Section: Pharmacology

Original Research Article

REINFORCING REFLECTIVE WRITING SKILLS OF PHASE II MBBS STUDENTS

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ABSTRACT

Background: Reflective practice is an essential attribute of medical professional competence and directly aligns with core competencies of National Medical Commission (NMC) undergraduate curriculum. It enables future health professionals to learn from their own experiences gained during their professional journey. Reflective practice is strengthened if students are involved in reflective writing. However, it is a responsibility of teachers to assess the level of reflective writing and provide relevant feedback so that the students can explore their thoughts and feelings more deeply, considering various perspectives for their actions. **Aims and Objectives:** The objective of this study was to assess the reflective writing ability of Phase II Bachelor of Medicine and Bachelor of Surgery (MBBS) students after one year of training in Competency-Based Medical Education (CBME) and to analyze the changes in their reflective writing skills after undergoing an educational reinforcement session. **Materials and Methods:** This interventional quasi-experimental study was conducted after obtaining necessary institutional ethics committee approvals and informed consent. The participants underwent a reinforcement session which focused on enhancing their reflective writing skills and submitted their written reflections prior and post reinforcement session on Attitude, Ethics and Communication (AETCOM) module they attended. The collected reflections were assessed using a validated grading system. **Results:** Out of 150 enrolled students, 137 submitted both, pre-and post- intervention reflections. Structured reinforcement session significantly enhanced reflective writing scores among enrolled medical students. The median pre-intervention scores were 2 (range: 1-3), while the median post-intervention scores improved to 3 (range: 1-6). Eighty (58.4%) students showed improvement in scores, 55 (40.1%) maintained the scores as base-line readings and only two (1.5%) showed a decline in scores. The Wilcoxon signed-rank test confirmed the shift was statistically significant ($p < 0.05$). **Conclusion:** On the basis of improved scores, the study concludes that structured reinforcement sessions significantly enhance reflective writing scores among medical students. Such sessions should be conducted intermittently during the undergraduate medical course to reinforce reflective abilities of the students.

INTRODUCTION

Reflective ability is a cornerstone of professional competence in clinical practice. It fosters developing critical insights and adaptive thinking in future healthcare practitioners. Reflection is defined as "a generic term for those intellectual & affective activities in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation".[1,2]

It is a metacognitive process that nurtures medical students to analyze their thoughts, having deeper insights of their reflective skills, understanding of themselves, review their progress and engage deeply with their experiences which refines their approach towards patient care and strengthen their decision-making skills.[2,3]

This self-awareness plays a vital role in shaping future decisions and professional growth. Studies have demonstrated that physicians who engage in reflective practice are not only more effective in their roles but also experience greater career satisfaction. Furthermore, research suggests that students with strong reflective learning abilities tend to achieve higher academic success.[1,3,4]

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Medical education places students in highly sensitive and emotionally charged interactions with patients, underscoring the importance of reflection in their training. However, traditional curricula have provided few opportunities for learners to receive feedback and critically assess their progress. By incorporating reflective writing from the early phase of the Bachelor of Medicine and Bachelor of Surgery (MBBS) program, the National Medical Commission (NMC) aims to address this gap, ensuring that future healthcare professionals cultivate essential cognitive, psychomotor and attitudinal skills for comprehensive medical training.[4,5]

Recognizing its significance, the NMC has integrated reflective writing into the MBBS curriculum from the first phase onwards to facilitate students progressively develop their ability to analyze and learn from their own experiences. Reflective ability enables deeper life-long learning and professional development.[5,6]

Effective reflection goes beyond mere description; it requires students to critically evaluate their experiences, consider multiple perspectives and formulate actionable insights. Despite the positive aspects, reflective writing without structured guidance, may be of limited potential benefits to the students. They may get engaged in descriptive narration of the experience (viz. superficial reflection). Hence, educators can play a crucial role in helping students navigating the complexities of self-analysis. They should assess the students' skills and provide them insight regarding the level of reflection and at times guide them to explore their thoughts and feelings taking different perspectives into account so as to enable them to decide appropriate action. By fostering deeper engagement, educators can enhance students' ability to make informed clinical decisions and improve their communication skills.[2,5,7]

Reflective writing also serves as a bridge between theoretical knowledge and practical application. It encourages students to connect their academic learning with real-world clinical scenarios, fostering a holistic understanding of patient care. This integrative approach not only enhances their problem-solving abilities but also cultivates empathy and ethical awareness, which are essential attributes of a competent healthcare professional.[3,8]

Moreover, reflective practice has been shown to reduce burnout and improve resilience among medical practitioners. By regularly engaging in self-reflection, students can develop a deeper awareness of their emotional responses and coping mechanisms, enabling them to manage stress more effectively.[3,8]

The aspect of reflective writing underscores its value not only as an educational tool but also as a means of promoting mental well-being in the demanding field of medicine. This study aims to assess the abilities of Phase II MBBS students in reflective writing, who have been trained during Foundation course and have written reflections during Phase I. It also analyzes the impact of an educational reinforcement session on their reflective writing skills.

