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Exploring Youtube And Instagram As A Additional Learning Tool For Clinical Procedures In Dental Education: Research In Teaching Institute

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ABSTRACT

Background: YouTube and Instagram are popular tools among Dental students for visualizing clinical procedures through expert-led tutorials and user-generated content. While these platforms enhance learning and confidence, assessing content quality and integrating them into formal education can modernize teaching methods.

Objective: To evaluate the impact and analyse the role of YouTube and Instagram as a additional learning method for clinical procedures among dental students in teaching institutes.

Methods: A two-month descriptive cross-sectional study was conducted in three Dental colleges using convenience sampling. Data was collected via a 15-item, self-administered, structured questionnaire in English.

Results: The study found YouTube useful for detailed procedures and Instagram for quick tips, aiding visual learning through repeated viewing. Increased platform use was positively linked to higher self-reported clinical confidence.

Conclusion: YouTube and Instagram enhance understanding of clinical techniques through accessible, visual content that boosts engagement and confidence. YouTube offers in-depth learning, while Instagram provides quick references, supporting their integration into formal Dental education.

Keywords: Dental education, Clinical procedures, YouTube learning, Instagram in education, Social Media learning

INTRODUCTION

Over the last ten years, the field of higher education in India has experienced a significant transformation with the incorporation of digital tools into conventional teaching methods. Specifically, medical and Dental education, which heavily depends on practical and visual training, has increasingly embraced online resources to enhance clinical teaching. Among the most commonly utilized digital platforms are YouTube and Instagram, which have emerged as accessible and versatile learning resources, particularly in light of changing technological trends and the growing digital literacy among students[1,2].InIndia, dental education prioritizes hands-on training in clinical skills like tooth preparation, crown fabrication, endodontic treatment, and oral surgeries. However, challenges such as limited patient availability, inadequate infrastructure, and time limitations often prevent students from acquiring sufficient exposure to these clinical skills. This shortfall has been somewhat compensated by the availability of high-quality video tutorials and content shared by peers on platforms like YouTube and Instagram, enabling students to repeatedly watch, grasp, and contemplate procedural steps at their own convenience[3,4].

YouTube, with its extensive library of procedure videos, recorded lectures, 3D animations, and live clinical demonstrations, is increasingly being used by dental students in India to reinforce what they learn in the classroom[5]. It facilitates asynchronous education, allowing students to decide when, how, and what they want to learn, thereby providing them with greater autonomy in their learning process. Furthermore, the algorithmic nature of YouTube recommends related videos, enabling students to investigate a range of techniques and procedural alternatives in various specialties, including prosthodontics, endodontics, periodontics, and oral surgery[6]. Students often find these visual resources particularly beneficial when preparing for preclinical exams, clinical rotations, or while first learning about new procedures[5]

Similarly, Instagram, initially designed as a social networking site, has quickly transitioned into a microlearning platform. Dental educators, postgraduate students, and practitioners in India now utilize Instagram to disseminate short video reels, clinical advice, infographics, and overviews of procedures[7]. The platform promotes real-time interaction through stories, live Q&A sessions, and comment sections, enhancing the learning experience. Students appreciate the convenience of accessing concise content on Instagram, especially during brief breaks or as part of their study routine. Hashtags like #DentalEducation, #ClinicalDentistry, #ProsthoTips, and #OperativeDentistry have also contributed to the organization and identification of pertinent educational material[8]. Research studies around the world, including in India, have investigated the trends of using YouTube and social media in medical and dental education. A study conducted in Pakistan indicated that most dental students turned to YouTube for guidance on procedures, particularly in prosthodontics, and found it beneficial for connecting theoretical concepts with clinical practices[9]. Likewise, research from Saudi Arabia, the United States, and Türkiye found that both medical and dental students frequently accessed YouTube prior to performing clinical procedures[10,11,12]. This pattern is similarly observed in India, where students from urban and semi-urban dental schools seek supplementary guidance from these platforms, especially when faculty oversight is minimal or when live demonstrations are impractical[2,4].

MATERIALS AND METHODS

The cross-sectional study was conducted at dental constitute institutes of Krishna Vishwa Vidyapeeth (KVV), Pravara Institute of medical science (PIMS), Bhartee Vidyapeeth deemed University (BVDU) between June and July 2025.

