

EXPLORING THE IMPORTANCE OF DAILY REFLECTION WRITING AMONG UNDERGRADUATE MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: To explore the impact of daily reflection writing on the professional and personal development of undergraduate medical students at Kabir Medical College, Peshawar, by measuring their attitudes, critical thinking, and satisfaction levels over three months, using a structured questionnaire, and aiming to incorporate reflective writing into medical curricula to enhance students' learning outcomes.

Methodology: This cross-sectional analytical study was carried out at Kabir Medical College, Peshawar, for three months, i.e. Jan 2023 - Mar 2023. The participants employed in the study were 320 medical students from the first, second, and third year of the MBBS course. This approach involved using a universal sampling technique, which helped get a broad sample. A self-administered questionnaire, adapted from two prior studies, was used to collect data. The questionnaire was developed based on a Likert scale with closed-ended questions to measure students' perception of daily reflective writing. The content validity was established before the actual data was collected. Age, gender, and field of study were collected from the participants along with their answers to reflective writing questions. Voluntary consent was sought from all participants before administering the questionnaire to them. The collected data were analyzed using descriptive and inferential statistics in SPSS version 26. 0 to check for trends and patterns in the responses to be garnered.

Results: The majority of medical students thought writing daily reflections was beneficial. Writing in their logbook helped medical students retain more material, according to nearly half of them (47.8%), and 46.9% reported that their approach to learning had improved. Furthermore, 49.1% of the participants said they were happy with the practice of daily reflection writing experience.

Conclusion: These findings justify the possible advantages of daily reflection writing in medical students' logbooks. The results indicates that medical students have a positive opinion of daily reflection writing and are aware of its potential advantages for both personal and professional growth. The study focuses on how daily reflection writing should be integrated into medical education curricula to develop medical students' critical thinking and self-awareness.

Keywords: Reflective practice, reflective writing, reflective practice in medical education, medical students, undergraduates, medical education.

INTRODUCTION

All stages of medical education and training, including undergraduate, graduate, and postgraduate, require reflection, which is defined as "a serious thought or consideration"(1).

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Through the cognitive process of reflection, one combines information and experiences from the past and present to gain a deeper understanding of oneself and one's environment. This approach allows for the extraction of significant insights for future learning from previous interactions and experiences (2). Students' knowledge and abilities improve when they critically evaluate learning situations to discover their advantages and disadvantages. This method encourages self-improvement and avoids repeating mistakes (3).

In addition to becoming competent and proficient professionals, medical students must also be self-reflective, moral, and caring practitioners (4). Logbook journaling allows students to reflect on their experiences, feelings, and thoughts while critically

assessing their practice in a safe and encouraging atmosphere (5). Regular introspection improves medical students' clinical reasoning, memory, self-awareness, and overall professional and personal development (6). Another crucial aspect of reflection is recalling the past, and studies have shown that going over the same content again improves memory. As a result, continuous reflection practice may help medical students remember their experiences better (7,8).

Instructors recognize the importance of reflective practice in helping medical students develop professional conduct and critical thinking skills. As a result, they integrate reflective writing into medical education courses from the very beginning of their undergraduate programs (9). Research has explored the potential impact of reflective writing on the critical thinking abilities of medical students at the undergraduate level. One comprehensive study found that students who engaged in reflective writing showed significant improvement in critical thinking, an essential skill for solving complex problems and making informed decisions in clinical settings (10). These findings suggest that incorporating reflective writing into undergraduate medical curricula can enhance students' cognitive abilities.

Reflective writing has also been studied in relation to the professional development of medical students. While the practice is more established in fields like nursing and education, it is new among medical students and health professionals at the undergraduate level (11). However, its importance has been increasingly recognized, particularly in medical schools across the United States and Canada, where a focus on CanMEDS competencies and the Accreditation Council for Graduate Medical Education (ACGME) has highlighted the value of reflective writing in developing critical skills in undergraduate medical students (12).