This article was previously presented as a poster at the National Conference in Health Professions Education (NCHPE-24) on November 21st 2024.

MATERIALS AND METHODS

This study was conducted in the Department of Pharmacology of a Medical college and tertiary care hospital in a metro city of North Indian state. An approval from Institutional Ethics Committee was obtained prior to the study. It was an interventional quasi-experimental study with single group pre-post- design.

Participants: Hundred and fifty students of Phase II MBBS after obtaining their informed consent were included as participants. They were asked to write and submit their reflection on an AETCOM module they attended. These reflections served as baseline data.

A follow-up session was conducted with an aim to reinforce their Competency-Based Medical Education (CBME) learning.

Educational intervention

Educational intervention was in a form of a structured reinforcement session, which was interactive. The purpose and value of reflective writing were revisited to highlight its significance in medical education.

Students were guided through a brief; discussion-based recapitulation of why reflective writing is integral to medical education. They were engaged in discussion to revisit the core purpose of reflective writing. This included emphasizing its role in developing critical thinking, emotional intelligence, clinical reasoning, empathy and professional identity, also highlighting evidence-based benefits such as enhanced self-awareness and ethical decision-making. Practical examples were integrated to highlight the relevance of reflection in clinical and personal development.

To align learners with institutional expectations, the session incorporated an endorsed model from student manuals, illustration of structure, areas of focus and explaining the sample reflections interactively to distinguish between descriptive and critical reflective writing. The approach helped learners' understanding and provided them with diverse formats to suit their expressive preferences.

To promote improvement and build confidence, formative feedback was integrated. Selected anonymized reflections were discussed in small groups. Peer review activities encouraged constructive dialogue using a structured feedback guide and emphasis was placed on strengths and alignment with reflective frameworks.

Apart from above, to make academic exercise relatable, students were invited to voluntarily share

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personal reflections that shaped their perceptions or professional goals and participate in "reflective circles," where they discussed, shared experiences, challenges and lessons. They also engaged in facilitated discussions that validated emotions and diverse perspectives.

This module comprises of discussion on their submitted reflections, revisiting the purpose and value of reflective writing, reviewing reflective writing models from their manuals, clarifying expectations along with encouraging them to share personal experiences.

After two weeks of reinforcement session, the students were asked to reflect again on the previously attended AETCOM module, applying the techniques they gained from the reinforcement session and submit the written reflections.

The reflective write-ups were analyzed using grading system by Mandal, et al (2022),[1] presented in Table-1, which is originally based on the grading system developed by O'Sullivan, et al. in 2010.[9]

Table 1: Grading system used to assess the depth and quality of reflective writing permitted from Mandal, et al (2022)[1]

Grading System	
Score 1	Reflection was not evident and poor description of the event.
Score 2	Repetition of event details without any interpretation.
Score 3	Description of the event and recognition of its importance, but without explaining why it was important.
Score 4	Description of the event, recognition of its impact on feelings, beliefs and attitudes; comparison with previous experiences, including learning from it.
Score 5	Judgment on what went well and what did not, with reasons for both.
Score 6	Detailed description of the event, including how it had changed the individual and how they would respond to a similar event in the future, with references to literature, articles, books and anecdotes.
Thus, the scores for a reflective write-up ranged from 1 to 6.	

Statistics

The scores assigned to the basal and post-interventional reflective write-ups by the students were considered as data for the study. They were summarized as median and range. The basal and post-interventional scores were compared using Wilcoxon signed rank test.

RESULTS

Of 150 Phase II MBBS students, 137 students submitted their reflections, which were analyzed. It was found that the pre-intervention reflections were largely descriptive in nature, with a median score of 2 and a range of scores varied from 1 to 3. Following the structured reinforcement session, post-intervention reflections were found to be having varied levels. This reflected in a broader distribution of scores with a range spanning from 1 to 6, and a median score of 3 (Figure 1). On analysis of post-intervention scores, it was observed that for majority of students there was a shift in scores to 4-6, from a baseline. Hence it was decided to analyze the change in score for the individual student.

