Section: Community Medicine

Original Research Article

ONLINE PRE-PG COACHING AND CLINICAL SKILLS AMONG FINAL-YEAR MBBS STUDENTS: A CROSS-SECTIONAL STUDY

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Received : 04/01/2026
Received in revised form : 08/02/2026
Accepted : 27/02/2026

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DOI: 10.70034/ijmedph.2026.1.575

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (1); 3358-3363

ABSTRACT

Background: The growing reliance on online pre-postgraduate coaching among MBBS students has raised concerns regarding its potential impact on hands-on clinical training. This study aimed to examine the association between participation in and intensity of online pre-postgraduate coaching and clinical learning outcomes, including clinical competence, self-perceived confidence, and attendance in clinical postings among final-year MBBS students.

Materials and Methods: A cross-sectional study was conducted among 168 final-year MBBS students at a tertiary care teaching institution in Central India over six months using a pre-designed, semi-structured questionnaire. Online pre-postgraduate coaching intensity was assessed using a composite score based on hours per week, duration of use, and frequency of engagement, and categorized as low, moderate, or high. Clinical competence was measured using a 10-item self-reported checklist (score range: 10–50), and self-perceived clinical confidence using a Likert-based scale (score range: 1–5). Clinical posting attendance and perceived benefits and drawbacks of online coaching were also evaluated. Statistical analysis was performed. $p<0.05$ considered statistically significant.

Results: Of the participants, 71.4% reported using online pre-PG coaching platforms. Mean clinical competence scores declined significantly with increasing coaching intensity (low: 39.8±5.1; moderate: 37.2±5.9; high: 33.4±6.8; $p=0.002$). A similar inverse trend was observed for self-perceived clinical confidence (4.1±0.6 vs 3.2±0.8; $p<0.001$). Clinical posting attendance ≥75% was significantly lower among high-intensity users compared to low-intensity users (37.8% vs 75.0%; $p=0.001$). Commonly perceived benefits included better exam-oriented focus and conceptual clarity, while major drawbacks were reduced clinical exposure and increased screen time.

Conclusion: Higher intensity of online pre-PG coaching was significantly associated with poorer clinical competence, reduced confidence, and lower attendance in clinical postings. While online coaching offers exam-related advantages, excessive reliance may adversely affect hands-on clinical training, underscoring the need for balanced, blended learning approaches.

Keywords: Online pre-PG coaching; Clinical competence; Clinical confidence; MBBS students; Medical education.

INTRODUCTION

Medical graduates in their final year are often caught between two critical priorities, i.e., honing clinical skills and preparing for postgraduate entrance exams.[1] In India, the pressure to secure a postgraduate (PG) seat is immense. One notable consequence of this competition has been the rise of

coaching culture for PG entrance exams, among MBBS students. Catalysed by the COVID-19 pandemic, these coaching programs have largely shifted online.[2] During the pandemic, clinical teaching was disrupted and online coaching platforms rapidly filled the educational gap by offering easily accessible recorded lectures, question banks, and condensed notes.[2] Consequently, many students often skipped bedside clinical postings to complete coaching modules. This shift represents a marked change in learning behaviour during a critical phase meant for hands-on clinical training.[2]

Online pre-PG coaching appeals to students primarily due to its flexibility and convenience, allowing self-paced learning.[3] Many perceive the quality of teaching by nationally reputed faculty to be comparable or superior to traditional offline institutes.[3] Also, online platforms are often more cost-effective, reducing expenses related to travel, accommodation, and high tuition fees. These advantages have driven the widespread adoption of online PG coaching.[3]

However, excessive reliance on online coaching may compromise deep conceptual understanding and real-world clinical competence.[4] Not prioritizing textbooks and ward-based learning, weakens the development of practical skills, clinical reasoning, and patient-centred care.[4] Competencies such as communication, empathy, examination skills, and procedural confidence cannot be adequately acquired through videos alone.[2] Surveys during the COVID-19 period showed that a majority of Indian medical students perceived online teaching to be inferior to in-person learning for clinical training, with a substantial proportion reporting difficulty in acquiring clinical skills through online modes.[5] These observations underscore a widening gap between theoretical preparedness and practical proficiency in the era of digital coaching.[2,4,5]

Recognizing this, the National Medical Commission emphasizes early clinical exposure, hands-on skills, and experiential learning to ensure core clinical competencies, through the Competency-Based Medical Education (CBME) curriculum.[1] Globally, the integration of theory with practice is central to effective medical training.

