

An Appraisal of Dental Students' Perception of Integrating Reflective Practice into the Curriculum: A Pre–Post Intervention Study

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ABSTRACT

Aim: To evaluate dental students' perception of reflective practice before and after an educational intervention. Second, to investigate how it might be more effectively incorporated into dental education.

Materials and methods: A 2-hour session for reflective writing instructions was done as a group discussion and feedback between the instructor and the learners. A template for reflection based on Gibbs' reflective cycle was used. Fifty-one third-year dental students (academic year 2023–2024) participated in this study. Forty-four students consented and filled out an anonymous pre-session electronic survey. The survey comprised two parts including demographics (two questions) and reflective skills related part (11 questions). Twenty-nine students consented and filled out an anonymous post-session electronic survey. The survey included the same parts as the previous, as well as added opinion-related questions (2 questions).

Results: Reflective practice was significantly appreciated among students who thought it was "extremely important" for dental education ($n = 22, 75.8\%$). Moreover, most students ($n = 17, 58.6\%$) believed it should be "completely integrated" into the curriculum. The methods applauded for reflective practice were group discussion ($n = 23, 79.3\%$), reflective writing journal ($n = 19, 65.5\%$), and an online platform ($n = 8, 27.6\%$). There was a statistically significant difference in the evaluation of dental students' perception of reflective practice before and after the session, favoring progress in reflective skills related to their capacity for self-assessment, reflection-on-action, and peer learning. Pre-session sex disparity was resolved after the session.

Conclusion: Dental students' perception of reflective practice enhanced after the educational intervention, and they favored its integration into the curriculum by organized group discussion.

Clinical significance: This study supports the growing consensus that establishing reflective practice is a necessary element of becoming a healthcare professional and the recognition of reflective practice as part of continuous professional development for dental professionals.

Keywords: Critical thinking, Dental education, Professional education, Reflective practice, Reflective writing.

The Journal of Contemporary Dental Practice (2024); 10.5005/jp-journals-10024-3798

INTRODUCTION

Developing self-understanding and situation analysis are outcomes of mental cognition through reflection.¹ This allows the individual to learn from one's personal experiences while utilizing critical thinking to reach a deeper level of learning.^{2,3} According to constructivism theory, changing concepts is a direct result of the way one constructs the acquired knowledge and one's interpretation of a certain event.⁴ In medical education, reflection is considered a vital constituent of reflective learning and reflective practice.⁵ Reflective practice enables the development of critical thinking skills, self-awareness, and continuous improvement. Additionally, dental students must deal with difficult patient care scenarios that require more than simply technical skills. The ability to critically reflect on clinical decisions and patient experiences promotes improved comprehension and development as a competent clinician.⁶

In the literature, reflective practice has several models. A model described by Schön in 1983, has a meaningful application to dental education.⁷ It proposes two facets of reflection: reflection-in-action, which happens throughout an experience and allows for immediate behavior modification, and reflection-on-action, which occurs subsequently to the experience and involves thoughts and

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How to cite this article: Abdel-Wahed N, Sabban H, Khalifa H, *et al.* An Appraisal of Dental Students' Perception of Integrating Reflective Practice into the Curriculum: A Pre–Post Intervention Study. *J Contemp Dent Pract* 2024;25(12):1084–1091.

Source of support: Nil

Conflict of interest: None

emotions regarding the experience. Kolb's 'experiential learning cycle' explains four main phases.⁸ First, the learner describes an experience followed by reflection, abstract conceptualization and finally planning future action. Gibbs' reflective cycle further widens the procedure by adding feelings and splitting reflection

into evaluation and analysis.⁹ The most significant experiences are usually those associated with strong emotions.

There is a growing consensus that establishing reflective practice is a necessary element of becoming a healthcare professional. It is a critical component of dental education that is required by many accreditation bodies. The Academy of Medical Royal Colleges (AoMRC), the UK Conference of Postgraduate Medical Deans (COPMeD), the General Medical Council, and the Medical Schools Council jointly developed guidance for reflective practice for medical students, doctors in training, and doctors engaging in revalidation. The guidance is accompanied by a toolkit including templates and examples.¹⁰ The Commission on Dental Accreditation identifies reflection in daily practice as integral to professional competence.¹¹ The General Dental Council included reflection as a subdomain in dental professional education and recognized reflective practice as part of continuous professional development for dental professionals.¹²

