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One Minute Preceptor (OMP) Vs Traditional Teaching in Developing Clinical Reasoning during Gynecology & Obstetric Rotation

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Article Details

Keywords: One-Minute Preceptor; Clinical Reasoning; Bedside Teaching; Medical Education; Gynecology And Obstetrics; MBBS Students; Key Feature Problems

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ABSTRACT

Background: Traditional bedside teaching remains the dominant instructional method in clinical rotations, yet it often lacks structured feedback and learner engagement. The One-Minute Preceptor (OMP) model is a concise, learner-centered approach that may enhance clinical reasoning in time-constrained settings like Gynecology and Obstetrics.Objective: To compare the effectiveness of the OMP model versus traditional bedside teaching in developing clinical reasoning skills among final-year MBBS students during their Gynecology and Obstetrics ward rotation. Methods: This prospective, quantitative, comparative analytical study was conducted at King Edward Medical University, Lahore. A total of 325 final-year MBBS students (coming in groups of 20 students for rotation) were divided into two groups (A and B) through convenient sampling. Group A received instruction using the OMP model, while Group B underwent traditional bedside teaching. Pretest and posttest assessments based on Key Feature Problems (KFPs) were administered to both groups. Data were analyzed using SPSS v24 to assess mean score improvements and statistical significance. Results: Both groups demonstrated improvement in posttest scores. Group A (OMP) showed a greater mean improvement (2.2 ± 1.48) compared to Group B (1.8 ± 1.55), though the difference was not statistically significant ($p > 0.05$). The correlation between pretest and posttest scores was weak in both groups. onclusion: While not statistically significant, the OMP model showed a trend toward improved clinical reasoning compared to traditional teaching. Its structured and feedback-oriented nature aligns well with competency-based medical education. Broader implementation and further research with larger samples are recommended to validate its effectiveness..

INTRODUCTION

The Gynecology and Obstetrics department remains one of the most demanding clinical specialties in terms of patient load, emergencies, and teaching commitments. Amidst such pressure, the traditional teacher-centered model of bedside teaching is still widely used in undergraduate medical education, especially in low- and middle-income countries. This model, although time-tested, typically involves didactic case discussions where the instructor dominates the learning process by providing diagnoses and management plans, while students remain passive observers [1]. Such an approach often fails to develop higher-order cognitive abilities like clinical reasoning, diagnostic synthesis, and reflective thinking [2]. In recent years, medical education has undergone a paradigm shift from knowledge-heavy, passive learning to active, learner-centered methodologies. This transition aligns with the increasing adoption of competency-based medical education (CBME), which emphasizes real-world problem-solving, decision-making, and lifelong learning through structured clinical exposure [3, 4]. CBME particularly prioritizes experiential learning methods that empower students to think critically, engage actively, and develop professional identity early in their careers [5].

Among the contemporary teaching models introduced to improve clinical learning in high-pressure environments are the One-Minute Preceptor (OMP), SNAPPS, Aunt Minnie, and Activated Demonstration techniques [6]. These methods are tailored to deliver impactful teaching in short timeframes without compromising quality. Among them, the OMP model stands out for its efficiency and structured approach, especially in time-constrained environments such as Gynecology and Obstetrics wards [7]. Originally developed by Neher et al., the OMP teaching model includes five micro-skills that guide faculty in facilitating clinical learning: (1) Get a commitment from the learner, (2) Probe for supporting evidence, (3) Teach a general rule, (4) Reinforce what was done well, and (5) Correct mistakes [8]. These steps not only promote diagnostic reasoning but also create a safe learning environment where students are encouraged to reflect, justify their choices, and receive real-time feedback [9].

Clinical reasoning is at the heart of medical expertise and is characterized by the ability to synthesize patient-specific data, form diagnostic hypotheses, and select appropriate management strategies. It is a complex, dynamic skill shaped by both knowledge and experience, and cannot be effectively taught through passive instruction alone [10]. Tools like OMP help make the "invisible thinking" of clinical reasoning visible and teachable, facilitating deeper learning among students [11]. Studies have shown that OMP improves diagnostic thinking, enhances learner engagement, and promotes focused feedback in clinical settings. Iyer et al. found that pediatric interns trained under the OMP model showed better diagnostic formulation and increased confidence compared to those under traditional teaching [12]. Another study by Gatewood et al. showed improved preceptor satisfaction and student performance when using OMP in nurse practitioner training [13].