Therefore, the aim of the present study was to understand the perceptions of undergraduate medical students about the utility of keeping daily reflections in logbooks and to ascertain the possible challenges to engagement in logbook reflection. More specifically, this research sought to investigate the students' opinions about the value and usefulness of maintaining reflective writings in logbooks, an aspect that has not been well explored in medical education. The results of this research may be useful to modify healthcare education and practice by providing recommendations for

creating effective policies that foster students' self-reflection. Therefore, the study aims to improve the reflective practices in the programs of Undergraduate Medical and ultimately advocating for the inclusion of reflective writing.

METHODOLOGY

This study employed an analytical cross-sectional design to assess the perceptions of medical students regarding reflective writing practices. The study was conducted at Kabir Medical College, Peshawar, from January 2023 to March 2023. A total of 320 MBBS students of the first, second, and third years of study volunteered to participate in the study. A universal sampling technique was used whereby all students who satisfied the inclusion criteria were recruited.

Instrument Used: The study involved the use of a self-administered questionnaire that was adopted from two other earlier studies(13,14)to collect data. The questionnaire incorporated close-ended Likert-scale questions intended for measuring students' perception of daily reflective writing. To establish content validity, the questionnaire was reviewed by three medical education experts who determined the relevance, and comprehensibility of the questions, and whether the questions addressed the knowledge domain of the study. A pilot study was also done which involved 10% of the population to determine the validity of the instrument and improve on the questions that was measuring the intended variables. Thus, based on the data of the pilot study, it was possible to make slight refinements to the wording of the questions to enhance the clarity of their statement and avoid misunderstandings.

Data Collection and Analysis: Informed consent was obtained from all participants before data collection. Demographic information, such as age, gender, and academic major, was gathered alongside responses to the reflective writing questions. A pilot study, involving 10% of the population, was conducted to refine the questionnaire before full-scale data collection. Descriptive statistics were used to analyze data. SPSS version 26.0 was used to do all the analyses. Considering the nature of survey questions, descriptive statistics including frequencies, percentages, means and standard deviations of participants' answers were used to analyze the data. The primary goal was to present the overall trends in perceptions of reflective writing, as well as demographic details of the study participants.

There was no attempt to conduct inferential statistical tests such as t-tests or chi-square tests because the study was exploratory in nature and aimed to describe trends and patterns in the data.

RESULTS

The study comprised of 320 medical students who were selected from a teaching medical college in Peshawar. Table-1 displays their demographic information.

Table 1: Demographic Variables of Medical Students

Demographic Variables			f (%)
Age	18		8 (2.5)
	19		68 (21.3)
	20		72 (22.5)
	21		100 (31.3)
	22		46 (14.4)
	23		24 (7.5)
	25		2 (0.6)
	Mean \pm SD (years) = 20.59 \pm 1.30		
Gender	Male		182 (56.9%)
	Female		138 (43.1%)
Class	1 st year MBBS		100 (31.3%)
	2 nd year MBBS		120 (37.5%)
	3 rd year MBBS		100 (31.3%)

Table 2: Perceptions of Undergraduate Medical Students about the Importance of Daily Reflection Writing

S.No	QUESTIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
1.	Reflection is crucial in medical education.	6%	64.4%	21.6%	12.2%	1.3%
2.	Reflective logbook enhances understanding in medical education.	8.1%	57.2%	17.8%	13.8%	3.1%
3.	Logbook has improved my level of reflection.	8.1%	46.6%	32.2%	11.6%	1.3%
4.	Logbook has helped in gaining theoretical knowledge.	2.5%	78.4%	15.0%	1.3%	2.8%
5.	Logbook has assisted me in better learn the topic.	9.4%	62.2%	15.0%	11.9%	1.6%
6.	Reflective logbook writing is time-consuming.	4.1%	45.9%	8.8%	39.4%	1.9%
7.	Logbook assist in generating new ideas.	6.3%	48.1%	28.8%	14.4%	2.5%
8.	I found it difficult to write a logbook.	5.0%	34.1%	24.4%	36.6%	
9.	Writing a logbook is added burden / stressful.	4.1%	40.6%	20.9%	28.8%	5.6%
10.	I Prefer to have a logbook next year.	1.9%	77.2%	17.5%	6%	2.8%
11.	The logbook should a part of undergraduate programme.	2.5%	66.3%	19.4%	9.1%	2.8%
12.	Writing in my logbook is effective in helping me retain information better.	17.5%	47.8%	22.5%	9.7%	2.5%
13.	I have noticed positive	3.8%	46.9%	31.6%	15.9%	1.9%

