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Original Research Article

Morbidity profile and healthcare utilization among beneficiaries of Swasthya Rakshan programme siddha medical camps in rural area: a retrospective observational study

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ABSTRACT

Background: Community outreach medical camps play an important role in improving access to healthcare services in rural and underserved populations. Siddha medical camps conducted under the Swasthya Rakshan Program aim to extend traditional healthcare services and promote awareness of the Siddha system of medicine. The present study evaluated the beneficiary profile and morbidity pattern of patients attending Siddha medical camps conducted between 2022 and 2025.

Methods: A Retrospective observational study was conducted based on the Siddha medical camps organized by Siddha Medical Plants Garden and Research Centre, Mettur, between December 2022 and March 2025. Basic demographic and clinical data of beneficiaries were recorded during consultation. Patients were categorized based on gender, age group and type of visit (new or follow-up). Disease distribution was analysed system-wise according to Siddha clinical classification. Descriptive statistics and chi-square tests were used to assess differences in demographic characteristics.

Results: A total of 1,405 beneficiaries attended the Siddha medical camps, including 659 (46.9%) new cases and 746 (53.1%) follow-up cases. Of these, 893 (63.6%) were adults and 512 (36.4%) were children. Among adults, females greatly outnumbered males (68.1% vs. 31.9%; χ^2=116.8, p<0.001), while the gender ratio among children was similar. The most common morbidities were musculoskeletal disorders, followed by respiratory, skin and gastrointestinal issues.

Conclusions: Siddha medical camps serve as an effective community outreach strategy for delivering traditional healthcare services. The findings highlight the importance of strengthening such programs to improve accessibility and promote integrative healthcare in rural communities.

Keywords: AYUSH systems, Community health camps, Rural healthcare, Siddha medicine, Traditional medicine

INTRODUCTION

Traditional systems of medicine play an important role in strengthening primary healthcare delivery, particularly in rural and underserved communities. The Siddha system of medicine, one of the ancient traditional medical systems practiced predominantly in South India, offers a holistic approach to managing both acute and chronic diseases through herbal, mineral and lifestyle-based interventions. The system emphasizes preventive care, disease management and restoration of physiological balance based on classical Siddha principles.[1] The Government of India has been promoting the integration of Ayush systems, including Siddha, into the public

healthcare framework to enhance accessibility, affordability and community-based healthcare services.[2] Community outreach activities such as medical camps serve as an important strategy for extending healthcare services to populations with limited access to institutional healthcare facilities.[3]

Under the Swasthya Rakshan Program, implemented by the Central Council for Research in Siddha (CCRS) under the Ministry of Ayush, Siddha medical camps have been conducted by Siddha Medical Plants Garden and Research Centre, Mettur since 2017 to provide healthcare services in adopted villages and remote areas of Salem District. These camps aim to deliver clinical care, promote awareness about traditional systems of medicine,

The objectives of the program are to organize Swasthya Rakshan outpatient departments (OPDs); a hygiene awareness program); to create awareness about the cleanliness of domestic surroundings and the environment; to provide medical aid and incidental support in the adopted colonies and village; to assess health status and propagation of Siddha concepts of Naal Ozhukkam and Kaala Ozhukkam (Daily regimen and seasonal regimen) and extension of healthcare services through medical camps.

Both governmental and non-governmental organizations have made widespread use of healthcare camps as a successful outreach strategy. Such camps may be organized as general health camps or focused programs addressing specific conditions such as diabetes, cataract, women's health or nutrition awareness. Campaign-based camps are also frequently conducted in connection with national or international health observances, including Siddha Day, World Diabetes Day, Poshan Pakhwada and Tribal Health initiatives. Despite improvements in healthcare infrastructure and the expansion of primary healthcare services, outreach camps continue to play an important role in addressing regional disparities in healthcare accessibility and in delivering culturally acceptable healthcare services at the community level

The present study aimed to describe the demographic characteristics, utilization pattern and morbidity profile of beneficiaries attending Siddha medical camps conducted under the Swasthya Rakshan Programme (SRP) in Neethipuram, Mettur (Tk), between December 2022 and March 2025.

