

Knowledge And Utilization of Ayush Systems of Medicine Among Rural Adults in Nagaland, India: A Community-Based Cross-Sectional Study

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Abstract—Background: AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy) is an integral component of India's healthcare system; however, its utilization remains inconsistent despite increasing public awareness. Evidence regarding community knowledge and utilization of AYUSH systems of medicine in Northeast India remains limited. **Objectives:** To assess the knowledge and utilization of AYUSH systems of medicine among rural adults in Nagaland and examine their association with selected socio-demographic variables.

Materials and Methods: A community-based cross-sectional study was conducted among 86 rural adults residing in Singrijan Village, Chümoukedima District, Nagaland, India. Participants were selected using convenience sampling. Data were collected using a researcher-developed structured questionnaire assessing socio-demographic characteristics, knowledge, and utilization of AYUSH systems of medicine. Content validity was established (Content Validity Index = 0.93), and reliability was assessed using Cronbach's alpha. Data were analysed using descriptive statistics and the Chi-square test, with statistical significance set at $p < 0.05$.

Results: Among the participants, 50.0% demonstrated moderate knowledge regarding AYUSH systems of medicine, while 34.0% had poor knowledge and 16.0% had good knowledge. Utilization was comparatively low, with 70.0% reporting poor utilization, 21.0% moderate utilization, and 9.0% good utilization. Educational attainment was significantly associated with knowledge ($p < 0.05$), whereas no significant association was observed between utilization and the selected socio-demographic variables.

Conclusions: A substantial knowledge–utilization gap regarding AYUSH systems of medicine was identified

among rural adults in Nagaland. Although participants demonstrated moderate knowledge, utilization remained limited. Strengthening community-based health education and improving access to AYUSH services may promote informed utilization and support their integration into primary healthcare.

Index Terms—AYUSH systems of medicine; knowledge; utilization; rural adults; Nagaland.

I. INTRODUCTION

Traditional, complementary, and integrative medicine (TCIM) plays an important role in promoting health and achieving universal health coverage worldwide. The World Health Organization (WHO) recognizes traditional medicine as an essential component of primary healthcare and, through its WHO Traditional Medicine Strategy 2025–2034, encourages Member States to integrate evidence-based traditional medicine into national health systems while ensuring safety, quality, and effectiveness¹⁰. The WHO Global Report on Traditional, Complementary and Integrative Medicine 2024 further highlights the growing global utilization of traditional medicine and emphasizes its contribution to accessible, people-centred healthcare². In India, the AYUSH systems of medicine Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy constitute an integral component of the country's pluralistic healthcare system. Rooted in centuries-old indigenous knowledge, these systems emphasize holistic health, disease prevention, health promotion, and natural approaches to healing. Recognizing their contribution to public health, the

Government of India has strengthened the integration of AYUSH into mainstream healthcare through the establishment of the Ministry of AYUSH, expansion of AYUSH health facilities, promotion of integrative healthcare, and implementation of national health programmes¹. These initiatives aim to preserve India's traditional medical heritage while improving access to diverse healthcare options.

Despite increasing governmental support and public awareness initiatives, the utilization of AYUSH services remains inconsistent across different geographical regions and population groups. National survey findings indicate that awareness of AYUSH systems is high among Indian households; however, regular utilization remains comparatively lower^{1,9}. Several factors have been reported to influence the utilization of AYUSH services, including educational attainment, cultural beliefs, accessibility of AYUSH facilities, perceived effectiveness, affordability, family recommendations, and trust in conventional allopathic medicine^{6,8,9}. Rural populations often adopt pluralistic healthcare-seeking behaviours by combining modern medicine with traditional healing practices according to illness characteristics, availability of services, and personal preferences.

The North-eastern region of India presents a unique sociocultural setting where indigenous healing traditions coexist with modern healthcare services. Nagaland, characterized by diverse tribal communities and rich ethno medical traditions, provides an important context for understanding healthcare-seeking behaviour related to traditional medicine. Ao and Lhungdim³ reported that cultural affinity and traditional beliefs strongly influence preferences for indigenous healing practices among communities in Nagaland. Likewise, Albert et al.⁵ described widespread medical pluralism among indigenous communities in Northeast India, where traditional and modern healthcare systems coexist and complement one another.

Although traditional healing practices continue to be widely used within many communities, there is limited published evidence regarding public knowledge and utilization of the formal AYUSH systems recognized under India's national healthcare framework, particularly in the North-eastern states. Previous studies have primarily focused on southern and western India and have reported varying levels of knowledge, beliefs, and utilization of AYUSH and

other complementary medicine systems^{4,6,7,8}. Consequently, evidence from Nagaland remains scarce, highlighting the need for region-specific research.