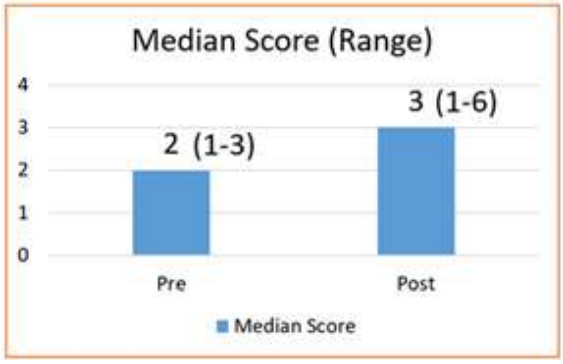

Figure 1: Comparison of Pre- and Post-Median Scores

This individual comparison revealed that 80 (58.4%) students showed improvement in their scores; 55 (40.1%) maintained the same score and only 2 (1.5%) showed a decline (Table 2). As shown in Figure 2, the distribution of scores 137 students was as follows: 16 (11.7%) had score 1, 101 (73.7%) had score 2 and 20 (14.6%) had score 3. After intervention there was an increase in number of students to 73 (53.2%) in score categories from 3-6. Eighteen (13.1%) students achieved scores in the range of 4-6, whereas the number achieving score 3 also increased to 55(40.2%).

Table 2: Individual Student's Pre- and Post- Scores

Change in Scores	**No of Students n (%)**
Decrease in post – intervention score	2 (1.5%)
No Change	55 (40.2%)
Increase in post-intervention scores	80 (58.3%)

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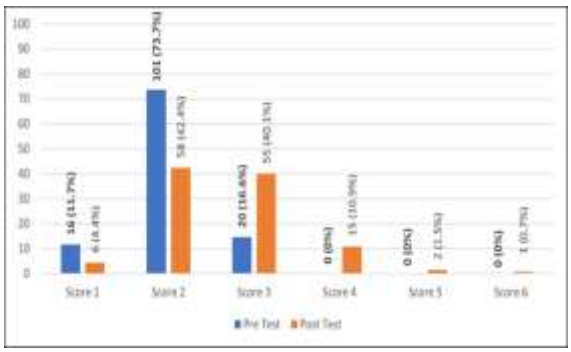

Figure 2: Number (Percentage) of Students in Each Score Category Before and After Intervention

On application of Wilcoxon signed-rank test, the change in scores after the reinforcement session was found to be statistically significant ($p < 0.05$).

These findings affirm that structured reinforcement interventions when integrated purposefully into the academic calendar, can effectively elevate reflective practice. Incorporating such sessions at least twice annually may encourage deeper critical thinking, support self-directed learning and contribute to the cultivation of reflective competence in future health professionals.

It was also observed that after the reinforcement session, the reflections demonstrated the students' action plans and/or their self-awareness with more clarity. The following excerpts are two such examples.

Excerpts from Written Reflections:

"In the future, I would like to seek advice from my mentors when dealing with difficult communication scenarios. I will also work on delivering sensitive information with empathy to handle better any such similar situations".

"During my clinical posting, I met a patient in labor. Her sister was waiting anxiously outside & inquired whether her sister was managing well despite pain. Ambience in labor room was tense & chaotic. After an hour of intense labor, the baby was finally born. Feeling relieved, I quickly went out & assured her that both mother & baby were fine. This experience made me realize how timely along with ethical communication is essential for healthcare provider".

DISCUSSION

The current CBME curriculum has introduced reflective writing from Phase I onwards.[6,10] However, it is expected that the undergraduate students would improve their reflection ability as they navigate through the entire course because of repeated practice and feedback from the facilitators.[11] In the present study when the students entering Phase II were asked to submit the written reflection, we found that their ability to reflect is at lower level despite an introductory session in Foundation course and submission of at least 5 written reflections in each subject during Phase I. Hence it was thought to have a reinforcement session.

We asked the students to submit individual reflections because in a cross-sectional study among first-year Indian MBBS students, by Jiwane, et al (2024),[12] demonstrated that individual reflective writing significantly enhanced learning outcomes compared to group reflections. This study assessed differences between individual and group reflections. Findings revealed that students who engaged in individual reflective writing demonstrated statistically significant higher post-test scores (38.22 ± 4.64; $p < 0.001$) compared to those who reflected in groups (mean 27.03 ± 2.87). The authors concluded that solitary reflection fosters deeper internalization and synthesis of learning, thereby enhancing academic outcomes and promoting emotional and professional growth reflected in improved post-test scores. Our findings align with the findings of Jiwane, et al (2024).

