveness of existing Siddha integration efforts. The findings advance understanding by showing that community reliance on informal providers (such as bone-setters) persists even where Siddha is well accepted, underscoring the need for context-specific integration strategies. The work further suggests that standardized guidelines, structured outreach and tailored media communication are necessary to bridge informal practices with formal Siddha-based primary care.

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