Reflective writing in the medical and nursing curriculum has been the subject of numerous studies that have examined its educational benefits.^{13–15} In the dental literature, reflective practice has been investigated mainly by the use of structured written essays, journals, and portfolios.^{16–18} It was found that many dental students initially fail to comprehend reflective writing and its value to their professional development.^{18,19} The greatest obstacle though is the challenge of motivating the students to actively participate in a reflective writing session. Students seem to need scaffolding of their reflective skills by a supervisor or mentor. Peer co-supervision has also proved beneficial.⁵ The difficulties of including critical reflection in curriculum design and assessment are also acknowledged.²⁰

In this study, we present a methodical approach to incorporating reflective practice into dental education with the goal of enhancing students' educational experiences and strengthening their capacity to combine clinical practice and theoretical knowledge. Upgrading students' capacity to relate subjective knowledge to practical applications is essential for promoting lifelong learning and professional development. However, the formal introduction of reflective practice in dental curricula remains an area of opportunity for research and improvement. We intend to fill the gaps and provide a model for wider use in health education by shedding new light on the incorporation of reflective practices into dental curricula. Therefore, the aim of our study is to evaluate dental students' perception of reflective practice before and after an educational intervention. Second, to investigate how it might be more effectively incorporated into dental education.

MATERIALS AND METHODS

The study was approved by the Research Ethics Committee at the Faculty of Dentistry, King Abdulaziz University (Rec #133-07-23).

Study Design and Participants

This pre–post intervention study was conducted at the Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia. The duration of the intervention was 2 hours, and it was performed during an assigned Oral Radiology practical session in the academic year 2023–2024.

Sample Size Calculation

The sample size was calculated using G*Power software, assuming a medium effect size (Cohen's $d = 0.5$), a significance level (α) of 0.05,

and a power of 0.8 (1- β). The required sample size was 34. However, all registered third-year dental students in total of 51 were recruited and attended the session. We recruited the entire batch in the study, aligning with the academic affairs' recommendation for uniformity in educational material supplied to students.

Inclusion and Exclusion Criteria

Students who consented to fill out the survey were included and students who denied the consent were excluded. No other inclusion and exclusion criteria were applied. Forty-four students (86%) consented and filled out the pre-session electronic survey, and 29 students (57%) consented and filled the post-session electronic survey. There were no rewards for filling out the surveys, and no personal data were collected.

Educational Intervention

A session for reflective writing instructions was done as a mentorship, group discussion, and feedback between the instructor (NA) and the learners. The reflective practice toolkit issued by the AoMRC and COPMeD was followed and the template for reflection based on Gibbs' reflective cycle was used.^{9,10} The instructor guided the students by demonstrating the skill. The students were guided to use the skills of description, self-consciousness, and critical thinking. They were given time to think back on a clinical experience they had with their patients, and their feelings at that time and write their thoughts as a reflection essay. Volunteering students were given the opportunity to discuss their writing. The group, mentored by the instructor, would then discuss both positive and negative aspects of the clinical experience and re-evaluate.

Data Collection

Before the intervention, students were asked to fill out an anonymous voluntary electronic pre-session survey to evaluate their prior knowledge and thoughts about reflective practice. The survey included 11 close-ended questions assessing their point of view on a 5-point Likert scale. The responses to ten questions varied from "definitely agree" to "definitely disagree." This covered the thoughts about reflection before, during, and after the encounter with the patient. The 11th question ranked the importance of reflective practice from "not important at all" to "extremely important". After the intervention, students were asked to fill out another anonymous voluntary electronic post-session survey to evaluate their updated knowledge and thoughts about reflective practice and share their perceptions about the experience. It included the previous 11 close-ended questions as well as two other questions asking about the extent and method of integrating reflective practice in the dental curriculum. The surveys were adopted with modifications from Kember et al. and Rogers et al. (Table 1).^{21,22} Both surveys were collected via Google form documents affiliated with the institution drive. For fast accessibility, QR codes were provided. Each student submitted the surveys during the assigned oral radiology session. The instructor (NA) confirmed attendance and the submitted documents for each student and checked the collection of all forms online.