	changes in my approach to learning since I started writing daily reflections in my logbook.					
14.	I am satisfied with the overall experience of writing daily reflections in my logbooks.	9.4%	49.1%	19.4%	16.3%	5.9%

The results indicate that a majority of students (70.4%) recognize the importance of reflection in medical education, with over half (57.2%) agreeing that reflective logbooks enhance their understanding. Additionally, 78.4% of participants found the logbooks helpful in gaining theoretical knowledge, and 62.2% felt that they aided in better learning. Despite these benefits, some challenges were noted, with 45.9% finding reflective writing time-consuming and 40.6% expressing that it added to their stress. Nevertheless, the logbooks were well-received, with 77.2% of students preferring to continue using them in the future, and 66.3% believing they should be a permanent part of the undergraduate curriculum. Furthermore, 47.8% found that reflective writing helped them retain information, and nearly half (46.9%) reported positive changes in their approach to learning.

DISCUSSION

Our study investigated the efficacy of logbooks as a teaching instrument, as well as the significance of reflection in medical education. According to the data, the vast majority of students (70.4%) thought that writing reflections was an important component of their educational experience. Surprisingly, 65.3% of participants stated that logbooks improved their understanding of medical education. Our findings show that including reflective logbooks into medical education can help students improve their academic development and learning.

Additionally, the findings also suggest that in an attempt to build enhanced ideas as well as the principles that are very important in medical practice, the medical educators should embrace the use of reflective logbook practices in the educational systems.

Some research has been conducted to find out the effectiveness of reflective logbooks as a learning aid among the medical personnel. In one study, the trainees in a dermatology residency program in Saudi Arabia were asked to use a Likert scale to rate the importance of reflective logbooks. According to the data, the result of the survey to the statement was 60% of the residents indicating that there is a need for the practice of reflection in the medical field. It was established that reflective

logbooks are useful; this was evidenced by the fact that most of the residents, 80%, concurred with the statement (13). In the same manner, another researchers from the Uppsala University (15)reported that 42% of the medical students agreed with the argument that reflection should be a component of the medical education. The conclusions stress such reflective tools as logbooks to help medical practitioners get the needed insight. A significant number of participants (54. 7%) understood that reflective logbooks were particularly useful when it came to reflection writing. This is in agreement with a case study that demonstrated how the practice of logbook writing enhanced students' metacognition (16). Reflective writing on a consistent basis enables pupils to evaluate their experiences, acknowledge their strengths and weaknesses, and consider how they can improve.

Furthermore, 78.4% of students (251 out of 320) agreed that they have gained theoretical knowledge through use of logbooks in our study. This is in line with the results of a related qualitative study which focuses on portfolios employed by nursing students in Hong Kong. The study found portfolio work helped the students to apply the knowledge into other areas of nursing, enhance conceptual learning and improve overall understanding of nursing theories. All in all, these data prove the significance of the logbooks and portfolio works as for the student's academic advancement (17).

The same conclusions as to the usefulness of reflective logbooks were made, where 63% of the Saudi dermatology residents strongly agreed with the statement that reflective logbooks proved helpful in their learning process (13). Another study done at Shiraz University on medical students also provided empirical evidence justifying the use of reflective logbooks and reflection exercises in enhancing students' educational experience (18). But the study conducted in this research revealed that there are some disadvantages of using logbooks. Among the 320 participants, the number of respondents belong to different categories as follows, 45.9% agreed that it was time-consuming to make reflective logbooks and 4. 1% strongly agreed. It is for

these reasons that this research would like the teachers to consider the practicality of including logbooks in their lectures and make sure that their students have time and appropriate writing materials for reflection.

