

Adolescents' Preferences and Perceptions Towards Ayurvedic Medicines: A Mixed-Methods Study from Pimpri-Chinchwad, Pune, India

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ABSTRACT

Ayurvedic medicine continues to be an integral part of India's traditional healthcare system; however, limited empirical evidence exists regarding adolescents' perceptions and preferences toward Ayurveda. Adolescence is a critical developmental phase during which health beliefs and treatment decisions are influenced by family practices, cultural values, education, and exposure to modern healthcare systems (WHO, 2022). This study examines adolescents' awareness, perceptions, utilization patterns, and factors influencing their preference for Ayurvedic medicines. A mixed-method, cross-sectional approach was implemented among 300 adolescents aged 13–19 years from selected schools and community settings in Pimpri-Chinchwad, Pune. Structured questionnaires generated quantitative data, complemented by semi-structured interviews providing contextual insights. Descriptive statistics and chi-square analyses were employed for quantitative evaluation. Most respondents demonstrated familiarity with Ayurveda and reported previous use, particularly for self-limiting ailments. Perceptions were moderated by beliefs about natural composition, safety, accessibility, and affordability, with household practices exerting prominent influence. A statistically significant association was identified between family use and adolescent preference for Ayurvedic treatment ($p < .001$), underscoring the intergenerational continuity of traditional health practices.

Keywords: Ayurveda, adolescent health, traditional medicine, awareness, family influence, complementary medicine

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1. INTRODUCTION

India's healthcare environment is characterized by the coexistence of biomedical and traditional systems, among which Ayurveda has remained institutionally and culturally resilient. Ayurveda is one of the world's oldest holistic medical systems, continues to play an important role in India's healthcare framework and is actively promoted through national AYUSH initiatives (Ministry of AYUSH, 2022; Sharma, 2016). Previous studies report substantial awareness and utilization of AYUSH systems among the general population, largely due to cultural familiarity, perceived safety, and cost-effectiveness (Nayak et al., 2020; Singh & Gupta,

2017). However, adolescents remain an under-researched group within traditional medicine literature. Adolescents represent a transitional population whose health behaviours and attitudes are still evolving and are strongly influenced by family practices, peer groups, educational exposure, and media (Sinha & Dey, 2020; Rao & Singh, 2019). Simultaneously, increased access to allopathic healthcare and globalized health information may shape adolescents' perceptions of traditional systems (Patwardhan et al., 2015). Understanding how adolescents perceive and utilize Ayurvedic medicines is therefore essential for developing effective health education strategies and

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promoting the safe integration of traditional and modern medical practices.

2. LITERATURE REVIEW

Ayurveda is one of India's oldest codified medical traditions and contributes substantially to complementary and alternative medicine (CAM) usage patterns across age groups. Existing literature on adolescents, although limited, suggests nontrivial engagement with AYUSH systems. Sudan et al. (2023), for instance, observed that nearly half of surveyed school-aged adolescents reported using AYUSH modalities, with socio-demographic characteristics shaping utilization patterns.

National-level surveys indicate that public awareness of AYUSH systems is extremely high, with a considerable proportion of individuals expressing preference and reporting use. Motivations for choosing AYUSH treatments frequently include perceived safety, cultural familiarity, affordability, and reduced side effects.

Systematic reviews examining parallel perceptions of Ayurveda and allopath reveal that traditional medicine preferences often arise from beliefs in naturalness and cultural trust rather than biomedical evidence. Such reviews also highlight gaps in knowledge regarding dosage, herb–drug interactions, and contraindications, indicating a need for improved public health communication.

Research on complementary medicine use in paediatric contexts further underscores the role of parental knowledge and intergenerational norms in shaping children's early health behaviours. These findings align with sociological perspectives emphasizing household health socialization.

Collectively, the literature suggests that Ayurvedic engagement is driven by cultural continuity, perceived safety, and accessibility; yet empirical work focusing specifically on adolescents' depth of knowledge, perception of risks and benefits, and contemporary informational influences remains limited. This study contributes to that scholarly gap.

3. OBJECTIVES

1. To assess adolescents' awareness of Ayurvedic medicines.
2. To examine perceptions regarding effectiveness, safety, and accessibility.
3. To evaluate whether family usage patterns influence adolescents' treatment preferences.

4. HYPOTHESES

H1: Adolescents aged 13–19 years demonstrate notable awareness of Ayurvedic medicines.