Data Analysis

Standard deviation and mean values were used to report numerical data. Categorical and ordinal results were presented as percentages and frequencies and analyzed using Chi-square tests and Mann–Whitney U tests, respectively. A significance level of $p < 0.05$ was established for all analyses. R software, version 4.4.1 for Windows,

Table 1: Contents of pre-session survey (before teaching reflective writing) and post-session survey (after teaching reflective writing)

<i>Survey part/ Question</i>	<i>Survey</i>	<i>Narration</i>	<i>Response scale</i>
Part I:			
Demographics:	Pre-session Post-session	Age	Age in years
	Pre-session Post-session	Sex	Female/Male
Part II:			
Section 1: Self-appraisal			
Q1	Pre-session Post-session	I sometimes question the way others do something and try to think of a better way.	5-point Likert scale: (1) Definitely agree, (2) Agree with reservation, (3) Only to be used if a definite answer is not possible, (4) Disagree with reservation, (5) Definitely disagree
Q2	Pre-session Post-session	I like to think over what I have been doing and consider alternative ways of doing it.	
Q3	Pre-session Post-session	I often reflect on my actions to see whether I could have improved on what I did.	
Q4	Pre-session Post-session	I often re-appraise my experience so I can learn from it and improve for my next performance.	
Section 1: Reflection-in-action			
Q5	Pre-session Post-session	During interactions with patients, I consider how my personal thoughts and feelings influence the interaction.	
Q6	Pre-session Post-session	During interactions with patients, I consider how their personal thoughts and feelings influence the interaction.	
Section 1: Reflection-on-action			
Q7	Pre-session Post-session	After interacting with patients, I spend time thinking about what was said and done.	
Q8	Pre-session Post-session	After interacting with patients, I wonder about my own experience of the interaction.	
Section 1: Reflection with others			
Q9	Pre-session Post-session	I find that reflecting on my work with others helps me to work out problems I might be having.	
Q10	Pre-session Post-session	When reflecting on my work with others I become aware of things I have not previously considered.	
Section 2:			
Q11	Pre-session Post-session	How important do you believe reflective practice is in dental education?	5-point Likert scale: (1) Not important at all, (2) Slightly important, (3) Moderately important, (4) Very important, (5) Extremely important
Section 3:			
Q12	Post-session	To what extent do you feel reflective practice should be integrated into your dental education curriculum?	5-point Likert scale: (1) Not integrated at all, (2) Slightly integrated, (3) Moderately integrated, (4) Very integrated, (5) Completely integrated
Section 4:			
Q13	Post-session	My preferred method for critical reflection is:	Scored as multiple answers checkboxes as follows: Reflective writing journal, group discussion, online platform, and other

was utilized to conduct statistical analysis (R Core Team, 2024). R: A language and environment for statistical computing (R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>).

RESULTS

Forty-four students filled out the pre-session survey: 14 male students (31.8%) and 30 female students (68.2%) with a mean age of 22 years. 29 students filled out the post-session survey: Eight male students (27.6%) and 21 female students (72.4%) with a mean age of 21.9 years. Furthermore, there was no statistical significance related to this distribution of age and sex.

Inter-group Variation

We compared the data collected from the pre-session and post-session surveys. The findings demonstrating the impact of teaching reflective writing are presented in Table 2. Teaching reflective writing had no statistically significant impact on the response to question Q6, "During interactions with patients, I consider how their personal thoughts and feelings are influencing the interaction" ($n = 24, 82.76\%, p = 0.096$). However, the post-session survey results for questions Q1–Q5 were ($n = 25, 86.2\%, p < 0.001$; $n = 26, 89.6\%, p < 0.001$; $n = 24, 82.7\%, p = 0.002$; $n = 23, 79.3\%, p = 0.014$; $n = 25, 86.2\%, p = 0.008$), respectively; and the results for questions Q7–Q10 were ($n = 22, 75.8\%, p = 0.009$; $n = 23, 79.3\%, p = 0.010$; $n = 21, 72.4\%, p = 0.012$; $n = 24, 82.7\%, p = 0.004$), respectively. This showed the impact of teaching as a significantly greater percentage of students

chose "definitely agree" after the session. Moreover, a significantly higher percentage of students chose "extremely important" in response to question Q11, "How important do you believe reflective practice is in dental education?" ($n = 22, 75.8\%, p = 0.009$).

These results suggest that the domains of reflective practice including reflection-on-action; reflection with others and self-appraisal all improved, while the domain of reflection-in-action still needs to be enhanced.

Intra-group Variation

We compared the data collected from each survey to investigate variations due to sex. Associations with sex are shown in Tables 3 and 4. Prior to teaching; for question Q8 "After interacting with patients I wonder about my own experience of the interaction", a significantly higher percentage of females chose "definitely agree" ($n = 17, 56.6\%, p = 0.032$). There was no statistical difference between other questions in pre- or post-session surveys.

