Ayurveda Section

Simulation-based Education: A Vital Inclusion for Competency Building in Ayurveda Education

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Dear Editor,

Simulation-Based Learning (SBL) provides learners with realistic, immersive learning experiences that closely mimic real-world clinical situations, making it a valuable tool for training and evaluation [1]. It has become a key part of medical education. It helps learners to build both technical and non-technical skills like resuscitation, technical procedures, communication, and teamwork in a safe, controlled setting, improving their readiness for real-life practice [2,3]. As healthcare education evolves, there is a growing need to bridge the gap between theory and practice, and SBL has played a key role in addressing this need in modern medicine.

Ayurveda has a deep-rooted philosophy and therapeutic richness. Incorporation of simulation-based learning in Ayurveda education helps the students to better understand the Ayurveda principles. It facilitates the learning and hands-on experiences and prepares them for the demands of real-world clinical care. Simulation provides a safe, repeatable, learner-centred approach effective environment for acquiring skills and thereby helps to boost the confidence of students [4].

In the current scenario, the number of Ayurveda colleges has significantly increased across the country. Many of these institutions have an annual intake capacity of over 100 students. Nevertheless, neither the clinical infrastructure nor the availability of patients has increased in tandem with this quick rise. As a result, students often face limited exposure to real-life clinical cases, which is crucial for their practical skills. Furthermore, ethical regulations and restrictions on hands-on patient training further limit their ability to gain essential clinical skills. This situation can lead to a lack of confidence among graduates and may hinder their ability to effectively compete in today's fast-evolving healthcare landscape [5].

Ayurveda graduates play an important role in the primary healthcare delivery system of the country. So it is necessary to focus on appropriate measures to make students sufficiently confident to perform basic clinical skills [6]. Considering this need and to foster standardisation of Ayurveda education, simulation-based learning is incorporated by the National Commission for Indian System of Medicine (NCISM) in the Ayurveda curriculum [7]. It is demonstrated that simulation-based learning enhances technical proficiency as well as other skills like critical thinking, communication and teamwork, crucial not only in medical institutions but also for Ayurveda professionals. Despite numerous advantages and proven utility, simulation-based education has been adopted by only a limited number of Ayurveda colleges. Challenges such as insufficient funding, a shortage of trained faculty, and the absence of dedicated simulation infrastructure hinder its widespread implementation in Ayurveda education. Its integration across different Ayurveda subjects will offer significant benefits to students. [Table/Fig-1] shows second-year professional students utilising the simulation unit to practice respiratory system examination.

[Table/Fig-1]: Students performing respiratory sounds auscultation on simulation.

Likewise, the simulated panchakarma unit, as shown in [Table/Fig-2] help the students to practice the delicate procedures like Nasya, Shirodhara, Basti without risking patient safety. It can also be used for different parasurgical procedures, Viddhakarma (Needle puncture), Agnikarma (Thermal Microcautery), Kshara Karma (Chemical Cautery), Rakta mokshana (Bloodletting), Nadi pariksha (Pulse examination), Systematic examination and many other skillful procedures in Ayurveda. Some of the Ayurvedic and Modern practices that can be successfully or easily learned using modern simulations are depicted in [Table/Fig-3,4], respectively. As per the competencies and learning objectives identified, simulation models may be developed and utilised for continuous learning and evaluation programmes.
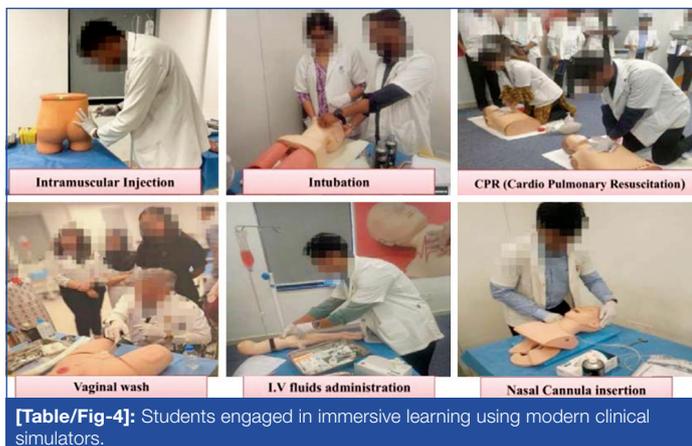
Incorporation of SBL in Ayurvedic education is not only limited to academic enhancement, but it is also necessary to reform and ensure that future practitioners are confident, competent, and clinically prepared. The academic institutions, policymakers, and educators have a golden opportunity to embrace this progressive approach and elevate the standards of Ayurvedic education in alignment with global healthcare expectations.

[Table/Fig-2]: Simulated Panchakarma unit for procedures like Shirodhara, Netratarpan and Nasya.

[Table/Fig-3]: Students engaged in practical learning using diverse simulation models.

[Table/Fig-4]: Students engaged in immersive learning using modern clinical simulators.

Novelty of the Study: This study presents a novel perspective by advocating for the structured integration of SBL in Ayurvedic education, a domain where its application remains limited. Unlike conventional medical education, where SBL is well-established, this paper identifies specific areas within Ayurveda, such as Panchakarma procedures, parasurgical techniques (Agnikarma, Kshara Karma etc.,), and diagnostic skills (Nadi Pariksha etc.,) that can benefit from simulation-based training. The study uniquely addresses the challenges of increasing student intake, limited patient availability, and ethical constraints, proposing simulation as a viable solution to bridge the theory-practice gap. Although SBL is increasingly recognised as an effective educational tool, more evidence-based studies are required to assess its effectiveness in improving practical skills, clinical decision-making, and confidence among Ayurveda students. Further research will help to create standardised simulation models and validate their impact across different subjects and procedures.

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