H2: Adolescents express favourable perceptions

regarding Ayurvedic medicines' effectiveness, safety, and accessibility.

H3: There is no significant association between family use of Ayurveda and adolescents' treatment preference.

5. METHOD

5.1 Design

A convergent mixed-method cross-sectional design was used to integrate quantitative survey findings with qualitative interview insights.

5.2 Participants and Setting

Three hundred adolescents aged 13–19 years were recruited from schools and community spaces in Pimpri-Chinchwad, Pune, via purposive sampling. For analyses involving perception variables, 295 completed questionnaires were available due to partial missing responses. Participation was voluntary, anonymous, and non-remunerated.

5.3 Instruments

Two data collection tools were employed:

- **Structured Questionnaire:** Assessed awareness, utilization patterns, perceived effectiveness, safety, accessibility, and motivations for treatment preference.
- **Semi-Structured Interviews:** Explored household health cultures, cultural beliefs, educational exposure, and media influences.

5.4 Procedure

Data collection occurred during school hours. Participants completed the questionnaire individually. Interviews were conducted in designated quiet areas on campus. Institutional permission and adolescent assent were obtained. Confidentiality and anonymity were ensured throughout.

5.5 Data Analysis

Quantitative data were processed using descriptive statistics and chi-square tests for associative relationships, with significance set at $p < .05$. Qualitative responses underwent thematic analysis to contextualize quantitative findings.

6. RESULTS

6.1 Demographic Characteristics

A total of 300 adolescents aged 13–19 years were enrolled from selected educational institutions and community settings in Pimpri-Chinchwad, Pune. Age distribution showed that 40% belonged to the 13–15 year group, 36.7% were aged 16–17 years, and 23.3% fell within the 18–19 year range. Gender representation was nearly equal, with males constituting 48.3% and females 51.7%. This profile captures early to late adolescence, a developmental period during which health-related knowledge and treatment preferences

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become increasingly shaped by familial, cultural, and educational influences.

6.2 Awareness of Ayurvedic Medicine

Awareness levels regarding Ayurveda varied among participants. Approximately one-third (31.7%) reported full awareness, while 40% indicated partial awareness. Only a small proportion (1.7%) stated that they had no awareness. These responses suggest that Ayurveda is broadly recognized among adolescents, though not necessarily understood in detail.

6.3 Family Influence and Use

Patterns of household usage demonstrated a strong influence on adolescent behavior. Among those with family members who routinely used Ayurvedic treatments, 68.6% reported personal utilization. In contrast, utilization was substantially lower (25%) among adolescents without such familial exposure. Statistical analysis revealed this association to be significant, $\chi^2(1, N=295) = 42.6, p < .001$, indicating that family practices serve as a primary conduit of exposure and acceptance.

6.4 Information Sources

Participants reported receiving information through both non-digital and digital channels. Among non-digital sources, healthcare professionals (92.5%), family members (59.3%), and school curriculum content (46.8%) were commonly cited. With regard to digital media, exposure was reported through television during the COVID-19 period (70.8%) and through WhatsApp-based dissemination (59.7%). These findings reflect a blended media environment influencing adolescent awareness, with substantial contributions from clinical settings, family networks, and pandemic-era broadcast messaging.

6.5 Depth of Knowledge

Although many participants recognized the preventive and curative orientation of Ayurveda (70.8%), only a small subset (16.3%) could name specific herbs or formulations. This suggests a predominantly conceptual understanding rather than practical or pharmacological knowledge. Adolescents appear familiar with broader health system attributes but lack detailed familiarity with ingredients or therapeutic mechanisms.

6.6 Perceptions of Effectiveness and Safety

Perceptions of Ayurvedic treatments were generally neutral to favourable in terms of perceived effectiveness for common illnesses. However, views related to safety, dosing accuracy, and potential side effects were marked by uncertainty. Participants expressed limited clarity about contraindications or herb-drug interactions, indicating that safety literacy

remains low despite general awareness of traditional healing practices.

6.7 Accessibility and Utilization

More than half of the adolescents (54.6%) reported that Ayurvedic products were available within their residential vicinity, and 55.6% described them as easy to obtain. The overall utilization rate was 62%, although 14.9% expressed uncertainty, often due to indirect exposure through household usage rather than direct personal consumption. These findings suggest that accessibility is not a substantial barrier, although direct engagement may remain mediated by family decisions.