METHODS

Study design and setting

A retrospective observational study was conducted based on the Siddha medical camps organized by Siddha Medical Plants Garden and Research Centre, Mettur, between December 2022 and March 2025 in Neethipuram, Kolathur Block, Mettur (Tk). The camps were implemented under the Swasthya Rakshan Program to provide traditional healthcare services periodically to rural and underserved communities.

Camp organization and community engagement

The camps were organized with clearly defined objectives focusing on general healthcare services and condition-specific screening based on the identified health priorities of the study areas. The services provided were planned considering the commonly reported health conditions and disease patterns prevalent in the local communities.

The camps were conducted in coordination with the local public health system. Village health nurses (VHN) assisted in community mobilization and follow-up activities. Functional referral linkages were established with nearby hospitals and healthcare institutions for patients requiring further diagnostic evaluation or specialized treatment.

Local administrative authorities and community leaders were informed in advance regarding the objectives, schedule and scope of services. Their support was sought for logistical arrangements and community mobilization. Necessary administrative arrangements were made to ensure the availability of Siddha medicines, clinical documentation and continuity of services during the study period.

Clinical assessment and data collection

Clinical consultation and therapy based on Siddha diagnostic concepts were provided to every patient who attended the camps. Basic demographic and clinical information were recorded using structured clinical documentation formats. Patients received Siddha formulations appropriate to their clinical conditions, in accordance with classical therapeutic guidelines. Disease categories were classified based on Siddha clinical diagnoses and grouped by system for statistical analysis.

Participants

All beneficiaries attending SRP Siddha medical camps during the study period were included. Patients with incomplete demographic or clinical records were excluded from analysis.

Variables

The variables included age, gender, type of visit (new/follow-up) and clinical diagnosis. Diseases were grouped into system-wise categories based on Siddha clinical diagnosis recorded during consultation.

Study size

All eligible beneficiary records available during the study period were included. Therefore, no formal sample size calculation was performed.

Statistical analysis

Data were entered and organized using Microsoft Excel 2021. Descriptive statistics were used to summarize the demographic characteristics, healthcare utilization patterns and morbidity profile of the beneficiaries. Categorical variables were expressed as frequencies and percentages. The Chi-square (χ^2) test was used to compare categorical variables, including the gender distribution among adult and paediatric beneficiaries. A two-sided p-value of <0.05 was considered statistically significant.

Ethics

The study used anonymized retrospective program data. The personal identifiers, such as name and address, of the patient's records were removed to ensure confidentiality and anonymity. A collection of information regarding the age and gender of patients visiting the SRP camps was being done routinely. Apart from this routine information, no additional information was collected from the patients and there was no violation of the ethics of the patients. Ethics committee approval was exempt/ not required according to institutional policy.

RESULTS

Beneficiary profile

During the study period (December 2022 to March 2025), a total of 1,405 patients attended the Siddha medical camps. Among them, 659 (46.5%) were new cases, while 746 (53.5%) were follow-up cases, indicating continued utilization of Siddha healthcare services.

The highest patient attendance was recorded during 2023–2024 (n=591), followed by 2024–2025 (n=516) and 2022–2023 (n=298).

Gender Distribution

Among the 1,405 beneficiaries, 893 (63.6%) were adults and 512 (36.4%) were children. Among adults, females constituted a significantly higher proportion than males (608 (68.1%) vs. 285 (31.9%), χ^2=116.80, p<0.001). In contrast, the gender distribution among children was comparable, with 264 (51.6%) males and 248 (48.4%) females, showing no statistically significant difference (χ^2=0.50, p=0.480).

Age distribution

Age-wise analysis indicated that the 15–59 years age group represented the largest proportion of beneficiaries (44.8%), followed by children aged 0–14 years (36.4%) and elderly patients aged ≥60 years (18.7%). The difference across age groups was statistically significant (χ^2=149.9, p<0.001).

Patient type

The fact that 746 (53.1%) of the total beneficiaries were follow-up cases and 659 (46.9%) were new cases shows that the community is still using Siddha healthcare services (χ^2=5.38, p=0.02).

