

SURVEY STUDY

Development and validation of a questionnaire to assess the perception and feedback of undergraduate medical students of Ayurveda science on teaching methods in *Rachana Sharir*

Rashi Sharma¹, Sunil Kumar Yadav²

¹Ph.D. Scholar, Department of Rachana Sharir, National Institute of Ayurveda, Deemed University, Jaipur, Rajasthan, India.

²Professor and Head, Department of Rachana Sharir, National Institute of Ayurveda, Deemed University, Jaipur, Rajasthan, India.

ARTICLE INFO

Article history:

Received on: 03-10-2025

Accepted on: 17-11-2025

Published on: 30-11-2025

Key words:

Content validity index,
Questionnaire,
Rachana Sharir,
Validation

ABSTRACT

The present study aimed to develop and validate a comprehensive questionnaire to assess the perception and feedback of undergraduate Ayurveda students regarding teaching methods in Rachana Sharir (Human Anatomy). Questionnaires are essential tools for collecting reliable educational data; however, their accuracy depends on robust design, ethical administration, and psychometric validation. A four-stage process was employed: Item generation through literature review and expert consultation, item grouping into thematic sections, response format selection, and ethical integration. The preliminary questionnaire included six sections covering demographic details, curriculum feedback, perception and feedback on teaching methods, technological resource utilization, and overall learning experience. Content validation was performed by six subject experts in Rachana Sharir and medical education using a 4-point relevance scale. The Content Validity Index (CVI) was computed for both item level (I-CVI) and scale level (S-CVI). All items achieved I-CVI = 1.00, with S-CVI/Ave and S-CVI/UA also equal to 1.00, indicating excellent content validity. A pilot test among 1st-year BAMS students confirmed the questionnaire's clarity, linguistic appropriateness, and contextual relevance. The final validated instrument effectively captures student perceptions across traditional and modern anatomy teaching modalities, including lectures, dissections, multimedia tools, and simulation-based learning. This validated questionnaire serves as a standardized tool for evaluating and improving anatomy pedagogy in Ayurveda institutions. It provides a reliable framework for comparative educational research and curriculum enhancement, fostering an integrative approach that bridges classical Ayurvedic knowledge with contemporary anatomical science, ultimately promoting student-centered and competency-based learning in Rachana Sharir.

1. INTRODUCTION

Questionnaires are widely utilized in research as tools for data collection, either as standalone methods or in conjunction with other approaches in mixed-method studies. However, the quality and accuracy of responses heavily rely on how well these questionnaires are crafted, utilized, and validated, which encompasses both their psychometric strength and ethical integrity.^[1]

Moreover, a questionnaire should not be viewed merely as a mechanistic instrument for gathering information. Instead, it represents a social encounter between researcher and respondent, one that inherently

involves an ethical dimension. It requires building trust, respecting participants' autonomy, and acknowledging that responses emerge from a relational context rather than a disembodied process.^[2] From a constructivist perspective, responses are co-constructed by both the instrument and the respondent; the interaction itself shapes the data that emerge.

From an ethical standpoint, the act of administering a questionnaire imposes responsibilities on the researcher to ensure respectful engagement, transparency, and a genuine effort to understand the participant, not merely extract information. This goes beyond procedural design into the realm of relational ethics, where methodological encounters are seen as dialogic and reflective rather than one-directional.^[3]

Feedback plays a vital role in educational research, as it provides an evidence-based understanding of learners' experiences and helps identify

Corresponding Author:

Rashi Sharma, Ph.D. Scholar,
Department of Rachana Sharir, National Institute of Ayurveda,
Deemed University, Jaipur, Rajasthan, India.
Email: jaipurprabhakars@gmail.com

areas of improvement in teaching practices. In medical education, structured feedback from students has been shown to enhance curriculum development, teaching effectiveness, and learner engagement. Particularly in anatomy education, student perceptions are crucial for balancing traditional cadaveric dissection with modern approaches such as virtual simulations, multimedia tools, and integrated teaching strategies.^[4]