Understanding community knowledge and utilization of AYUSH systems is important for strengthening evidence-based health promotion and informing healthcare planning. Assessing community knowledge provides insight into public awareness of government-supported AYUSH services, while understanding utilization patterns helps identify barriers that limit their appropriate use. Such evidence can support policymakers, healthcare professionals, and community health nurses in developing culturally appropriate educational interventions and strategies to promote informed healthcare choices and strengthen the integration of AYUSH within primary healthcare services.

Against this background, the present study was undertaken to assess the knowledge and utilization of AYUSH systems of medicine among rural adults residing in Chumoukedima District, Nagaland. The study also examined the association between selected socio-demographic variables and participants' knowledge and utilization levels. The findings are expected to provide baseline evidence from an understudied region and contribute to future research, health policy, and community-based health promotion initiatives related to AYUSH in Northeast India.

III. OBJECTIVES

1. To assess the level of knowledge regarding AYUSH systems of medicine among rural adults in Nagaland.
2. To assess the level of utilization of AYUSH systems of medicine among rural adults in Nagaland.
3. To determine the association between knowledge regarding AYUSH systems of medicine and selected socio-demographic variables.
4. To determine the association between utilization of AYUSH systems of medicine and selected socio-demographic variables.

IV. MATERIALS AND METHODS

Study design: A community-based descriptive cross-sectional study was conducted to assess the knowledge and utilization of AYUSH systems of medicine among

rural adults in Nagaland and to examine their association with selected socio-demographic variables.

Setting: The study was carried out in Singrijan Village, Chümoukedima District, Nagaland, India. Data collection was conducted after obtaining approval from the Institutional Nursing Research Committee and permission from the village authorities.

Participants: The study population comprised adults aged 18 years and above who were permanent residents of Singrijan Village. Individuals who were willing to participate and provided written informed consent were included in the study, whereas those who were critically ill or unwilling to participate were excluded. Participants were recruited using a convenience sampling technique, resulting in a final sample of 86 rural adults.

Variables: The primary outcome variables were participants' knowledge and utilization of AYUSH systems of medicine. The independent variables included selected socio-demographic characteristics such as age, gender, educational status, and occupation.

Data sources and measurement: Data were collected using a researcher-developed structured questionnaire consisting of three sections: socio-demographic characteristics, knowledge regarding AYUSH systems of medicine, and utilization of AYUSH systems of medicine. The questionnaire was developed following an extensive review of the literature and validated by a panel of experts. The instrument demonstrated good content validity (Content Validity Index = 0.93), and internal consistency was established using Cronbach's alpha.

Bias: To minimize information bias, a structured and validated questionnaire was used for data collection. Participants completed the questionnaire individually after receiving standardized instructions. Completed questionnaires were reviewed immediately for completeness and consistency before data entry.

Study size: As this was a community-based descriptive study, all eligible adults available during the study period who met the inclusion criteria and consented to participate were included. A total of 86 participants constituted the final study sample.

Quantitative variables: Knowledge and utilization scores were calculated by summing the responses to their respective questionnaire items. Based on predetermined scoring criteria, participants were

categorized as having poor, moderate, or good levels of knowledge and utilization.

Statistical methods: Data were entered into Microsoft Excel and analysed using IBM SPSS Statistics (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequencies and percentages, were used to summarize participant characteristics and study variables. The Chi-square test was applied to examine the association between knowledge and utilization of AYUSH systems of medicine and selected socio-demographic variables. A two-sided p-value of <0.05 was considered statistically significant.

Ethical considerations: The study was approved by the Nursing Research Committee (Approval dated 22 January 2026). Written informed consent was obtained from all participants before enrolment. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study.

V. RESULTS

Participants: A total of 86 rural adults participated in the study. All eligible participants who consented were included in the final analysis. The socio-demographic characteristics of the participants are presented in Table 1.