After approval from the institutional ethics review board of KVV, the sample size was calculated using the formula by taking the prevalence of dental students using YouTube and Instagram as a additional learning tool for clinical procedures to be 50%, with margin of error of 5%.The total target population of clinical students was 200. The sample was raised from among them using simple random sampling technique. Those included were undergraduate dental students from their clinical training years of study of Krishna Vishwa Vidyapeeth, Pravara Institute of medical science, Bhartee Vidyapeeth deemed University. Individuals from both genders aged 18-30 years regardless of religion, cast, creed and socio-economic status were included. Participants not willing to participate and students from the pre-clinical years were excluded. After taking informed consent from the participants, data was collected using a self-administered, structured, closed-ended 15-item questionnaire. The questionnaire had two sections. The first section included 4 questions about the participant's demographic details, while the second section included 11 screening questions related to the usage of YouTube and Instagram as a additional learning tool for dental clinical procedures.

Sample size
The total sample size estimated is 200 students.
The sample size was estimated using the formula:
Sample size (n) $=z^2 p q / l^2$
Where:
N = sample size
Z = standard normal variable at 95% CI (Confidence Interval)
P = proportion of factor of interest
Q = 100 – p
L = margin of error at 95% Confidence Interval
Target population: Undergraduate dental students (3^{rd} year to 4^{th} year)
Sample size: 100

Criteria
Inclusion criteria:
1. Students who are doing clinical procedures.
2. Willingness to participate voluntarily.

Exclusion Criteria:
1. Students who are not doing clinical procedures.
Post graduate students

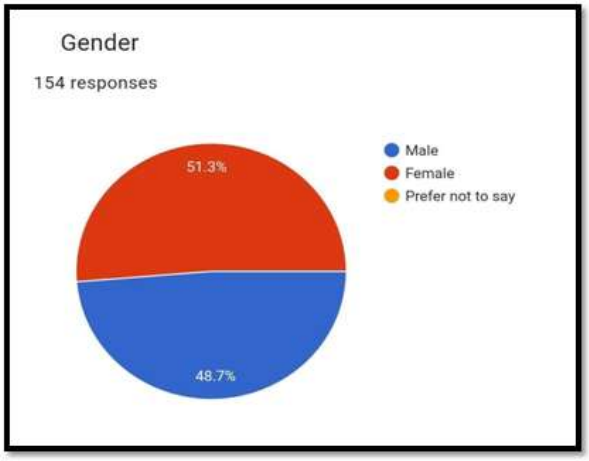
Ethical approval for study:
The Institutional Ethics Committee has given permission to initiate the research (Protocol Number 129/2025-2026) titled, "Exploring YouTube and Instagram as a additional learning tool for clinical procedures in dental education: Research in teaching institute

Data collection:
The survey will be made available in digital formats (Google Forms) to maximize accessibility among the colleges involved. Prior to distribution, a brief overview of the study's aims will be provided.

Data collection methods:
Participants and Survey Instrument An online cross-sectional survey was created and distributed via the Universal Questionnaire Designer platform to assess dental students' utilization of YouTube and Instagram as supplementary resources for learning clinical procedures in educational institutions. Final-year undergraduates, Third-year undergraduates and interns actively involved in clinical training were the target participants, while faculty members, postgraduates, and preclinical students were not included. Prior to participating, all respondents gave their electronic informed consent, and completing all sections was mandatory for submission.

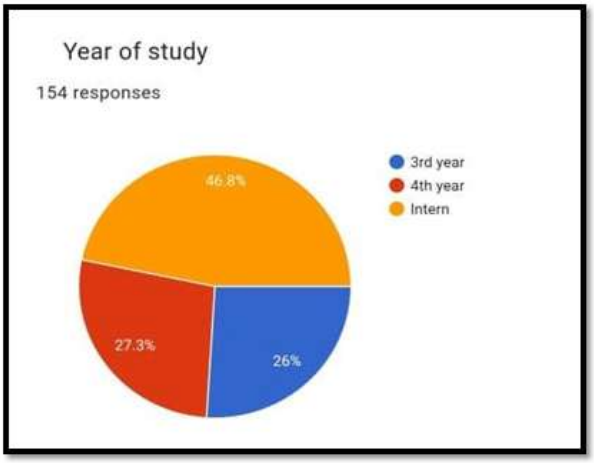
Statistical Methodology:
Data will be gathered through Microsoft Excel and analysed using SPSS software (version XX, IBM Corp., Armonk, NY, USA). Summary statistics, such as frequency, percentage, mean, and standard deviation, will be used to characterise participant demographics and overall response patterns. The Chi-square test will be employed to examine relationships between categorical variables, while mean score comparisons between two groups will utilise the independent t-test, and comparisons involving more than two groups will be conducted using one-way ANOVA with Tukey's post-hoc analysis. To investigate associations between continuous variables, Pearson's correlation will be applied, and the reliability of the questionnaire will be assessed using Cronbach's alpha, with values of 0.7 or higher indicating acceptable internal consistency. A significance level of $p < 0.05$ will be established for all statistical analyses.