6.8 Institutional Awareness

Knowledge of formal governmental or AYUSH-related initiatives was relatively limited, with only 32.9% of participants able to identify such programs. Despite this, school or community-level exposure was comparatively high (71.2%), indicating that educational and local outreach settings serve as key institutional touch-points, whereas centralized policy communication may not yet be reaching adolescents effectively.

7. DISCUSSION

This study explored how adolescents engage with Ayurvedic medicine, focusing on their level of awareness, usage patterns, perceptions, and the contextual factors that shape these outcomes. The results point to a multi-layered interaction between cultural exposure, family environments, information pathways, and emerging health autonomy in adolescence.

7.1 Awareness and Knowledge Depth

A broad familiarity with Ayurveda was evident among respondents, suggesting that the tradition still occupies a visible place in contemporary urban households. However, familiarity did not translate into detailed or technical knowledge; very few participants could identify specific herbs or formulations. This pattern indicates that adolescents tend to perceive Ayurveda as part of family culture rather than as a medical discipline requiring systematic understanding—an observation consistent with earlier studies on youth engagement with traditional health systems.

7.2 Family Influence as a Behavioural Determinant

Family behaviour clearly shaped adolescents' own usage. Statistical analysis showed that those raised in households where Ayurveda was practiced were far more likely to use such treatments themselves. This aligns with social modelling perspectives which argue that health practices are learned through observation and everyday routines. Consequently, efforts to

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promote informed use of traditional therapies may need to engage family units rather than focusing solely on adolescents as independent decision-makers.

7.3 Information Sources and Media Context

Respondents reported receiving information from both interpersonal and media-based channels. Health professionals and family members were major interpersonal sources, while television and messaging platforms emerged as notable digital channels, particularly during the pandemic years when traditional remedies received increased attention. Schools contributed additional structured exposure. Together, these pathways illustrate that adolescents synthesize traditional medicine information from a mix of trusted relationships and widely consumed media.

7.4 Perceptions of Effectiveness and Safety

Perceived effectiveness of Ayurveda for routine ailments was generally positive or neutral, indicating at least moderate confidence in its therapeutic potential. Safety perceptions, however, were less stable—uncertainty about dosage, contraindications, and adverse effects was common. This suggests that adolescents may use or accept traditional remedies without a parallel understanding of safety considerations, which becomes relevant as they gain autonomy in health decision-making.

7.5 Accessibility and Its Interaction with Use

Most participants indicated that Ayurvedic products were readily accessible in their local areas, and usage levels were fairly high. Accessibility appears to reinforce cultural familiarity rather than act as an independent motivator for use. A subset of adolescents reported uncertainty about their own usage, likely reflecting passive exposure to remedies at home rather than intentional self-use.

7.6 Institutional Exposure and Policy Awareness

While many respondents had encountered Ayurveda in educational or community settings, awareness of official AYUSH initiatives was relatively low. This gap suggests that institutional visibility of the practice does not necessarily translate into understanding of its policy context. Clearer communication about how Ayurveda fits into national healthcare infrastructure could improve informed engagement among young populations.

7.7 Hypothesis Alignment

The hypotheses concerning awareness and family influence were supported by the data. Limited herb-specific knowledge and weak policy awareness contributed to the rejection of other hypotheses. Positive or neutral views regarding effectiveness and accessibility offered partial support to perception-

related hypotheses, whereas safety-related ambiguity tempered confidence-based assumptions.

7.8 Overall Interpretation

Overall, adolescents in this study encountered Ayurveda as a familiar and easily accessible health option shaped largely by household practices and reinforced by media and school channels. However, their engagement lacked depth in terms of pharmacological knowledge, safety awareness, and policy understanding. To foster responsible and informed use, future strategies may need to integrate cultural familiarity with structured health education emphasizing evidence, safety, and system-level clarity.