The present study employs a systematically developed questionnaire that not only captures demographic characteristics but also explores multiple dimensions of teaching and learning in Rachana Sharir. These include the curriculum structure, teaching methods, technological integration, and overall student satisfaction. The questionnaire is designed with both closed- and open-ended items to allow quantifiable analysis while also providing space for qualitative insights into students' experiences. Importantly, a validation feedback format was included to ensure content accuracy, clarity, and appropriateness of the items, following established principles of questionnaire validation.^[1]

By focusing on the perceptions of undergraduate Ayurveda students across different colleges in Rajasthan, the study aims to generate a context-specific understanding of anatomy teaching methods. This is particularly significant for Ayurveda education, where Sharir Sthana from classical texts must be taught in parallel with modern anatomical knowledge. Systematic feedback from learners will therefore help bridge traditional and contemporary teaching methods, improve pedagogical effectiveness, and inform future curriculum reforms in Ayurveda anatomy education.

2. QUESTIONNAIRE DESIGN AND DEVELOPMENT

2.1. Set Clear Aims

The primary aim of this study was to design and validate a comprehensive questionnaire to assess the perception and feedback of undergraduate Ayurveda students regarding teaching methods in Rachana Sharir (Human Anatomy).

Specific objectives included:

1. To assess students' perspectives on the current curriculum structure and teaching methodologies
2. To evaluate satisfaction, engagement, and learning effectiveness across traditional and modern modalities
3. To analyze the integration of technology and e-learning tools in Rachana Sharir teaching
4. To obtain constructive feedback for enhancing anatomy education in Ayurveda institutions.

2.2. Define Attributes

The questionnaire was designed to measure multiple attributes:

- Curriculum perception: Duration, topic distribution, lecture-to-practical ratio
- Teaching methods: Effectiveness of lectures, dissection, multimedia, group discussions, simulations
- Student feedback: Satisfaction, engagement, preparedness for examinations, and clinical application
- Technological integration: Frequency and perceived usefulness of digital learning tools
- Overall experience: General impressions and suggestions for improvement.

2.3. Write a Plan

A structured plan was created in four stages:

1. Item generation: Based on literature review, expert consultation, and previous feedback from anatomy students
2. Item grouping: Categorization into sections – demographic details, curriculum feedback, perception of teaching methods, feedback on methods, technology use, and overall experience
3. Response format: Combination of Likert scale items (1–5 rating), multiple-choice, and open-ended questions
4. Ethical considerations: Informed consent, voluntary participation, and confidentiality assurance were integrated.

2.4. Develop and Write Items

A total of six sections were developed:

1. Demographic information (age, gender, year, college, and board)
2. Feedback regarding curriculum (4 questions)
3. Perception of teaching methods (8 questions)
4. Feedback on teaching methods (8 questions, mixed format)
5. Technological and resource utilization (3 questions)
6. Overall experience (2 questions).

Each item was worded to ensure clarity, relevance, and cultural appropriateness for Ayurveda undergraduate students.

3. QUESTIONNAIRE VALIDATION

3.1. Process

The drafted questionnaire underwent expert validation by a panel of six subject experts specializing in Rachana Sharir, Ayurveda education, and medical pedagogy. Experts evaluated each item on four parameters:

1. Relevance to study objectives
2. Clarity of language and phrasing
3. Appropriateness of response options
4. Overall adequacy of the questionnaire

Each parameter was rated on a four-point scale (1 = Not relevant and 4 = Highly relevant). Ratings of 3 and 4 were considered valid for content validity assessment.

3.2. Content Validity Index (CVI) Index

The CVI was calculated both at the item level (I-CVI) and scale level (S-CVI):

- I-CVI for all four criteria = 1.00
- S-CVI/Ave (average of I-CVIs) = 1.00
- S-CVI/UA (universal agreement) = 1.00

Since $CVI \geq 0.78$ is considered acceptable for six or more experts, the obtained value of 1.00 indicates excellent content validity, confirming the questionnaire's clarity, relevance, and adequacy across all parameters.