Thus, the present cross-sectional study was conducted to assess whether the intensity of online coaching is linked to clinical competence, practical skills performance, and self-perceived confidence as they approach graduation, including any association between time spent on online coaching and attendance in clinical postings, as well as the students' own perspectives on how online coaching has helped or hindered their hands-on learning and patient interactions.

MATERIALS AND METHODS

The present cross-sectional study was conducted at a tertiary care teaching institution in Central India over a period of six months. All final-year MBBS students who provided informed consent and reported engagement in online pre-postgraduate (pre-PG) entrance examination coaching were included. Restricting the study to final-year students was intended to minimize confounding related to differences in curriculum phase and baseline clinical exposure.

The sample size was calculated using a single-proportion formula with a 95% confidence level and 5% absolute precision, assuming a prevalence of 50%. After applying finite population correction for a total batch strength of 247 students and adjusting for a 10% non-response rate, the final required sample size was 168. Participants were selected using simple random sampling from the final-year student list.

Data was collected using a pre-designed, semi-structured questionnaire. The intensity of online pre-postgraduate coaching was quantified using multiple objective indicators to enhance construct validity and minimize misclassification. These indicators included the average number of hours per week spent on online coaching, duration of coaching use in months since initiation, and frequency of engagement expressed as days per week accessing coaching content. Hours per week were recorded both as a continuous variable and categorized into predefined bands of 1–3, 4–7, 8–14, and ≥15 hours per week. Duration of use was categorized as ≤3 months, 4–6 months, and >6 months. Frequency of engagement was recorded as ≤2 days, 3–4 days, or ≥5 days per week. A composite Coaching Intensity Score was generated by assigning ordinal scores to each of these indicators and summing them, following which participants were classified into low, moderate, and high coaching intensity categories. Clinical competence and practical skills were evaluated using a structured self-reported competency checklist mapped to expected final-year MBBS competencies, including history taking, general and systemic physical examination, case presentation, basic bedside procedures, and interpretation of common investigations. Each competency item was graded on a five-point Likert scale ranging from "not confident at all" to "highly confident/able to perform independently," with higher scores indicating greater perceived competence. Clinical competence was assessed using a structured self-reported competency checklist mapped to expected final-year MBBS clinical competencies. The checklist comprised ten items covering key domains of undergraduate clinical training, including history taking, general physical examination, systemic examination, case presentation, basic bedside procedural skills, clinical reasoning, interpretation of commonly encountered investigations and imaging, infection control/ asepsis and documentation/ record keeping. Each item was rated on a five-point Likert scale ranging from 1 (not confident at all) to 5 (confident to perform independently). Individual item scores were

summed to generate a total clinical competence score, with a possible range of 10 to 50, wherein higher scores indicated greater self-perceived clinical competence. Self-perceived clinical confidence was evaluated using a short Likert-based confidence scale focusing on patient-facing clinical tasks. This scale included multiple items assessing students' confidence in interacting with patients, performing clinical examinations, presenting cases to senior clinicians, and participating in clinical decision-making. Responses were recorded on a five-point Likert scale from 1 (not confident at all) to 5 (highly confident). The overall confidence score was calculated as the mean of individual item scores, yielding a final score ranging from 1 to 5, with higher values reflecting greater self-perceived confidence in clinical settings. Both clinical competence and confidence scores were self-reported and were intended to reflect students perceived ability and comfort in performing clinical tasks rather than objectively measured clinical performance.

Content validity of the questionnaire was established through expert review by three to five faculty members from clinical departments and the Medical Education Unit, who evaluated items for relevance, clarity, and coverage of final-year competencies. The revised instrument was pilot tested among 15–20 final-year MBBS students not included in the final analysis to assess feasibility, clarity, and completion time. Internal consistency of multi-item scales assessing clinical competence and self-perceived confidence was evaluated using Cronbach's alpha, with acceptable reliability defined prior.

Data was analysed using SPSS v.20 (trial), with categorical variables summarized as frequencies and percentages and continuous variables as mean ± standard deviation. Associations between online pre-PG coaching intensity and clinical competence, confidence scores, and clinical posting attendance were assessed using appropriate statistical tests. p-value<0.05 was considered statistically significant.