In contrast, the traditional model of bedside teaching—though historically foundational—has several limitations. It lacks structured feedback, consumes more time per patient, and often fails to identify and address individual learning needs [14]. Moreover, with increasing patient loads and time constraints, faculty often find it challenging to maintain effective teaching standards using this model. In a systematic review, Shagholi et al. highlighted that while more controlled studies are needed, available evidence suggests the OMP model positively impacts learner satisfaction, critical thinking, and perceived quality of teaching [15]. Despite these benefits, traditional bedside teaching remains the dominant modality in many undergraduate programs, including ours, especially in Gynecology and Obstetrics rotations.

This study, therefore, aims to compare the effectiveness of the One-Minute Preceptor model with traditional teaching in developing clinical reasoning skills among final-year MBBS students during their Gynecology and Obstetrics rotation. The findings may support the integration of structured, learner-centered models like OMP into ward-based teaching, especially in institutions adopting competency-based curricula.

MATERIALS AND METHODS

STUDY DESIGN

This study is grounded in the post-positivist paradigm, which acknowledges the existence of an objective reality while recognizing that it can only be partially understood due to contextual and observer-related limitations. Guided by this paradigm, the research employs a quantitative, prospective, comparative analytical design. It involves measuring and comparing the effectiveness of two instructional approaches—One-Minute Preceptor (OMP) and traditional bedside teaching—in developing clinical reasoning skills among final-year MBBS students during their Gynecology and Obstetrics rotation. The prospective nature ensures that data is collected in real time as the interventions are implemented, while the comparative analytical framework allows for statistical evaluation of differences between the two teaching methods.

SAMPLE

The study population consists of final-year MBBS students (n = 325) enrolled at King Edward Medical University, Lahore, who were undertaking their Gynecology and Obstetrics ward rotation. Each rotation batch comprises approximately 20 students (both male and female), with each batch spending two weeks in the department. A convenient sampling technique was employed; wherein eligible students present during the data collection period were invited to participate. Participants were randomly assigned into two equal groups: one group received instruction using the One-Minute Preceptor (OMP) model, while the other group underwent traditional bedside teaching. This comparative setup was intended to evaluate the relative effectiveness of each teaching method in enhancing clinical reasoning skills.

DATA COLLECTION INSTRUMENT JUSTIFICATION

The details of student were required to be noted to address demographics. Information like age and gender were also noted and students were divided into 2 groups, A and B. Both groups were given same pretest to solve and their marks noted. Group A were then taught using OMP method and group B were taught using traditional method. Upon completion of the session a post test was conducted by both the groups (OMP & the traditional). Both the pretest and post-test were based on Key Feature problems on 4 common problems (Breech, Antepartum Hemorrhage, Heavy Menstrual bleeding & Vaginal discharge) . The test scores on pretest and the post test for each group were entered on the performa and used for data analysis.

DATA COLLECTION PROCEDURE

After taking the ethical approval from the IRB, final year MBBS students of KEMU were divided into 2 groups A & B every time they came for their 2 week Obs & Gyne rotation. These students after taking informed consent were allocated to OMP (group A) and traditional teaching groups (group B). All students were made to attempt a pretest including four key feature problems (KFP), which was the same for both groups. Students in each group were taught according to their said methodology by the same teacher, 4 common Gyne topics namely, heavy Menstrual bleeding (HMB), Vaginal discharge, antepartum hemorrhage (APH) and Breech presentation. At the end of the teaching sessions a post-test (standardized) comprising of 4 different KFPs on the above topics was taken from students of both groups. The post-test was different from pretest but it was the same for both groups. The data was then entered in the performa. Each group was taught at the end of the session using the other method to overcome ethical issues.

DATA ANALYSIS PROCEDURE

Data was analyzed using SPSS 24. Initial analysis included frequency distribution ad calculation of descriptive statistics e.g. mean, median, mode, standard deviation and t-test for quantitative data. For qualitative variables chi-square test was used. Data was used to determine p-value for pretest and post test score for Group A and Group B.

RESULTS

The study included a total of 20 final-year MBBS students in each batch (the total number of the students ws 325), equally divided into two groups (A and B), each with 10 students. Group A received instruction through the One-Minute Preceptor (OMP) model, while Group B underwent traditional bedside teaching during their Gynecology and Obstetrics rotation. This study was conducted for a complete 1 year and the average of all the observation have been reported.