Table 1. Socio-demographic characteristics of the study participants (N = 86)

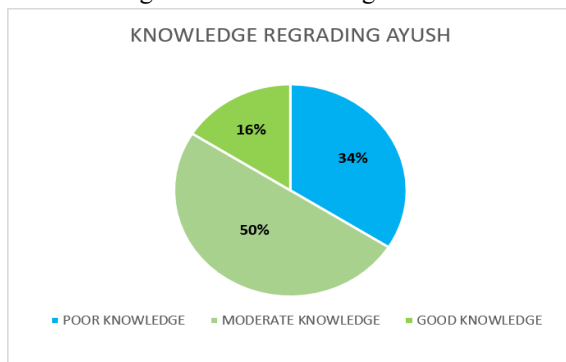
Variables	Category	Frequency	Percentage
Age	18-30	19	22.09%
	31-40	35	40.69%
	41-50	12	13.95%
	51-64	20	23.25%
Gender	Male	33	38.37%
	Female	53	61.62%
Educational level	No formal education	3	3.48%
	Primary	25	29.06%
	Secondary	26	30.23%
	Higher education	19	22.09%
	Graduate and above	13	15.11%
Occupation	Farming	6	6.97%
	Daily wage earner	14	16.27%
	Homemaker	29	33.72%
	Student	6	6.97%
	Others	31	36.04%

The largest proportion of participants belonged to the 31–40 years age group (40.69%), followed by the 51–

64 years age group (23.25%). Females constituted 61.62% of the study population. Regarding educational status, 30.23% had completed secondary education, followed by 29.06% with primary education. In terms of occupation, the majority were engaged in other occupations (36.04%), followed by homemakers (33.72%), while smaller proportions were daily wage earners (16.27%), farmers (6.97%), and students (6.97%) (Table 1).

Knowledge regarding AYUSH systems of medicine
The distribution of participants according to their level of knowledge regarding AYUSH systems of medicine is presented in Figure 1.

Figure 1: Pie chart representation of the level of knowledge on AYUSH among the rural adults

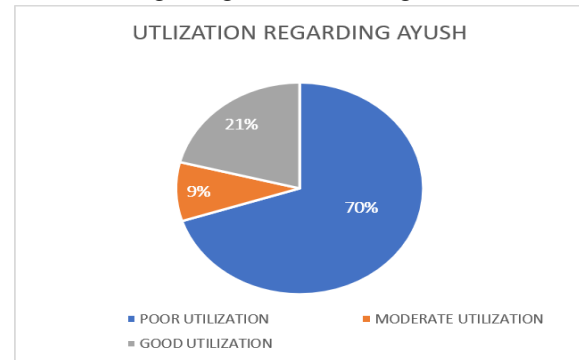


Half of the participants (50.0%) demonstrated moderate knowledge, while 34.0% had poor

knowledge and 16.0% had good knowledge regarding AYUSH systems of medicine

Utilization of AYUSH systems of medicine
The distribution of participants according to their utilization of AYUSH systems of medicine is presented in Figure 2.

Figure 2: Pie chart representation of the level of utilization regarding AYUSH among the rural adults.



The majority of participants (70.0%) demonstrated poor utilization of AYUSH systems of medicine, while 21.0% had moderate utilization and only 9.0% demonstrated good utilization.

Association between Socio-demographic Variables and Knowledge

The association between selected socio-demographic variables and knowledge regarding AYUSH systems of medicine is presented in Table 2.

Table 2: Association between selected socio-demographic variables and utilization of AYUSH systems of medicine (N = 86)

Demographic variables	Poor knowledge	Moderate knowledge	Good knowledge	Tabulated Chi square	Calculated Chi square	P value
A. Age						
i. 18-30	7	7	6	12.59	8.98	P>0.05
ii. 31-40	15	17	3			
iii. 41-50	2	9	1			
iv. 51-64	5	10	4			
B. Gender						
i. Male	11	16	8	5.99	0.145	P>0.05
ii. Female	18	27	6			
C. Educational level						
i. No formal education	0	3	0	15.51	19.44	P<0.05
ii. Primary	11	13	1			
iii. Secondary	12	12	2			
iv. Higher education	4	10	5			
v. Graduate and above	2	5	6			
D. Occupation						

i. Farming	0	5	1	15.51	10.07	P>0.05
ii. Daily wage earner	7	7	0			
iii. Homemaker	12	13	4			
iv. Student	1	3	2			
v. Others	9	15	7			

Educational attainment was found to have a statistically significant association with the level of knowledge regarding AYUSH systems of medicine ($\chi^2 = 19.44$, $p < 0.05$). However, no statistically significant association was observed between knowledge and age ($\chi^2 = 8.98$, $p > 0.05$), gender ($\chi^2 = 0.145$, $p > 0.05$), or occupation ($\chi^2 = 10.07$, $p > 0.05$).

Association Between Selected Demographic Variables and Utilization:

The association between selected socio-demographic variables and utilization of AYUSH systems of medicine is presented in Table 3.