As per validation, feedback forms:

- 1 = Not relevant
- 2 = Somewhat relevant
- 3 = Relevant
- 4 = Highly relevant

3.2.1. Step 1: Extract data

You have 6 experts and 4 criteria; each rated from 1 to 4 (where 3 and 4 are considered valid ratings for CVI) [Table 1].

3.2.2. Step 2: I-CVI computed

For each item (criterion), count how many experts rated 3 or 4, then divide by the total experts (6) [Table 2].

3.2.3. Step 3: Scale Level CVI (S-CVI) Computed

a) S-CVI/Ave (average of I-CVIs):

$$S-CVI/Ave = \frac{1+1+1+1+1}{5} = 1.00$$

b) S-CVI/UA (universal agreement – all experts agree):

$$S-CVI/UA = 1.00$$

4. RESULTS

4.1. Interpretation

A CVI value ≥ 0.78 is generally considered acceptable when ≥ 6 experts are involved.

The questionnaire's CVI = 1.00 indicates excellent content validity across all parameters [Table 3].

4.2. Conduct Field Pre-testing (Pilot Study)

A pilot study was conducted among a small group of 1st-year BAMS students to ensure comprehension and appropriateness. Minor linguistic refinements were made based on their feedback, ensuring that all questions were easily understandable and contextually relevant before field distribution.

5. DISCUSSION

The systematic process of developing and validating this questionnaire underscores the importance of methodological rigor and contextual appropriateness in educational research. The multi-stage approach – comprising literature review, expert consultation, structured item generation, and pilot testing – ensured both psychometric soundness and relevance to Rachana Sharir pedagogy in Ayurveda.

The study achieved excellent content validity, with all items recording I-CVI = 1.00 and scale level indices S-CVI/Ave and S-CVI/UA = 1.00. Such values indicate unanimous expert agreement regarding the clarity, relevance, and appropriateness of all items. Previous literature indicates that a CVI ≥ 0.78 is acceptable when validation involves six or more experts, confirming this instrument's exceptional validity and precision.

The inclusion of multiple item formats – Likert-scale, multiple-choice, and open-ended questions – facilitates both quantitative and qualitative analyses, offering comprehensive insights into students' perceptions and feedback. This dual approach aligns with constructivist research perspectives, which emphasize the co-construction of meaning between researcher and participant rather than a one-directional flow of information.^[2]

The pilot study among 1st-year BAMS students further validated the instrument's linguistic clarity and contextual relevance. Minor revisions following student feedback enhanced comprehensibility, thereby strengthening the questionnaire's suitability for large-scale field use.

Educationally, the validated tool provides a standardized framework for evaluating diverse teaching modalities in Rachana Sharir – from traditional lectures and cadaveric dissections to multimedia presentations, simulations, and e-learning tools. Such evaluation methods have been shown to enhance the quality of anatomy instruction, improve learner engagement, and support reflective curriculum design.^[4,5]

Furthermore, this study contributes to bridging the gap between classical Ayurvedic anatomy (Sharir Sthana) and modern anatomical education, promoting an integrated and student-centered model consistent with competency-based medical education reforms.^[6] Emphasizing student feedback aligns with best practices in health sciences education, where responsive and participatory pedagogies are central to effective learning.^[3,7]

The present study successfully produced a valid, reliable, and contextually grounded questionnaire for assessing students' perceptions of teaching methods in Rachana Sharir. Beyond serving as a feedback instrument, it functions as an evidence-based tool to guide curriculum improvement and enhance integrative teaching in Ayurveda colleges.

Findings from this validated tool will enable educators to compare teaching methods, identify strengths and gaps in anatomy pedagogy, and align teaching strategies with competency-based medical education frameworks. In addition, this approach bridges the gap between traditional Ayurvedic and modern anatomical education, encouraging integrated, student-centered learning.

5.1. Final Designed and Validated Questionnaire

Title: A survey study on the perception and feedback of undergraduate medical students of ayurveda science on teaching methods in rachana sharir (human anatomy) in various ayurveda colleges within Rajasthan state.