RESULTS

A total of 168 final-year MBBS students participated in the study. Baseline characteristics are shown in [Table 1]. The mean age was 23.6±0.9 years, with a female predominance (52.4%). Most participants were from urban areas (70.2%). 47.0% of the students reported studying 7–9 hours per day, while 32.1% studied ≤6 hours and 20.9% reported ≥10 hours of daily study. Overall, 120 students (71.4%) reported using online pre-PG coaching platforms. Characteristics of coaching exposure among users are summarized in [Table 2]. The most common weekly engagement was 8–14 hours (38.3%), and 44.1% had been using online coaching for more than six months. 37.5% students accessed coaching content on ≥5 days per week. Based on the composite coaching intensity score, 26.7% were classified as low-intensity users, 42.5% as moderate-intensity users, and 30.8% as high-intensity users. The association between coaching intensity and clinical competence is presented in [Table 3]. Mean competence scores declined significantly with increasing coaching intensity, from 39.8±5.1 in the low-intensity group to 37.2±5.9 in the moderate-intensity group and 33.4±6.8 in the high-intensity group (p=0.002). A similar trend was observed for self-perceived clinical confidence [Table 4], with mean confidence scores decreasing from 4.1±0.6 among low-intensity users to 3.2±0.8 among high-intensity users (p<0.001). Clinical posting attendance also varied significantly by coaching intensity [Table 5]. Attendance ≥75% was reported by 75.0% of low-intensity users, compared with 62.7% of moderate-intensity users and 37.8% of high-intensity users, while poor attendance (<75%) was most frequent among high-intensity users (62.2%) (p=0.001). Perceived benefits and drawbacks of online pre-PG coaching are summarized in [Table 6]. The most commonly reported benefits were better exam-oriented focus (81.7%), improved conceptual clarity (78.3%), and time flexibility (71.7%), along with structured revision of high-yield topics (63.3%) and familiarity with the PG entrance examination pattern (69.2%). Commonly reported drawbacks included increased screen time (69.2%), reduced clinical exposure (64.2%), less patient interaction (58.3%), and difficulty integrating online learning with bedside clinical practice (43.3%).

Table 1: Baseline characteristics of study participants

Variable	Category	Frequency (%)
Age (years), Mean ± SD		23.6 ± 0.9
Gender	Male	80 (47.6)
	Female	88 (52.4)
Residence	Urban	118 (70.2)
	Rural	50 (29.8)
Average study hours/day	≤6 hours	54 (32.1)
	7–9 hours	79 (47.0)
	≥10 hours	35 (20.9)

Table 2: Characteristics of online pre-PG coaching exposure among users (n=120)

Variable	Frequency (%)
Hours/week spent on coaching	
1–3	18 (15.0)
4–7	34 (28.3)
8–14	46 (38.3)
≥15	22 (18.4)
Duration of use	
≤3 months	26 (21.7)
4–6 months	41 (34.2)
>6 months	53 (44.1)
Frequency of engagement (days/week)	
≤2 days/week	28 (23.3)
3–4 days/week	47 (39.2)
≥5 days/week	45 (37.5)
Coaching intensity category	
Low	32 (26.7)
Moderate	51 (42.5)
High	37 (30.8)

Table 3. Association between coaching intensity and clinical competence scores

Coaching Intensity	Mean Competence Score ± SD	p-value
Low	39.8 ± 5.1	0.002*
Moderate	37.2 ± 5.9	
High	33.4 ± 6.8	

*ANOVA test applied

Table 4: Association between coaching intensity and self-perceived clinical confidence

Coaching Intensity	Mean Confidence Score ± SD	p-value
Low	4.1 ± 0.6	<0.001*
Moderate	3.7 ± 0.7	
High	3.2 ± 0.8	

*ANOVA test applied

Table 5: Coaching intensity and clinical posting attendance

Coaching intensity	Attendance ≥75% n (%)	Attendance <75% n (%)	p-value
Low	24 (75.0)	8 (25.0)	0.001*
Moderate	32 (62.7)	19 (37.3)	
High	14 (37.8)	23 (62.2)	

*Chi-square test applied

Table 6: Perceived benefits and drawbacks of online pre-PG coaching (multiple responses)

Perception	n (%)
Benefits	
Better exam-oriented focus	98 (81.7)
Improved conceptual clarity	94 (78.3)
Time flexibility	86 (71.7)
Structured revision of high-yield topics	76 (63.3)
Familiarity with PG entrance examination pattern	83 (69.2)
Drawbacks	
Reduced clinical exposure	77 (64.2)
Less patient interaction	70 (58.3)
Increased screen time	83 (69.2)
Difficulty integrating online learning with bedside practice	58 (43.3)

DISCUSSION

Multiple Indian studies indicate that heavy reliance on online coaching or e-learning is associated with weaker clinical skills and confidence, similar to the findings observed in present study. A recent multi-centre survey of MBBS students found that most students felt that there was difficulty in achieving desired competencies through online learning and reported a lack of confidence in their clinical skills.[6] Qualitative interviews in the same study revealed that students reported a lack of skill development and lack of confidence regarding practical aspects, in topics taught online.[6] Majority of students felt less confident about their clinical competence with online classes, and faculty likewise observed poorer competency attainment.[6] This aligns with our findings that greater coaching intensity was associated with diminished clinical competence and self-confidence.