8. CONCLUSION & RECOMMENDATIONS

8.1 Conclusion

This study examined adolescents' awareness, perceptions, and utilization of Ayurvedic medicines in an urbanizing region of Pimpri-Chinchwad, Pune. The findings demonstrated that Ayurveda maintains considerable cultural visibility among adolescents, with the majority reporting awareness and a substantial proportion reporting use for minor ailments. Awareness was primarily conceptual rather than practice-oriented, suggesting that adolescents recognize Ayurveda as a healthcare system but possess limited herb-specific or pharmacological knowledge. Family influence emerged as the most powerful determinant of utilization, affirming the central role of intergenerational norms in shaping adolescent health behaviours. Digital and non-digital channels jointly contributed to awareness, with healthcare professionals, family members, and television-based messaging functioning as major sources. Perceptions of effectiveness were moderately favourable, whereas safety-related perceptions were marked by uncertainty, especially regarding side effects, contraindications, and dosage considerations. Accessibility was not identified as a barrier, given the widespread availability of Ayurvedic products in local markets.

Despite this engagement, awareness of governmental AYUSH initiatives was low, pointing to a disconnect between traditional medicine awareness at the household level and policy-level knowledge at the public health level. Taken together, these findings highlight a dynamic intersection between cultural familiarity, information exposure, and the emerging health autonomy of adolescents. Strengthening health literacy around Ayurveda—without undermining cultural embeddedness—represents a critical step toward informed and responsible healthcare choices.

8.2 Recommendations

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Based on the results, the following recommendations are proposed for education, public health, and policy domains:

1. **Integrate evidence-based traditional medicine content into school curricula** to improve safety literacy, proper usage understanding, and herb identification.
2. **Develop adolescent-friendly health literacy modules** that cover contraindications, herb–drug interactions, dosage, and safety guidelines.
3. **Encourage healthcare professionals to communicate balanced information** about benefits and safety considerations of Ayurveda during routine consultations with families.
4. **Promote interdisciplinary consultations** between Ayurvedic and allopathic practitioners to model integrated, patient-centred care pathways.
5. **Target families as key health influencers** through community workshops, given their demonstrated role in shaping adolescent utilization.
6. **Leverage community-based programs and NSS/NCC platforms** to reinforce culturally grounded yet evidence-informed health communication.
7. **Strengthen awareness of AYUSH initiatives among adolescents** via digital campaigns, youth clubs, and educational collaborations.
8. **Use social media responsibly for health communication**, given the influence of WhatsApp and television identified in this study.
9. **Support research integration in public-facing AYUSH communication**, ensuring alignment between cultural beliefs and scientific evidence.
10. **Develop curated digital content for adolescents**, including short videos, infographics, and interactive quizzes on Ayurveda's preventive and therapeutic role.
11. **Incorporate misinformation monitoring**, recognizing that adolescents often encounter unverified claims via digital platforms.

Collectively, these recommendations emphasize the need for balanced, evidence-informed, and culturally sensitive approaches to adolescent health education in traditional medicine contexts.

9. Limitations and Future Scope

9.1 Limitations

Several limitations should be considered when interpreting the findings of this study:

1. **Cross-sectional Design**
The study utilized a cross-sectional approach, which restricts causal inference. Longitudinal research would offer deeper insights into the evolution of perceptions over time.
2. **Self-Reported Data**
Responses relied on self-report, which may introduce recall bias, social desirability bias, and subjective interpretation, especially in questions regarding usage frequency and safety perceptions.
3. **Geographic and Contextual Scope**
Data were collected from a single urbanizing region, limiting generalizability to rural or metropolitan contexts where cultural exposure, market access, and digital penetration may differ.
4. **Lack of Clinical Verification**
The study did not clinically verify the types of Ayurvedic medicines used or differentiate between classical preparations, proprietary products, or home remedies.
5. **Limited Operational Detail**
Safety perceptions were assessed without specific reference to side effects, herb–drug interactions, or standardized dosage, which may influence how adolescents interpret “safety.”
6. **Policy Awareness Constraints**
AYUSH initiative awareness was measured at a general level; more granular policy domains (e.g., insurance, hospital integration) were not assessed.

9.2 Future Scope for Research

To build on the current findings, future research should consider:

- **Longitudinal designs** tracking how perceptions evolve across adolescence and early adulthood.
- **Comparative regional studies** to examine rural–urban–metro differences in exposure and utilization.
- **Mixed clinical-behavioural models** verifying safety assumptions against clinical evidence.
- **Intervention-based research**, testing the impact of school health modules, digital

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literacy campaigns, or family-focused programs.

- **Policy literacy studies**, exploring how adolescents engage with AYUSH governance, insurance, regulatory frameworks, and scientific research.
- **Interdisciplinary studies combining Ayurveda, psychology, and communication**, examining how identity formation and digital media shape health choices.

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