Table 3: Association between selected socio-demographic variables and utilization of AYUSH systems of medicine (N = 86)

Demographic variables	Poor practice	Moderate practice	Good practice	Calculated Chi square	Tabulated Chi square	P value
A. Age						
i. 18-30	14	5	1	0.947	12.59	P>0.05
ii. 31-40	24	7	4			
iii. 41-50	9	2	1			
iv. 51-64	13	4	2			
B. Gender						
i. Male	22	9	2	1.70	5.99	P>0.05
ii. Female	38	9	6			
C. Educational level						
i. No formal education	2	1	0	10.22	15.51	P>0.05
ii. Primary	22	1	2			
iii. Secondary	16	7	3			
iv. Higher education	12	4	3			
v. Graduate and above	8	5	0			
D. Occupation						
i. Farming	3	2	1	6.89	15.51	P>0.05
ii. Daily wage earner	9	3	2			
iii. Homemaker	22	3	4			
iv. Student	5	1	0			
v. Others	21	9	1			

No, statistically significant association was observed between utilization of AYUSH systems of medicine and age ($\chi^2 = 0.947$, $p > 0.05$), gender ($\chi^2 = 1.70$, $p > 0.05$), educational attainment ($\chi^2 = 10.22$, $p > 0.05$), or occupation ($\chi^2 = 6.89$, $p > 0.05$).

VI. DISCUSSION

The present community-based cross-sectional study assessed the knowledge and utilization of AYUSH systems of medicine among rural adults in Singrijan Village, Chümoukedima District, Nagaland. The

findings revealed a substantial knowledge–utilization gap. Although half of the participants (50.0%) demonstrated moderate knowledge regarding AYUSH systems of medicine, the majority (70.0%) reported poor utilization. Educational attainment was significantly associated with knowledge, whereas no significant association was observed between utilization and the selected socio-demographic variables.

The finding that half of the participants possessed moderate knowledge suggests that awareness of AYUSH systems exists within the community;

however, comprehensive understanding remains limited. This finding is consistent with the Government of India's national survey, which reported widespread awareness of AYUSH among Indian households but variable levels of knowledge and utilization across populations. ¹ Similarly, the WHO Global Report on Traditional, Complementary and Integrative Medicine emphasizes the increasing global recognition of traditional medicine while highlighting the need for greater public awareness and informed utilization. ²

The present findings are also consistent with studies conducted in different regions of India. Rintumol et al. reported moderate knowledge regarding AYUSH among young adults, emphasizing the influence of education on awareness. ⁸ Likewise, Arumugam found that educational status significantly influenced knowledge and attitudes towards traditional medicinal practices among Malaysian consumers. ⁴ These findings support the present study, in which educational attainment was significantly associated with knowledge regarding AYUSH systems of medicine.

Despite moderate knowledge, utilization of AYUSH systems remained low among the participants. Similar findings were reported by Rana et al., who observed that although awareness and preference for AYUSH were relatively high, actual utilization remained comparatively low among Indian households. ⁹ This discrepancy may reflect barriers such as accessibility of AYUSH services, availability of trained practitioners, preference for allopathic medicine, perceived effectiveness of conventional healthcare, and established health-seeking behaviours. The WHO Traditional Medicine Strategy (2025–2034) also emphasizes improving accessibility and integration of traditional medicine into national healthcare systems to promote equitable utilization. ¹⁰

In the present study, educational attainment was significantly associated with knowledge but not with utilization. Likewise, none of the selected socio-demographic variables demonstrated a significant association with utilization. Similar observations have been reported by Ashraf et al., who noted that although awareness of complementary and alternative medicine was high among university students, actual utilization depended on multiple contextual factors beyond knowledge alone. ⁶ These findings suggest that improving awareness alone may not necessarily

translate into increased utilization unless supported by accessible services and favourable health system factors.

The present study provides baseline evidence regarding the knowledge and utilization of AYUSH systems of medicine from a rural community in Nagaland, where published evidence remains limited. The findings also complement previous observations from Northeast India, where medical pluralism and the coexistence of traditional and modern healthcare systems influence healthcare-seeking behaviour. ⁵ In Nagaland, cultural beliefs and indigenous healing practices may further influence decisions regarding the use of AYUSH systems.

This study has certain limitations. It was conducted in a single rural community using convenience sampling and involved a relatively small sample size, limiting the generalizability of the findings. Furthermore, the cross-sectional design precludes causal inference, and the use of self-reported data may have introduced recall and social desirability bias.