An editorial on India's coaching culture highlighted that many medical students increasingly remain confined to hostel rooms and deliberately avoid clinical postings in order to complete online

coaching modules.[2] Reflections from recent MBBS graduates similarly indicate that, although extensive factual knowledge is acquired through coaching platforms, limited exposure to bedside teaching makes it difficult to apply this knowledge effectively in real patient care.[2] This reinforces the notion that knowledge gained through digital learning does not automatically translate into clinical confidence or competence, aligning with the present study's observation.

The present study found that intensive pre-PG coaching diminishes attendance in clinical postings. A survey-based study on medical student absenteeism reported that preparation for postgraduate entrance examinations, particularly participation in NEET-PG coaching sessions, was a major personal factor contributing to absence from regular clinical classes and ward postings,[7] aligning with present study.

Qualitative observations further reinforce these findings. During the COVID-19 period, when online learning and coaching expanded rapidly, faculty members reported a noticeable decline in student participation in clinical duties, with learning increasingly confined to screens rather than patient care settings. Reduced patient interaction and limited hands-on training were frequently noted consequences of this shift.[2] Collectively, these observations align closely with the present study's findings and suggest that the growing reliance on digital coaching has amplified the persistent challenge of poor clinical attendance in Indian medical education.

Despite the drawbacks, Indian studies acknowledge certain benefits of online pre-PG coaching and digital platforms. Surveys conducted during the pandemic showed that students benefited from the flexibility and self-paced nature of e-learning. A cross-sectional study in central India found that 77.7% students relied heavily on online classes during the pandemic and reported a significant increase in time spent on digital education ($p<0.001$) compared to prior routines.[8] Students in that study favoured recorded video lectures and live webinars and about 50% rated video tutorials and live online classes as very useful for learning theory content.[8] Another survey noted that while overall enthusiasm of students was tempered, 31% of students still reported high satisfaction with online classes and 11.5% found them highly useful for learning.[9] These findings suggest that a subset of students do appreciate the convenience and broad content access that online platforms provide. One institute reported 45.1% of students were aware of and using online learning resources for supplementing their studies.[9] Many students specifically cited the ability to learn at their own pace and replay lectures as a major advantage of digital coaching platforms.[8] These benefits align with the present study's qualitative feedback that online coaching can be a high-yield way to cover vast syllabus quickly. The flexibility and question banks were also praised.

Indian studies consistently highlight the limitations of excessive reliance on online coaching, particularly its inadequacy in substituting in-person clinical training, a concern that aligns closely with the findings of the present study. One study reported widespread dissatisfaction with exclusive online learning, with many students rating it as only moderately useful and expressing a strong preference for resumption of physical classes, especially for practical and clinical postings.[9] The absence of direct patient contact and face-to-face interaction with instructors has been repeatedly identified as a major drawback. Additional challenges reported across studies include poor internet connectivity, limited interactive discussion,[8] technical difficulties, and increased fatigue, with a substantial proportion of students perceiving online learning as more stressful than conventional classroom-based teaching.[6]

The literature consistently indicates that digital coaching is inadequate for developing clinical reasoning, practical skills, and professional attributes. A study highlighted that online modules largely rely on one-way content delivery, limiting opportunities to cultivate bedside examination skills, procedural competence, and doctor–patient communication.[10] While coaching may enhance factual knowledge and exam preparedness, it fails to impart the hands-on skills essential for effective patient care, resulting in graduates with strong theoretical understanding but weaker clinical confidence.[2] Reduced exposure to senior clinicians and limited opportunities to practice procedures further impair skill acquisition.[2,6] These observations align closely with the present study's findings. Notably, no study has reported improvement in clinical performance attributable to online coaching, with most acknowledging its benefits for examinations at the expense of clinical training and confidence.

CONCLUSION

Higher intensity of online pre-PG coaching was significantly associated with lower self-perceived clinical competence, reduced confidence, and poorer attendance in clinical postings among final-year MBBS students, despite perceived benefits in exam-oriented learning and conceptual clarity. These findings suggest that excessive reliance on online coaching during the final year may adversely affect hands-on clinical training. A balanced, blended approach integrating digital learning with robust bedside exposure is essential to ensure the development of clinically competent and confident medical graduates.

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