Introduction: Teaching modalities in Rachana Sharir have evolved from traditional methods like *Shlokas* recitation and cadaveric dissection to integrative approaches combining 3D models, plastinated specimens, and digital tools. Current trends emphasize competency-based education, interactive learning, and interdisciplinary correlations with modern anatomy. This blend enhances conceptual clarity and clinical relevance.

Purpose of the Survey: The purpose of the study is to assess the perception and feedback of undergraduate Ayurveda students regarding the teaching methods used in Rachana Sharir (Human Anatomy) in various Ayurveda colleges within Rajasthan state.

Confidentiality: Your responses regarding this survey study will be kept confidential and used solely for academic and research purposes. Participation is voluntary and you may withdraw at any time without penalty.

Instructions: Please answer the following questions honestly and to the best of your ability. Your feedback is valuable and will help improve the teaching methods in your Rachana Sharir (Human Anatomy) curriculum.

5.2. Consent Statement

By proceeding with this questionnaire, I confirm the following:

- I have read and understood the purpose of this survey and my role as a participant.
- I voluntarily agree to participate in this research study titled “A Survey Study on the Perception and Feedback of Undergraduate Medical Students of Ayurveda Science on Teaching Methods in Rachana Sharir (Human Anatomy)”
- I understand that my responses will be kept confidential and used solely for academic and research purposes.
- I understand that my participation is completely voluntary, and I may withdraw from the study at any time without any consequences or need for justification.

- I acknowledge that there are no foreseeable risks or harm associated with my participation in this study.
 - I understand that participating in this study may benefit me by providing an opportunity to reflect on and express my views regarding teaching methodologies, which may contribute to future improvements in anatomy education within Ayurveda curricula.
- ☐ I agree to participate in the survey.
- ☐ I do not agree to participate.

5.3. Demographic Information

1. Age: ☐ 18-20 ☐ 21-23 ☐ 24-26 ☐ 27 and above
2. Gender: ☐ Male ☐ Female ☐ Other ☐ Prefer not to say
3. Year of Study: ☐ 1st Prof. new batch (Batch 2024-25)
☐ 1st Prof. old batch (Batch 2023-24)
4. Name of College-.....
5. Name of University-.....
6. Previous Education Board (for Class 12th): ☐ CBSE ☐ ICSE
☐ RAJASTHAN BOARD ☐ Other

5.4. Feedback Regarding Curriculum of Rachana Sharir

1. In your opinion, what should be the ideal duration or time allocation for Rachana Sharir (Human Anatomy) within the First Professional B.A.M.S curriculum?
☐ Current scheme of 1½ year
☐ Previous scheme of 1 year
☐ More than 1½ year
☐ No idea
2. Curriculum of Rachana Sharir (Human Anatomy) should be
☐ *Sharir Sthan* from Brihatrayee (Charaka, Sushruta, Ashtanga Hridaya) + Textbook of Modern Anatomy
☐ *Sharir Sthan* from both Brihatrayee and Laghutrayee + Textbook of Modern Anatomy
☐ A comparative and concise integration of *Sharir Sthan* from all Samhitas in one text + Textbook of Modern Anatomy.
☐ No idea.
3. Division of topics according to the 1st, 2nd & 3rd terms in curriculum is appropriate?
☐ Yes ☐ No ☐ Unable to judge
4. Is this lecture and non-lecture hour scheme in the curriculum efficient?
☐ Yes ☐ No ☐ Unable to judge

5.5. Perception of Teaching Methods

1. Which teaching methods are used in your Rachana Sharir (Human Anatomy) classes? (Select all that apply)
☐ Traditional Lectures ☐ Practical Sessions ☐ Group Discussions
☐ Multimedia Presentations ☐ E- learning Modules ☐ Problem-based learning
☐ Case studies ☐ Simulation ☐ Others (Please Specify).....
2. Rate the effectiveness of the following teaching methods on a scale of 1 to 5 (1 being least effective and 5 being most effective)
 - Lectures (*Example:* A teacher explains the structure of the vertebral column using chalk and board, or PowerPoint slides, in a classroom setting.)
(Grade from 1 to 5).....
 - Practical Sessions (*Example:* Students observe and identify organs in a cadaver or a dissected specimen of the upper limb in the dissection hall.)
(Grade from 1 to 5).....