These results highlight that females were more susceptible to reflect-on-action before the session. This variation between males and females was resolved after the session.

Extent and Method of Integrating Reflective Practice

Regarding the extent of integrating reflective practice into the dental education curriculum; Figure 1 demonstrates the distribution of responses with most students ($n = 17, 58.6\%$) choosing "completely integrated". The distribution of preferred reflective practice methods is displayed in Figure 2, where a greater percentage of students selected "group discussion" ($n = 23, 79.3\%$)

Table 2: Effect of teaching reflective writing

Question	Survey	Response scale [n (%)]					Test statistic	p-value
		1	2	3	4	5		
Q1	Pre-session	16 (36.36%)	22 (50.00%)	5 (11.36%)	1 (2.27%)	0 (0.00%)	968.00	<0.001*
	Post-session	25 (86.21%)	4 (13.79%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q2	Pre-session	14 (31.82%)	21 (47.73%)	7 (15.91%)	2 (4.55%)	0 (0.00%)	1006.50	<0.001*
	Post-session	26 (89.66%)	2 (6.90%)	1 (3.45%)	0 (0.00%)	0 (0.00%)		
Q3	Pre-session	20 (45.45%)	17 (38.64%)	5 (11.36%)	2 (4.55%)	0 (0.00%)	882.50	0.002*
	Post-session	24 (82.76%)	4 (13.79%)	1 (3.45%)	0 (0.00%)	0 (0.00%)		
Q4	Pre-session	24 (54.55%)	11 (25.00%)	5 (11.36%)	2 (4.55%)	2 (4.55%)	823.00	0.014*
	Post-session	23 (79.31%)	6 (20.69%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q5	Pre-session	26 (59.09%)	10 (22.73%)	5 (11.36%)	2 (4.55%)	1 (2.27%)	827.00	0.008*
	Post-session	25 (86.21%)	4 (13.79%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q6	Pre-session	28 (63.64%)	10 (22.73%)	6 (13.64%)	0 (0.00%)	0 (0.00%)	756.00	0.096
	Post-session	24 (82.76%)	3 (10.34%)	1 (3.45%)	1 (3.45%)	0 (0.00%)		
Q7	Pre-session	21 (47.73%)	12 (27.27%)	5 (11.36%)	6 (13.64%)	0 (0.00%)	842.00	0.009*
	Post-session	22 (75.86%)	6 (20.69%)	0 (0.00%)	1 (3.45%)	0 (0.00%)		
Q8	Pre-session	22 (50.00%)	15 (34.09%)	6 (13.64%)	1 (2.27%)	0 (0.00%)	835.50	0.010*
	Post-session	23 (79.31%)	5 (17.24%)	1 (3.45%)	0 (0.00%)	0 (0.00%)		
Q9	Pre-session	18 (40.91%)	20 (45.45%)	6 (13.64%)	0 (0.00%)	0 (0.00%)	837.00	0.012*
	Post-session	21 (72.41%)	6 (20.69%)	2 (6.90%)	0 (0.00%)	0 (0.00%)		
Q10	Pre-session	22 (50.00%)	14 (31.82%)	7 (15.91%)	1 (2.27%)	0 (0.00%)	856.50	0.004*
	Post-session	24 (82.76%)	4 (13.79%)	1 (3.45%)	0 (0.00%)	0 (0.00%)		
Q11	Pre-session	0 (0.00%)	2 (4.55%)	5 (11.36%)	20 (45.45%)	17 (38.64%)	846.50	0.009*
	Post-session	0 (0.00%)	1 (3.45%)	3 (10.34%)	3 (10.34%)	22 (75.86%)		