RESULT

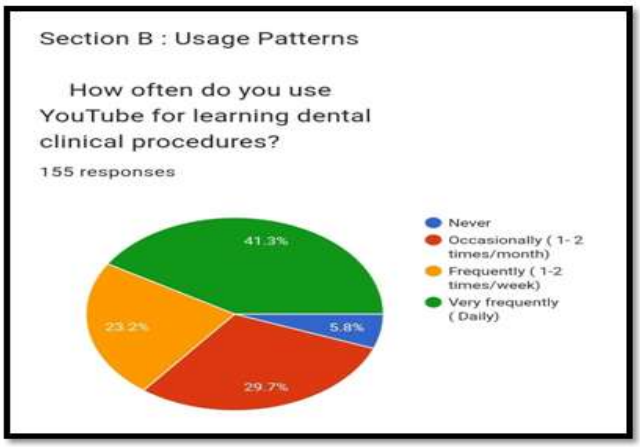


Survey conducted for 100 students, 155 completed the survey – a response rate of 155% among them, 51.3% were female and 48.7% were male.

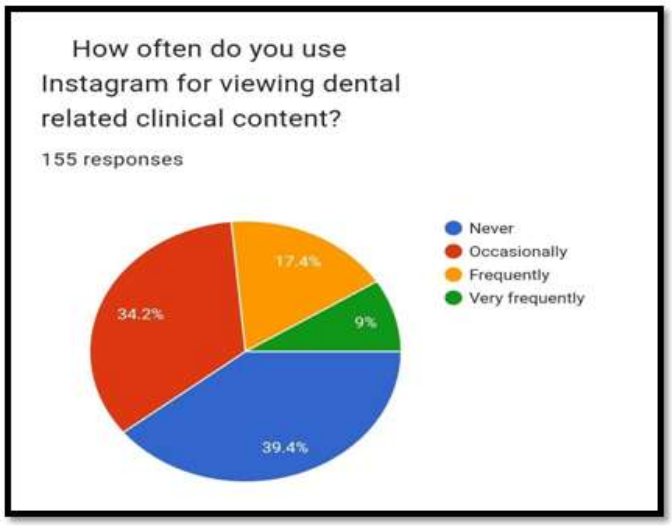
Year of study - out of 154 responses: 26% were 3rd-year students, 27.3% were 4th-year students, and the majority 46.8% were interns. This shows interns formed the largest group of respondents.



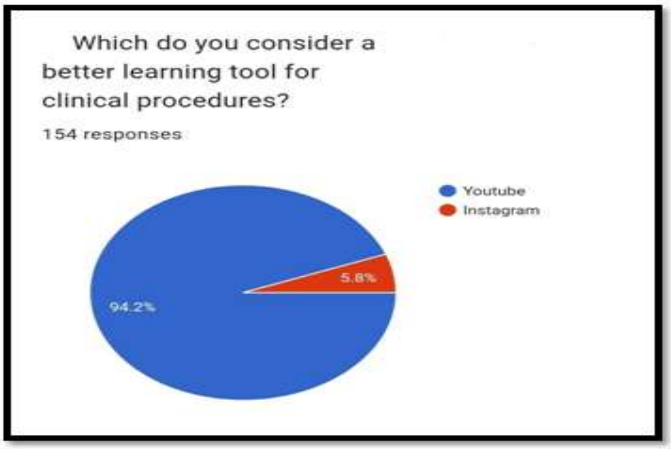
Question of survey are following:
The majority of respondents 41.3% reported using YouTube daily to learn dental clinical procedures, while 29.7% used it occasionally (1-2 times/month). About 23.2% accessed it frequently (1-2 times/week), and only 5.8% indicated they never use it for this purpose.