As shown in **Table 1**, the mean age of Group A was 23.2 years (SD = 1.14), while Group B had a mean age of 23.8 years (SD = 0.92). Both groups began with comparable pretest scores: Group A (mean = 5.5, SD = 1.18) and Group B (mean = 5.1, SD = 1.37). Posttest scores improved in both groups, with Group A scoring a higher mean (7.7, SD = 1.16) compared to Group B (6.9, SD = 0.88). The average improvement was 2.2 in Group A (SD = 1.48) and 1.8 in Group B (SD = 1.55). Pearson correlation coefficients between pretest and posttest scores were low in both groups, with $r = 0.20$ for Group A and $r = 0.10$ for Group B, suggesting weak linear relationships.

Table 2 presents the results of normality and variance tests. The Shapiro-Wilk test indicated that pretest and posttest scores in Group A followed a normal distribution ($p > 0.05$), whereas Group B's scores did not ($p < 0.05$). Levene's test revealed no significant difference in variance between the two groups for both pretest ($p = 0.633$) and posttest scores ($p = 0.482$), indicating homogeneity of variance.

As reported in **Table 3**, independent samples t-tests showed no statistically significant differences between Group A and B for both pretest ($p = 0.493$) and posttest scores ($p = 0.099$), although posttest scores trended higher in the OMP group. Similar findings were noted using the Mann-Whitney U test, which revealed no significant difference in pretest ($p = 0.526$) or posttest scores ($p = 0.117$). Pearson correlation analysis between pretest and posttest scores also showed non-significant relationships in both groups ($p > 0.05$).

DISCUSSION

This study compared the One-Minute Preceptor (OMP) model with traditional bedside teaching in the development of clinical reasoning skills among final-year MBBS students. Although the results did not achieve statistical significance, students in the OMP group demonstrated a slightly greater mean improvement in posttest scores, suggesting a potentially positive educational impact. The OMP model is designed to be concise, interactive, and learner-centered, offering immediate feedback through its five micro-skills. These characteristics make it especially suitable for high-volume clinical environments such as Gynecology and Obstetrics. Prior studies have shown that the OMP approach enhances learner engagement and promotes diagnostic reasoning by encouraging clinical hypothesis generation and structured feedback [16, 17].

While this study did not show a statistically significant difference, similar findings have been observed in previous research involving small sample sizes. A randomized controlled trial by Chacko et al. found that although the OMP model did not significantly outperform traditional methods in short-term assessments, learners perceived it as more engaging and helpful for developing decision-making skills [18]. Another study by Farrell et al. demonstrated that learners exposed to OMP exhibited improved clinical reasoning behaviors during OSCE evaluations, though the effect size was modest [19]. The observed lack of statistical significance may be attributable to the small sample size (n = 20) and short duration (2-week rotation), which limited the statistical power of this study. Larger multi-institutional studies have demonstrated more robust effects. For instance, a study by Wolpaw et al. showed significant improvement in reasoning and learner satisfaction when OMP was consistently applied over extended rotations [20].

In contrast, traditional bedside teaching often lacks structured learner engagement and may focus primarily on knowledge transmission rather than diagnostic reasoning. In busy clinical settings, time constraints frequently limit opportunities for personalized feedback, a gap that OMP addresses directly [21, 22]. Furthermore, the low pre-posttest correlation in both groups suggests that knowledge gains were likely influenced by the teaching model rather than baseline student ability, supporting the utility of structured teaching interventions. This is consistent with the work of Ouellette and colleagues, who found that structured feedback methods like OMP are more effective in promoting performance gains than unstructured traditional methods [23]. From a pedagogical standpoint, OMP aligns well with the principles of adult learning theory and self-directed learning, both of which are emphasized in modern medical curricula [24]. Its integration into routine ward teaching, especially within competency-based frameworks, can provide both efficiency and educational value. Despite these promising trends, limitations of this study must be acknowledged. The use of convenience sampling and the lack of long-term outcome assessment restrict generalizability. Moreover, faculty training and fidelity to OMP implementation were not measured, which could have influenced the effectiveness of the intervention.

Future research should explore the longitudinal effects of OMP on clinical reasoning and decision-making, ideally with larger cohorts and mixed-method designs to assess both cognitive and behavioral outcomes. Incorporating student and faculty feedback may also help refine the delivery of OMP and enhance its integration into structured teaching models.