However, comparison among adult and pediatric attendance among new and old cases did not show a statistically significant difference (χ^2=0.37, p=0.54). The higher proportion of follow-up patients suggests continuity of care and repeated utilization of Siddha services, indicating sustained patient satisfaction and acceptance of traditional medical treatment within the community.

Disease profile

System-wise disease distribution showed that bone and joint disorders constituted the largest proportion of cases (34.5%), followed by respiratory diseases (19.9%), miscellaneous conditions (15.3%), skin diseases (11.3%) and gastrointestinal disorders (7.7%).

Other conditions observed included urinary disorders, gynecological conditions, lymphatic diseases, febrile illnesses, ear-nose-throat disorders and miscellaneous ailments. These findings reflect the common morbidity patterns encountered in rural community settings.

Table 1: Year-wise patient distribution (2022-2025).

Years	New cases	Follow-up cases	Total
2022–2023	256	42	298
2023–2024	248	343	591
2024–2025	149	367	516
Total	653	752	1405

Table 2: Gender distribution among adult and paediatric beneficiaries attending Swasthya Rakshan Programme (SRP) Siddha medical camps (December 2022–March 2025) (n=1405).

Category	Subgroup	N	%	χ^2	P value
Adults (n=893)	Male	285	31.9	116.80	<0.001*
	Female	608	68.1		

Continued.

Category	Subgroup	N	%	χ^2	P value
Children (n= 512)	Male	264	51.6	0.50	0.480
	Female	248	48.4		
Age- wise category					
Age group	0–14 years	512	36.4	149.9	<0.001
	15–59 years	630	44.8		
	≥60 years	263	18.7		
Age category	Adults	907	64.6	0.37	0.54
	Children	498	35.4		
Patient type	New	659	46.9	5.38	0.02
	Follow-up	746	53.1		

*Percentages are calculated within each subgroup (Adults and Children). Chi-square test was used to compare gender distribution within each subgroup. A p value <0.05 was considered statistically significant.

Table 3: System-wide distribution of diseases (n=1405).

S. No	Disease/system category	Number of patients	(%)
1.	Bone and joint disorders	484	34.5
2.	Respiratory disorders	280	19.9
3.	Miscellaneous diseases	215	15.3
4.	Skin diseases	159	11.3
5.	Gastrointestinal diseases	108	7.7
6.	Urinary disorders	41	2.9
7.	Gynaecological disorders	41	2.9
8.	Eye, ear, nose and throat diseases	26	1.9
9.	Cardiovascular disorders	18	1.3
10.	Neurological/psychological disorders	15	1.1
11.	Pyrexia and viral Infections	9	0.6
12.	Male reproductive disorders	8	0.6
13.	Lymphatic diseases	1	0.07
14.	Total	1405	100

DISCUSSION

The present study provides insights into the utilization pattern and morbidity profile of beneficiaries attending Siddha medical camps conducted under the Swasthya Rakshan Program. The higher proportion of female beneficiaries observed in this study indicates greater healthcare-seeking behavior among women and improved accessibility of community-based Siddha services. Similar observations have been reported in community outreach programs where women actively utilize traditional healthcare services.

The age distribution showed that most recipients were between 15 and 59. This finding reflects the healthcare needs of the economically active population, who are more likely to experience occupational health issues and lifestyle-related disorders. A substantial proportion of children also attended the camps, indicating the role of Siddha medical services in addressing pediatric health concerns within the community. System-wise disease analysis showed that musculoskeletal disorders constituted one of the most common health problems among beneficiaries. Similar morbidity patterns have been reported in institutional Siddha healthcare facilities.