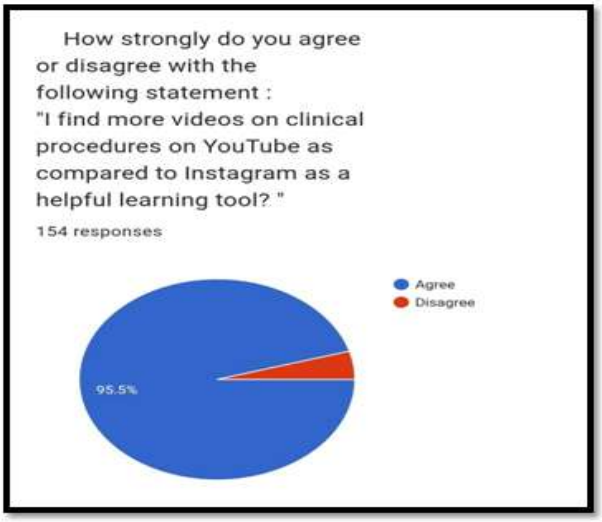
Most respondents (39.4%) reported never using Instagram for Dental-related clinical content, while 34.2% used it occasionally. A smaller proportion used it frequently (17.4%) or very frequently (9%), indicating lower reliance on Instagram compared to other platforms.



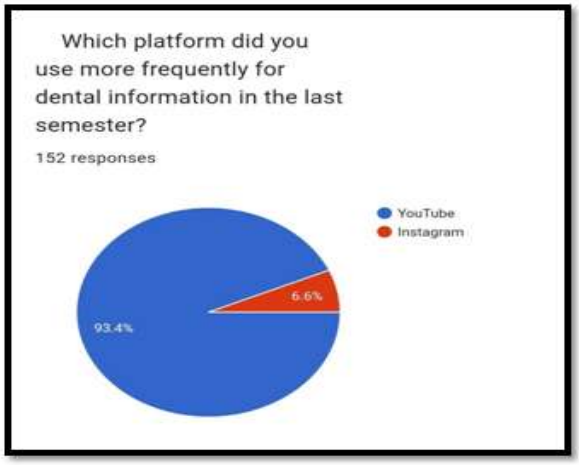
An overwhelming majority of respondents (94.2%) considered YouTube as a better learning tool for clinical procedures, while only 5.8% favoured Instagram. This indicates a strong preference for YouTube as the primary educational platform.



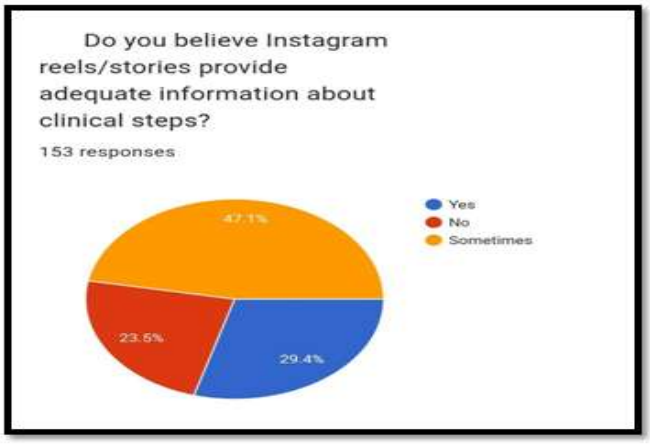
A vast majority of respondents (95.5%) agreed that YouTube provides more videos on clinical procedures compared to Instagram, making it a more helpful learning tool. Only 4.5% disagreed with this statement.



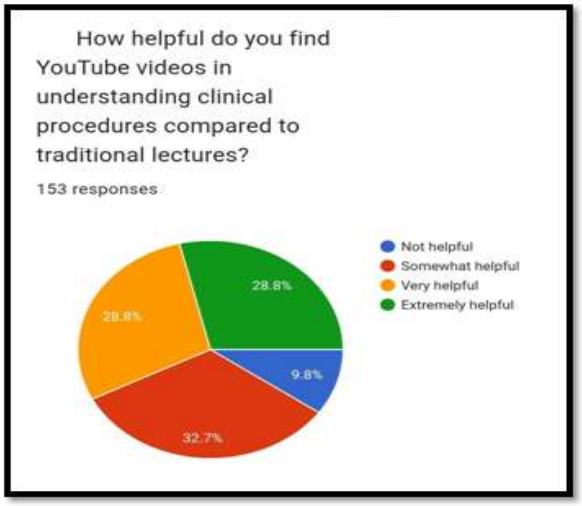
The majority of respondents (93.4%) reported using YouTube more frequently for dental information in the last semester, while only 6.6% relied on Instagram. This highlights YouTube as the dominant platform for academic learning.