- Group Discussions (*Example:* A small group of students discusses the clinical importance of the brachial plexus with guidance from a facilitator.)
(Grade from 1 to 5).....
 - Multimedia Presentations (*Example:* Watching an animated video showing the development of the gastrointestinal tract or movement of synovial joints.)
(Grade from 1 to 5).....
 - E- learning Modules (*Example:* Completing an online module or quiz on the bones of the skull through an anatomy learning platform or app.)
(Grade from 1 to 5).....
 - Problem-based learning (*Example:* Students are given a case of shoulder injury and asked to identify which anatomical structures might be affected and why.)
(Grade from 1 to 5).....
 - Case studies (*Example:* A clinical case involving sciatica is used to understand the course and relations of the sciatic nerve and its anatomical variations.)
(Grade from 1 to 5).....
 - Simulation (*Example:* Using a virtual dissection table or 3D anatomy app (like *Complete Anatomy* or *Anatomage*) to explore internal organs layer by layer.) (Grade from 1 to 5).....
3. How often are practical sessions conducted?
☐ Never ☐ Occasionally ☐ Frequently ☐ Always ☐ As per routine
 4. What are the preferred teaching methods for Practical classes?
☐ Cadaveric Dissection ☐ Virtual Dissection ☐ Prosections
☐ Educational Videos ☐ Anatomical Models
** Prosection refers to a dissection of a cadaver or body part that has been previously prepared by a trained individual (usually a teacher or anatomist).
 5. How engaging do you find the Rachana Sharir (Human Anatomy) classes?
☐ Not engaging at all ☐ Moderately engaging
☐ Very engaging ☐ Extremely engaging
 6. Do you find the teaching methods to be up-to-date with current medical education trends?
☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree

5.6. Feedback on Teaching Methods

1. What do you like the most about the current teaching methods used in your Rachana Sharir (Human Anatomy) classes? (open ended)
.....
2. What do you dislike about the current teaching methods used in your Rachana Sharir (Human Anatomy) classes? (open ended)
.....
3. How satisfied are you with the current teaching methods on a scale of 1 to 5?
☐ 1 (Very Dissatisfied)
☐ 2 (Dissatisfied)
☐ 3 (Neutral)
☐ 4 (Satisfied)
☐ 5 (Very Satisfied)
4. Do you feel the teaching methods adequately prepare you for examinations and clinical application?
☐ Yes ☐ No ☐ Not sure

5. Have you experienced any difficulties in understanding the content due to the teaching methods?
☐ Yes ☐ No ☐ Sometimes
6. How would you rate the availability and quality of the teaching materials (e.g., textbooks, online resources, anatomy models)?
☐ Very Poor ☐ Average ☐ Good ☐ Excellent
7. Do you feel encouraged to ask questions and participate during Rachana Sharir (Human Anatomy) classes?
☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree
8. What improvements would you suggest for the teaching methods in Rachana Sharir (Human Anatomy)?

5.7. Technological and Resource Utilization

1. How often do you use online resources or e-learning platforms for your Rachana Sharir (Human Anatomy) studies?
☐ Never ☐ Rarely ☐ Occasionally ☐ Frequently ☐ Always
 *** If you selected *Occasionally*, *Frequently*, or *Always*, please continue to the next section. If you selected *Never* or *Rarely*, you may skip the following questions related to digital learning.
2. Rate the effectiveness of the following technological tools in enhancing your learning experiences in Rachana Sharir (Human Anatomy): (Rate as 1 to 5)
☐ Anatomy apps
☐ Online videos/tutorials
☐ Virtual Dissection Tools
☐ 3D Anatomy Models
☐ Online quizzes and interactive activities
3. What challenges do you face when using technological resources for Rachana Sharir (Human anatomy) studies? Select all that apply.
☐ Lack of access to necessary technology
☐ High costs of technology
☐ Insufficient training on how to use the technology
☐ Technical issues

5.8. Overall Experience

1. Overall, how would you rate your learning experience in Rachana Sharir (Human Anatomy) Classes?
☐ Poor ☐ Average ☐ Good ☐ Excellent
2. Do you have any additional comments or suggestions for improving Rachana Sharir (Human Anatomy) teaching methods?