CONCLUSION

Although the difference in posttest scores between the two groups did not reach statistical significance, the OMP group demonstrated a slightly greater improvement in clinical reasoning performance. The structured, feedback-oriented, and learner-centered nature of the OMP model makes it a promising alternative to traditional teaching in busy clinical environments. Given the trend toward better outcomes with OMP and its alignment with competency-based medical education, its inclusion in undergraduate clinical rotations may enhance learning efficiency and student engagement.

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TABLES AND FIGURES

TABLE 1: DESCRIPTIVE STATISTICS OF STUDENT PERFORMANCE BY GROUP (A AND B) INCLUDING AGE, TEST SCORES, AND SCORE IMPROVEMENT

Group	Total Students	Mean Age	SD Age	Mean Pretest	SD Pretest	Mean Posttest	SD Posttest	Mean Improvement	SD Improvement	Pre vs Post Correlation
A	10	23.2	1.135292424395090	5.5	1.1785113019775800	7.7	1.1595018087284100	2.2	1.4757295747452400	0.20327890704543600
B	10	23.8	0.9189365834726820	5.1	1.370320319406300	6.9	0.8755950357709130	1.8	1.5491933384829700	0.10186495261103500

TABLE 2: NORMALITY AND VARIANCE TEST RESULTS FOR PRETEST AND POSTTEST SCORES IN BOTH GROUPS.

Test	Statistic	p-value	Significant ($p < 0.05$)
Shapiro-Wilk (Pretest A)	0.8499695658683780	0.05804071202874180	FALSE
Shapiro-Wilk (Posttest A)	0.8780678510665890	0.12398403882980300	FALSE
Shapiro-Wilk (Pretest B)	0.7306544184684750	0.002075263299047950	TRUE
Shapiro-Wilk (Posttest B)	0.8050405383110050	0.016693701967597000	TRUE
Levene's Test (Pretest)	0.235294117647059	0.6334766944677470	FALSE
Levene's Test (Posttest)	0.5142857142857150	0.48249256965003900	FALSE

TABLE 3: COMPARATIVE STATISTICAL TESTS BETWEEN GROUPS FOR PRETEST AND POSTTEST SCORES AND CORRELATIONS.

Test	Statistic	P-Value	Significant ($p < 0.05$)
T-Test (Pretest)	0.6998542122237660	0.49296495889684200	FALSE
T-Test (Posttest)	1.7411430002640300	0.09872317535054490	FALSE
Mann-Whitney U (Pretest)	58.5	0.5264082721472120	FALSE
Mann-Whitney U (Posttest)	70.5	0.11681247195039600	FALSE
Pearson Correlation (Pre vs Post)	0.20082759384837500	0.3958826045431620	FALSE