The predominance of musculoskeletal disorders (34.5%) observed in the present study indicates the high burden of occupational and lifestyle-related conditions in rural populations. Similar morbidity patterns have been reported in institutional Siddha healthcare settings such as the Siddha Regional Research Institute, Puducherry and the Siddha Central Research Institute, Chennai and also in SRP camps of Siddha Central Research Institute, Chennai, where musculoskeletal disorders constitute a major proportion of outpatient consultations.[4-6]

The medical camps included in the present study were conducted predominantly in rural villages (Neethipuram) located in the foothills of a reserved forest area. The observed predominance of musculoskeletal disorders and other conditions associated with Vatha and Pitha derangements is noteworthy. According to Siddha literature, Mullai Nilam (forest and pastoral ecological region) is characterized by environmental and climatic factors that predispose individuals to disorders related to Vatha and Pitha humours. The disease pattern observed in the present study appears to be consistent with these traditional concepts. However, further analytical studies are required to scientifically explore the relationship between ecological regions and disease patterns described

in Siddha medicine. Occupational exposure and repetitive physical activity may contribute to the high prevalence of musculoskeletal complaints observed in rural populations. A community-based study conducted among agricultural workers in rural Tamil Nadu reported a high burden of musculoskeletal discomfort due to continuous manual labor and biomechanical stress from repetitive movements.[7] This may explain the frequent utilization of Siddha interventions such as herbal formulations and Varmam-based therapeutic approaches for pain management in community healthcare settings.

The presence of respiratory, gastrointestinal and skin diseases among camp attendees reflects the influence of environmental conditions, sanitation practices, dietary patterns and climatic variations in rural settings. Similar patterns have been observed in community-based healthcare studies in India.[8]

The disease distribution observed in the present community-based study is also consistent with patterns reported from institutional Siddha healthcare facilities. The outpatient census of other units also documented that musculoskeletal and neuromuscular disorders constitute one of the largest categories of patients seeking Siddha treatment, followed by respiratory illnesses and gastrointestinal disorders represented a significant proportion of outpatient cases.[4-6] These findings suggest that the disease profile observed in community-based medical camps closely reflects the morbidity pattern seen in institutional Siddha clinical settings. This observation is consistent with the World Health Organization's emphasis on strengthening traditional medicine within national health systems to improve equitable access to healthcare, particularly in underserved populations.[8]

The relatively higher proportion of follow-up cases observed in the present study reflects continued community trust and satisfaction with Siddha treatment outcomes. Community outreach programs such as Siddha medical camps, therefore, play an important role not only in improving access to traditional healthcare services. Shankar and Patwardhan have also emphasized the strategic role of Ayush systems in strengthening India's healthcare system through community-based healthcare delivery.[9] Community-based Siddha medical camps can therefore function as an effective extension of primary healthcare services, particularly in rural and underserved regions where access to specialized healthcare facilities remains limited.[10]

The present study has several strengths. First, it provides real-world data from community-based Siddha medical camps conducted over three years. Second, the study includes a relatively large sample of 1,405 beneficiaries, providing a reliable overview of healthcare utilization patterns in rural populations. Third, the systematic documentation of demographic characteristics and disease distribution offers valuable insights into the role of Siddha medical camps as a community outreach model for delivering traditional healthcare services.

Limitations

The study has certain limitations. As the data were collected from camp-based consultations, detailed laboratory investigations and long-term follow-up outcomes could not be assessed. Additionally, the study was conducted in a single-centre, retrospective study, which may limit the generalizability of findings to other geographic regions. Future studies involving multi-center data and longitudinal follow-up could provide deeper insights into the clinical outcomes of Siddha interventions in community settings.

CONCLUSION

Siddha medical camps conducted under outreach programs play an important role in delivering traditional Siddha healthcare services to rural and underserved populations. The camps addressed a wide range of common health conditions, with musculoskeletal, gastrointestinal, respiratory and skin diseases being the most frequently reported morbidities. The high proportion of follow-up cases suggests continued community acceptance and trust in Siddha medical treatment. These findings highlight the potential of Siddha outreach programs in strengthening community healthcare delivery and improving accessibility to traditional medicine services.

The present study demonstrates that Siddha medical camps conducted under the Swasthya Rakshan Programme (SRP) are an effective community-based healthcare initiative for improving access to traditional healthcare services in rural and hill populations. The observed morbidity profile and healthcare utilization patterns support the continued integration of Siddha services into public health outreach programmes. Strengthening such initiatives, in alignment with national Ayush policies, may enhance equitable access to primary healthcare and contribute to comprehensive, people-centred healthcare in underserved communities.

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