Overall, the findings highlight the need to strengthen community-based health education and improve accessibility to AYUSH services. Increasing awareness should be complemented by initiatives that enhance the availability, accessibility, and integration of AYUSH services within primary healthcare, thereby promoting informed utilization among rural populations. ¹⁰

VII. CONCLUSION

The present study demonstrated that rural adults in Singrijan Village, Nagaland, possessed moderate knowledge but low utilization of AYUSH systems of medicine, indicating a significant knowledge–utilization gap. Educational attainment was significantly associated with knowledge regarding AYUSH systems of medicine, whereas no significant association was observed between utilization and the selected socio-demographic variables. These findings suggest that improving awareness alone may not be sufficient to enhance the utilization of AYUSH services. Strengthening community-based health education, improving accessibility to AYUSH healthcare services, and integrating culturally appropriate, evidence-based health promotion strategies may facilitate informed utilization of AYUSH systems. Further multicentre studies with

larger probability-based samples are recommended to generate more representative evidence and to explore the factors influencing AYUSH utilization in diverse rural communities.

This conclusion is concise, reflects your findings accurately, avoids introducing new information, and is appropriate for an indexed journal submission.

VIII. LIMITATIONS:

The present study has certain limitations. It was conducted in a single rural community using a convenience sampling technique and a relatively small sample size, which may limit the generalizability of the findings. The cross-sectional study design precludes establishing causal relationships between knowledge, utilization, and the associated socio-demographic variables. Furthermore, the use of self-reported data may have introduced recall and social desirability bias. Future studies involving larger, probability-based samples from multiple rural and urban settings are recommended to generate more representative evidence and to further explore the determinants of AYUSH knowledge and utilization.

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Conflicts of Interest: There are no conflicts of interest.

REFERENCES:

- [1] Ministry of Statistics and Programme Implementation, *Survey on Awareness and Use of AYUSH among Indian Households*. New Delhi, India: Government of India, 2024.
- [2] World Health Organization, *WHO Global Report on Traditional, Complementary and Integrative Medicine 2024*. Geneva, Switzerland: World Health Organization, 2025.
- [3] M. Ao and H. Lhungdim, "Cultural affinity and preferences for traditional medicine and its providers over modern healthcare services in Nagaland, India," *Demography India*, vol. 49, no. 2, pp. 106–122, 2020.
- [4] N. Arumugam, "Knowledge, attitudes and practices toward medicinal plants among Malaysian consumers," *Medicinal & Aromatic Plants*, vol. 8, no. 6, p. 341, 2019, doi: 10.35248/2167-0412.19.8.341.
- [5] S. Albert, M. Nongrum, E. L. Webb, J. D. H. Porter, and G. C. Kharkongor, "Medical pluralism among indigenous peoples in North-east India: Implications for health policy," *Tropical Medicine & International Health*, vol. 20, no. 7, pp. 952–960, 2015, doi: 10.1111/tmi.12499.
- [6] M. Ashraf, H. Saeed, Z. Saleem, H. A. Rathore, F. Rasool, E. Tahir, *et al.*, "Knowledge, attitudes and self-perceived effectiveness of complementary and alternative medicine among university students," *BMC Complementary and Alternative Medicine*, vol. 19, no. 1, Art. no. 95, 2019, doi: 10.1186/s12906-019-2503-y.
- [7] K. Sumedha, V. Saravanan, S. Bhuvaneshwary, K. Kannadasan, and V. Murugan, "Beliefs and practices toward complementary and alternative medicine among residents of an urban area in Chengalpattu District, Tamil Nadu: A cross-sectional study," *International Journal of AYUSH*, vol. 13, no. 5, pp. 36–50, 2024, doi: 10.22159/prl.ijayush.v13i5.1050.
- [8] P. R. Rintumol, H. Kaur, and A. Kaur, "A descriptive study to assess knowledge regarding complementary and alternative therapies (AYUSH) among young adults," *International Journal of Innovative Research in Technology*, vol. 12, no. 7, pp. 1877–1882, 2025, doi: 10.64643/IJIRTV12I7-188559-459.
- [9] M. J. Rana, M. Kumar, M. Rahaman, and M. H. U. Rahman, "Awareness, preference, and utilisation of AYUSH in India: Evidence from National Sample Survey, 2022–23," *Advances in Integrative Medicine*, vol. 12, no. 2, Art. no. 100476, 2025, doi: 10.1016/j.aimed.2025.03.006.
- [10] World Health Organization, *WHO Traditional Medicine Strategy 2025–2034*. Geneva, Switzerland: World Health Organization, 2025.