6. CONCLUSION

The developed questionnaire is a valid and reliable tool for assessing undergraduate Ayurveda students' perceptions and feedback on teaching methods in Rachana Sharir. With excellent content validity (CVI = 1.00), it can serve as a standardized instrument for institutional audits, pedagogical research, and curriculum enhancement. Its application across multiple Ayurveda colleges can yield valuable insights for strengthening anatomy education and integrating classical and modern approaches effectively.

7. ACKNOWLEDGMENT

I express my sincere gratitude to all the esteemed experts who kindly devoted their valuable time and insights to validate the questionnaire, thereby enhancing its quality and credibility. Their constructive suggestions and encouragement were instrumental in refining this tool.

8. AUTHOR'S CONTRIBUTIONS

All the authors have read and approved the final version of the manuscript.

9. FUNDING

The authors declare that no financial support was received from any organization for the submitted work. In addition, all authors declare that they have no financial relationships with organizations that might be interested in the submitted work.

10. ETHICAL STATEMENT

Ethical approval was not required for this study as it was a review article with data obtained through a survey study.

11. CONFLICT OF INTERESTS

The authors declare no conflicts of interest regarding the publication of this paper.

12. DATA AVAILABILITY STATEMENT

The data analyzed in this review were obtained from publicly available sources, including peer-reviewed articles, observational studies, and surveys accessible through databases.

13. PUBLISHERS NOTE

This journal remains neutral with regard to jurisdictional claims in published institutional affiliations.

REFERENCES

1. Boparai JK, Singh S, Kathuria P. How to design and validate a questionnaire: A guide. *Curr Clin Pharmacol*. 2018;13(4):210-5.
2. Romm NR. Employing questionnaires in terms of a constructivist epistemological stance: Reconsidering researchers' involvement in the unfolding of social life. *Int J Qual Methods*. 2013;12(1):652-69.
3. Hewitt J. Ethical components of researcher researched relationships in qualitative interviewing. *Qual Health Res*. 2007;17(8):1149-59.
4. Ossenber C, Henderson A, Mitchell M. What attributes guide best practice for effective feedback? A scoping review. *Adv Health Sci Educ Theory Pract*. 2019;24(2):383-401.
5. Sugand K, Abrahams P, Khurana A. The anatomy of anatomy: A review for its modernization. *Anat Sci Educ*. 2010;3(2):83-93.
6. Harden RM. Ten key features of the future medical school-not an impossible dream. *Med Teach*. 2018;40(10):1010-5.
7. Ganguly PK. Teaching of anatomy in the new millennium. *Med Educ Online*. 2010;15(1):4469.

How to cite this article:

Sharma R, Yadav SK. Development and validation of a questionnaire to assess the perception and feedback of undergraduate medical students of Ayurveda science on teaching methods in Rachana Sharir. *IRJAY*. [online] 2025;8(11):1-6.
Available from: <https://irjay.com>
DOI link- <https://doi.org/10.48165/IRJAY.2025.81101>

Table 1: Step 1- Extract data

Criteria	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6
Relevance to study objectives	4	4	3	4	3	4
Clarity of language and phrasing	4	3	3	4	4	3
Appropriateness of options (for closed-ended questions)	4	3	3	4	3	3
Overall adequacy of the questionnaire	4	3	3	3	4	4

Table 2: Step 2: Item-Level CVI (I-CVI) computed

Criteria	Experts giving 3 or 4	I-CVI
Relevance to study objectives	6	6/6=1.00
Clarity of language and phrasing	6	6/6=1.00
Appropriateness of options	6	6/6=1.00
Overall adequacy of questionnaire	6	6/6=1.00

Table 3: Results

Index type	Value
Item level CVI (I-CVI)	All=1.00
Scale level CVI (S-CVI/Ave)	1.00
Scale level CVI (S-CVI/UA)	1.00