We emphasized on fostering reflective depth through structured reinforcement that included peer review and feedback and allow students to refine their reflections based on guided assessment. This multi-layered approach supports the role of reflective writing in developing cognitive and professional development. They demonstrate the commitment of students in applying empathetic communication skills. As demonstrated in our study, the students improved their reflective writing after taking part in a structured reinforcement session. The Wilcoxon signed-rank test confirmed that the change was statistically significant ($p < 0.05$), indicating the effectiveness of the reinforcement session.

Our findings corroborate a recently published study by Paloniemi, et al. (2024), which showed that second year medical students developed better reflective skills when they were given structured opportunities like learning diaries and guided discussions. The above study also found that students reflected more deeply when they faced emotional experiences-such as end-of-life care or personal challenges.[13] Similarly, our study also showed that explaining the student's purpose of reflection, providing them a structured model for writing, giving them support and time to reflect can help them engage more meaningfully with their learning and clinical experiences. Discussion with the students regarding why and how the written reflections are assessed, purpose of assessment and benefits of receiving feedback was also helpful.

Our findings also resonate with the work of Ohri, et al. (2024), who conducted an in-depth analysis of reflective writing by medical students following the newly implemented foundation course under the CBME framework. Their study revealed that students valued the opportunity to express their experiences freely and found reflective writing helpful in easing their transition into medical college life. Sessions on communication, ethics and life skills were impactful, fostering a sense of

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connection with peers, faculty and healthcare environment. They stated that when reflective writing was embedded meaningfully within the curriculum it can support emotional adjustment, professional growth and a stronger sense of belonging in the medical learning environment.[5] Similarly, in our study, the reinforcement session provided a structured space for students to process their experiences more deeply, contributing to improved reflective performance.

While our study focused on Phase II MBBS students, a study by Franco, et al. (2020) surveyed third- and fourth-year medical students after enrolling them in an elective clinical communication skills course across four academic centers. Their multicenter longitudinal study emphasized the added value of assessing reflective writing within communication training. By applying tools such as the REFLECT rubric and thematic scoring, the authors demonstrated that evaluating both content and depth of reflections yielded meaningful insights into students' metacognitive growth.[14] Similar to Franco, et al.'s approach, our study incorporated assessment of written reflections using a grading system, which was adapted by Mandal, et al (2022) from original framework developed by O'Sullivan, et al. in 2010. Notable advantage of using this grading system during assessments is its consistent criteria for evaluating performance. This outlines specific expectations for an assignment and subsequently breaks down complex tasks into achievable components. It measured both, depth and quality of reflective writings.

These and similar findings in post-intervention reflections highlight the impact of the reinforcement session on cognitive, attitudinal and professional growth.

Limitations: We neither calculated the sample size, nor incorporated a control group in the study because we wished to impart benefits to all the students in the class. Unfortunately, though all the students in the class were consented to participate initially, there was a drop out. In the absence of a control group, we used single group, pre-test- post-test design. Though it has its own limitations, this design is acceptable and frequently used in the educational studies as randomized, controlled clinical trials are not feasible or ethical.[15]

Based on our study we recommend that structured reinforcement interventions should be integrated purposefully into the academic calendar to effectively elevate reflective practices. Incorporation of such structured sessions, albeit as per the level of students, at least once in each phase of CBME may encourage deeper critical thinking, support self-directed learning and contribute to the cultivation of reflective competence in future health professionals. This will fulfil the purpose with which NMC has introduced reflection writing in the CBME. At the same time during the entire phase the subject experts should assess the written reflection and provide ideally individual feedback to the students. If not possible due to paucity of teachers or time, then at least collective feedback should be given. Once the system is in place it would be possible to do evaluation of the process in a longitudinal manner and do relevant changes.

CONCLUSION

This study set out to evaluate the benefits of a reinforcement session aimed at strengthening reflective writing skills among Phase II MBBS students. The outcomes of this study indicate that the students demonstrated a meaningful shift from basic, descriptive accounts to more thoughtful and insightful reflections, after attending the reinforcement session. Such sessions at regular intervals support goal setting, problem solving, encourages mindfulness and emotional processing and enhances personal growth.

Thus, such sessions play important role to channelize the reflective abilities of future health professionals.

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