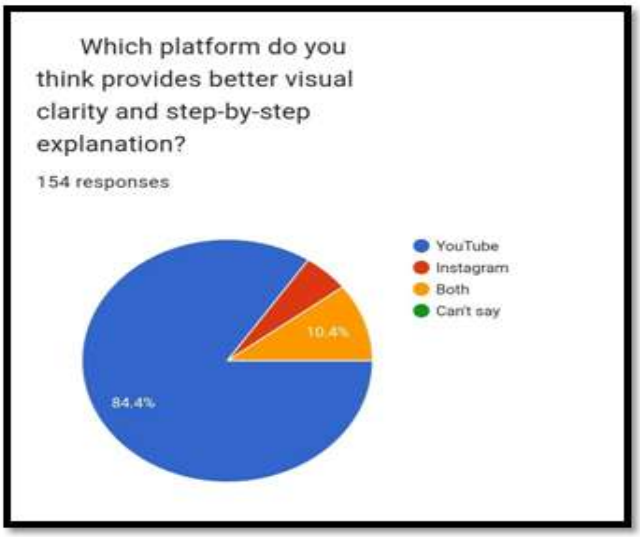
Nearly half of the respondents (47.1%) felt that Instagram reels/stories sometimes provide adequate information about clinical steps. Meanwhile, 29.4% believed they do, whereas 23.5% felt they do not offer sufficient information.



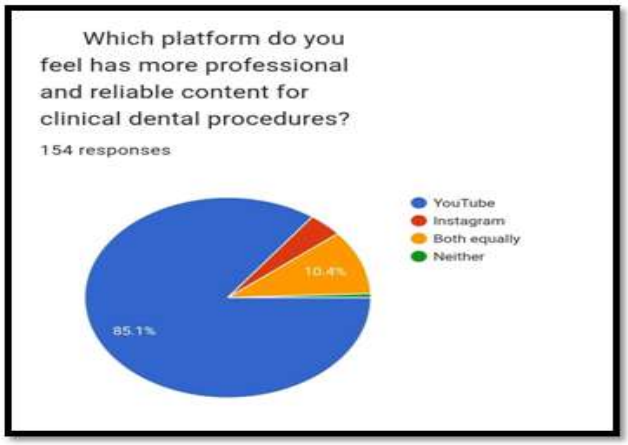
Most respondents found YouTube videos beneficial for understanding clinical procedures compared to traditional lectures, with 32.7% rating them somewhat helpful and 28.8% each considering them very helpful or extremely helpful. Only 9.8% felt they were not helpful.



A large majority of respondents (74.7%) preferred YouTube for quick revision or tips, while 15.6% used both platforms. Only 9.1% relied on Instagram, and a negligible proportion selected none.

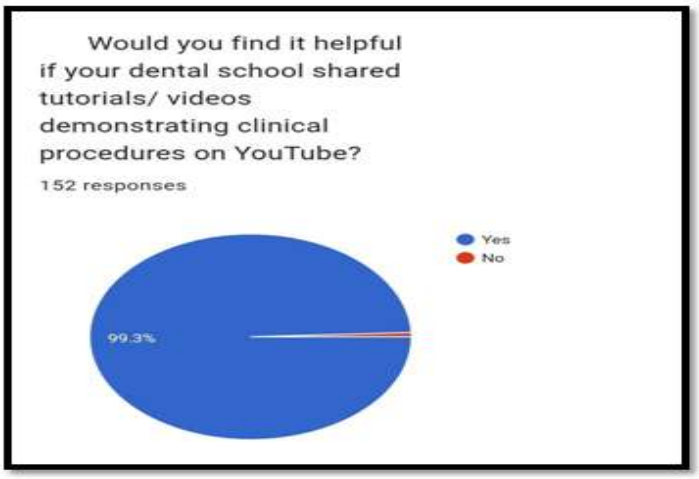


A vast majority of respondents (84.4%) felt that YouTube provides better visual clarity and step-by-step explanations, while 10.4% considered both platforms equally effective. Only a small fraction (5.2%) preferred Instagram for this aspect.