Similar findings were reported in other studies, when participants voiced concerns about reflective logbooks, claiming they would be a time waster. Notably 25% of these inhabitants strongly endorsed this perspective (13). This opinion was supported by a study that endeavored to find out how students felt about using learning logbooks and the result showed that most of the students believed that the process was time consuming (19,20). Remarkably, a study involving nurse educators discovered that they agreed about how time-consuming reflective writing is (21). These results emphasize even more the difficulty presented by the time commitment necessary for productive reflection using logbooks.

The results of our survey showed that preparing reflective logbooks was an additional load or source of stress for 40.6% of the 320 respondents, with 4.1% strongly agreeing. Perhaps it is worth stressing here that in terms of workload and academic responsibilities, students might experience extra pressure or load originating from reflective writing (20). It is, however, important to note that literature in this regard does acknowledge the benefits of reflection as well as the logbooks for learning as well as for professional development despite the challenges highlighted above (22).

In concordance with our findings, 66. 3% of students believed that logbooks should be compulsory for an undergraduate program, while 77. 2% of the students recommended that reflection writing should be part of the curriculum in the subsequent academic year. Similarly, other studies revealed the same trends of thoughts where the majority of the residents and students supported the idea that using logbooks should be a continuous part of their medical school curriculum. For example, according to one survey, 37.5% of students thought that logbooks should be taught in the classroom (15), yet 50% of locals agreed in another study (13).

A total of 46.9% of research participants agreed, and 3.8% strongly agreed, that daily reflection writing in logbooks had a good impact on their learning style. This result confirms other studies' findings about the beneficial impacts of reflective writing on students' academic and personal development. For instance, a study on first-year law students at Liverpool John Moore's

University revealed that the students enhanced their self-reliance, learnt new learning techniques, and became conscious of their growing confidence, all of which helped them to believe in themselves (23). Further studies have supported the effectiveness of reflection writing as a strategy for making individuals to recall their experiences, identify productive and Counterproductive activities, and promote self-improvement (13,24).

CONCLUSION

Considering this study's findings, it is crucial to underscore the benefits of adding reflective logbooks to the facilitated educational process in medicine, which aids in mastering deep learning, acquiring more information, and maintaining overall academic performance. Thus, the relative time demands of reflective writing should not be overlooked by educators in the process of skill implementation. Another interesting finding regarding the students' perception was their approval of the reflective logbooks to be incorporated in their learning. Consequently, teachers in medical schools should highly encourage the use of reflect logbooks as an important training appliance which leads to the enhancement of the intended professional persona of the students.

Declarations

Ethics approval and consent to participate: Ethical approval was obtained from the ethical committee of Gandhara University. Consent was taken from all the participants before data collection.

Consent for publication: All authors have given consent for this article to be published in this journal.

Availability of data and materials: The datasets generated and analyzed during the current study are readily available from the corresponding author upon justifiable request.

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Author's Contributions

1. Dr. Alia Jehan Zaib

Conceived and designed the study, data analysis and interpretation, drafted the manuscript.

2. Dr. Munir Ahmad Khan (Corresponding author)

Contributed expertise in the field, collaborated on research design, and reviewed the final manuscript.

3. Dr. Shagufta Ali

Contributed to the literature review, helped collect the data, and edited the manuscript.

4. Dr. Tehreem Iftikhar

Contributed expertise in the field, collaborated on research design, and reviewed the final manuscript.

5. Dr. Usama Aurangzeb

Contributed expertise in the field, collaborated on research design, and reviewed the final manuscript.

6. Dr. Talha Maqbool

Contributed expertise in the field, collaborated on research design, and reviewed the final manuscript.

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