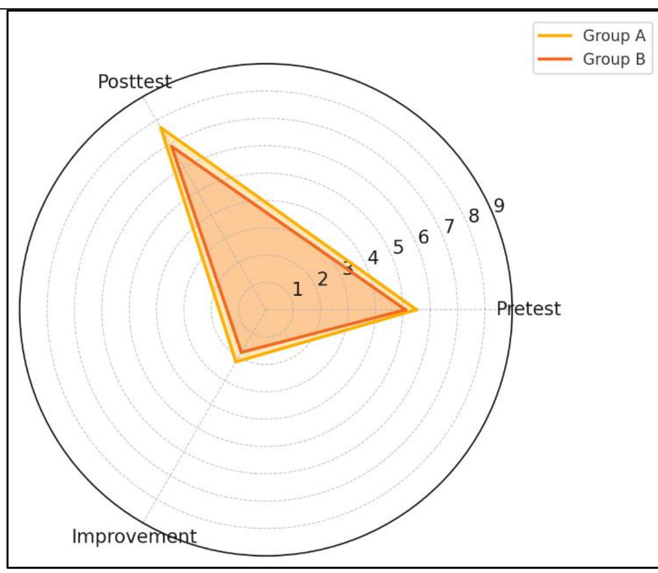

FIGURE 1: COMPARISON OF PRETEST, POSTTEST, AND IMPROVEMENT SCORES BETWEEN GROUPS A AND B

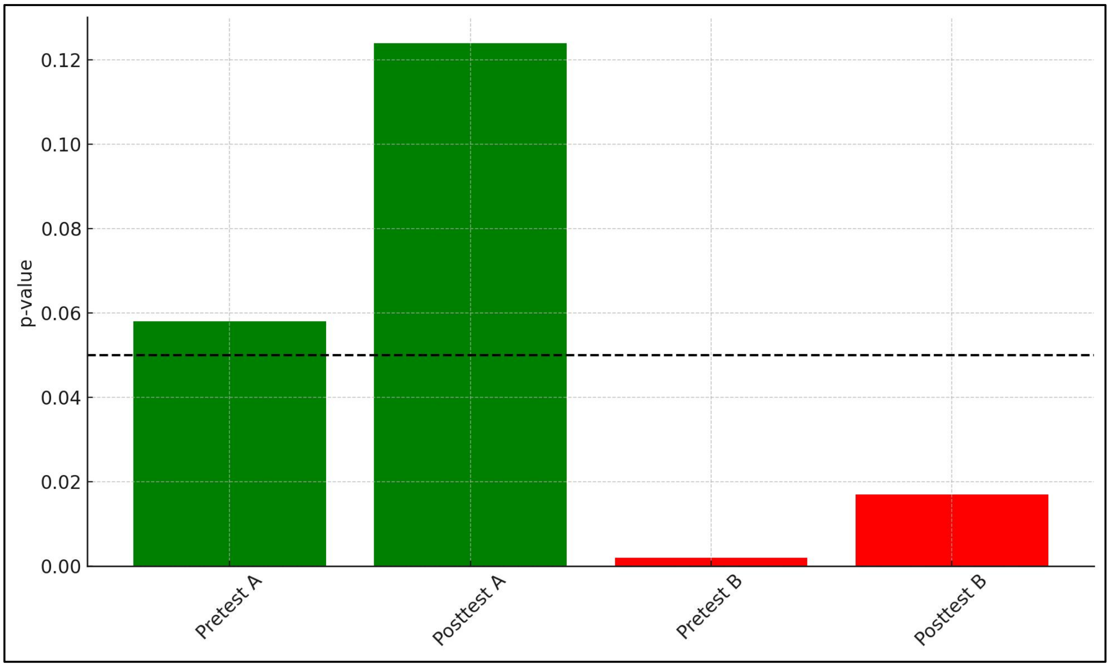

FIGURE 2: SHAPIRO-WILK TEST P-VALUES FOR SCORE DISTRIBUTIONS (NORMALITY ASSESSMENT)

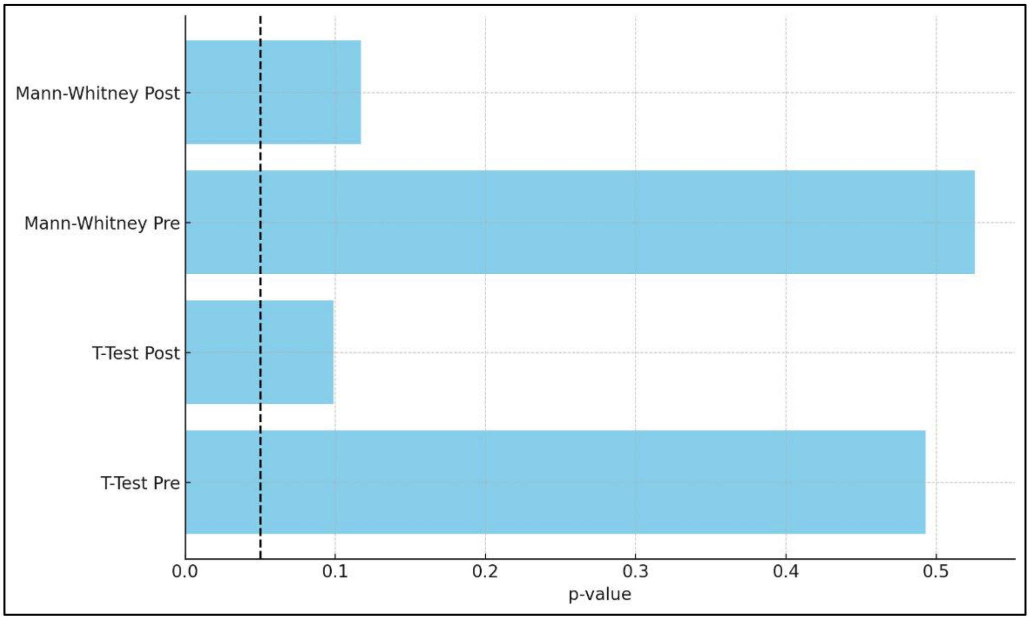

FIGURE 3: NOW DISPLAYED AS A HORIZONTAL BAR CHART FOR T-TEST AND MANN-WHITNEY U P-VALUES