An overwhelming majority of respondents (85.1%) believed YouTube has more professional and reliable content for clinical dental procedures. In contrast, 10.4% felt both platforms are equally reliable, while only a small fraction preferred Instagram or neither.

Almost all respondents (99.3%) agreed that sharing clinical procedure tutorials/videos on YouTube would be helpful, while only 0.7% disagreed. This highlights a strong student preference for video-based learning resources.



The results of the survey show that YouTube is the preferred platform for dental education among students. A significant number of participants indicated that they utilize YouTube for quick reviews and helpful tips, emphasizing its accessibility and effectiveness in preparing for clinical tasks. In contrast, only a small fraction depended on Instagram, with very few using both platforms equally. Regarding clarity and comprehension, participants overwhelmingly preferred YouTube for its superior visual clarity and detailed step-by-step explanations. This indicates that YouTube's longer, organized videos are viewed as more beneficial for academic purposes compared to Instagram's shorter, quicker content like reels or stories. In terms of content professionalism and reliability, YouTube received a much higher rating than Instagram. Students believed that the platform provides more trustworthy and comprehensive tutorials for dental clinical procedures. Overall, the findings affirm that YouTube holds a fundamental position in dental education, while Instagram only plays a minor supplementary role.

DISCUSSION

The current study evaluated the effectiveness of YouTube and Instagram as additional learning resources for clinical procedures within dental education. The results indicated that most students favoured YouTube over Instagram for its visual clarity, step-by-step guidance, and trustworthy content. These findings are consistent with earlier research conducted in India, which often identified YouTube as the most prevalent digital platform for academic and clinical instruction[1,2,3]. One significant factor contributing to this preference may be the organized and comprehensive format of YouTube videos, enabling students to revisit clinical procedures at their own pace. Prior studies have also emphasized YouTube's efficacy in dental education, especially for acquiring procedural skills and augmenting classroom learning[3,5,6]. In comparison, Instagram primarily focuses on brief content such as reels and stories, which may lack the necessary depth for a thorough understanding. This insight elucidates why only a small percentage of participants in the present study viewed Instagram as an effective learning resource[7].

Another noteworthy discovery was the students' view of YouTube as a more credible and professional source than Instagram. Earlier assessments have indicated that many YouTube videos are produced by academic experts or institutions, which bolsters their reliability, though concerns regarding variability in accuracy persist[9,10]. The preference for YouTube found in this study mirrors similar patterns seen in global research relating to surgical and medical training, where it has been recognized as a valuable tool for skill acquisition[10].

In summary, the findings imply that YouTube remains a primary supplementary resource for dental education in India, while Instagram has a minimal impact on clinical learning. Nevertheless, Instagram's engaging and rapid visual approach may still function as a motivational or review aid when paired with more comprehensive YouTube content.

CONCLUSION

The current study highlights the increasing importance of social media in dental education, especially within teaching institutions where students look for additional resources to enhance their traditional classroom and clinical learning experiences. Platforms such as YouTube and Instagram have opened new paths for accessing clinical demonstrations, peer interactions, and professional content, which enrich the overall educational experience for dental students.

Of the two platforms examined, YouTube has been found to be more effective for developing clinical skills. Its longer videos, thorough demonstrations, and organized educational content enable students to revisit complex procedures

multiple times, ensuring a better understanding and retention of the material. On the other hand, while Instagram is useful for brief updates, quick tips, and engagement, it falls short in providing the depth necessary for grasping comprehensive clinical workflows.

As a result, YouTube emerges as a more effective supplementary resource for dental education, particularly in teaching institutions where students require clear, step-by-step instructions on clinical procedures. Although Instagram may still act as an engaging and motivational platform, incorporating YouTube into dental education strategies can greatly enhance procedural knowledge, confidence, and the development of practical skills.

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Author Contributions:
Prachi RatnakantKurawade was in-charge for the overall conception and design of the study They created the questionnaire, performed the literature analysis, and collected data. They also performed the data analysis and interpretation, and led the writing of the manuscript, including the discussion and conclusion sections.
Dr.Ajay Gaikwad who provided academic guidance throughout the research process. They contributed to refining the study design, supported ethical approvals, and provided critical feedback on the analysis and final draft of the paper.

Disclosure:
The author declares no conflicts of interest related to the content, authorship, or publication of this research.

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