*Significant

Table 3: Associations with sex in pre-session survey

Question	Sex	Response scale [n (%)]					Test statistic	p-value
		1	2	3	4	5		
Q1	Male	5 (35.71%)	6 (42.86%)	2 (14.29%)	1 (7.14%)	0 (0.00%)	2.51	0.474
	Female	11 (36.67%)	16 (53.33%)	3 (10.00%)	0 (0.00%)	0 (0.00%)		
Q2	Male	5 (35.71%)	6 (42.86%)	3 (21.43%)	0 (0.00%)	0 (0.00%)	1.53	0.676
	Female	9 (30.00%)	15 (50.00%)	4 (13.33%)	2 (6.67%)	0 (0.00%)		
Q3	Male	7 (50.00%)	4 (28.57%)	2 (14.29%)	1 (7.14%)	0 (0.00%)	1.09	0.779
	Female	13 (43.33%)	13 (43.33%)	3 (10.00%)	1 (3.33%)	0 (0.00%)		
Q4	Male	8 (57.14%)	3 (21.43%)	1 (7.14%)	1 (7.14%)	1 (7.14%)	1.06	0.900
	Female	16 (53.33%)	8 (26.67%)	4 (13.33%)	1 (3.33%)	1 (3.33%)		
Q5	Male	9 (64.29%)	4 (28.57%)	0 (0.00%)	1 (7.14%)	0 (0.00%)	3.51	0.477
	Female	17 (56.67%)	6 (20.00%)	5 (16.67%)	1 (3.33%)	1 (3.33%)		
Q6	Male	9 (64.29%)	4 (28.57%)	1 (7.14%)	0 (0.00%)	0 (0.00%)	0.94	0.623
	Female	19 (63.33%)	6 (20.00%)	5 (16.67%)	0 (0.00%)	0 (0.00%)		
Q7	Male	7 (50.00%)	4 (28.57%)	1 (7.14%)	2 (14.29%)	0 (0.00%)	0.36	0.948
	Female	14 (46.67%)	8 (26.67%)	4 (13.33%)	4 (13.33%)	0 (0.00%)		
Q8	Male	5 (35.71%)	4 (28.57%)	5 (35.71%)	0 (0.00%)	0 (0.00%)	8.83	0.032*
	Female	17 (56.67%)	11 (36.67%)	1 (3.33%)	1 (3.33%)	0 (0.00%)		
Q9	Male	7 (50.00%)	4 (28.57%)	3 (21.43%)	0 (0.00%)	0 (0.00%)	2.62	0.270
	Female	11 (36.67%)	16 (53.33%)	3 (10.00%)	0 (0.00%)	0 (0.00%)		
Q10	Male	7 (50.00%)	5 (35.71%)	2 (14.29%)	0 (0.00%)	0 (0.00%)	0.60	0.897
	Female	15 (50.00%)	9 (30.00%)	5 (16.67%)	1 (3.33%)	0 (0.00%)		
Q11	Male	0 (0.00%)	0 (0.00%)	2 (14.29%)	9 (64.29%)	3 (21.43%)	4.26	0.234
	Female	0 (0.00%)	2 (6.67%)	3 (10.00%)	11 (36.67%)	14 (46.67%)		

*Significant

Table 4: Associations with sex in post-session survey

Question	Sex	Response scale [n (%)]					Test statistic	p-value
		1	2	3	4	5		
Q1	Male	8 (100.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1.77	0.184
	Female	17 (80.95%)	4 (19.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q2	Male	7 (87.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.89	0.641
	Female	19 (90.48%)	1 (4.76%)	1 (4.76%)	0 (0.00%)	0 (0.00%)		
Q3	Male	6 (75.00%)	2 (25.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1.47	0.480
	Female	18 (85.71%)	2 (9.52%)	1 (4.76%)	0 (0.00%)	0 (0.00%)		
Q4	Male	6 (75.00%)	2 (25.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.13	0.724
	Female	17 (80.95%)	4 (19.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q5	Male	7 (87.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.02	0.901
	Female	18 (85.71%)	3 (14.29%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q6	Male	7 (87.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.84	0.840
	Female	17 (80.95%)	2 (9.52%)	1 (4.76%)	1 (4.76%)	0 (0.00%)		
Q7	Male	6 (75.00%)	1 (12.50%)	0 (0.00%)	1 (12.50%)	0 (0.00%)	2.98	0.225
	Female	16 (76.19%)	5 (23.81%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q8	Male	6 (75.00%)	1 (12.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	2.79	0.247
	Female	17 (80.95%)	4 (19.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)		
Q9	Male	7 (87.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1.47	0.480
	Female	14 (66.67%)	5 (23.81%)	2 (9.52%)	0 (0.00%)	0 (0.00%)		
Q10	Male	7 (87.50%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.42	0.809
	Female	17 (80.95%)	3 (14.29%)	1 (4.76%)	0 (0.00%)	0 (0.00%)		
Q11	Male	0 (0.00%)	0 (0.00%)	2 (25.00%)	1 (12.50%)	5 (62.50%)	2.98	0.394
	Female	0 (0.00%)	1 (4.76%)	1 (4.76%)	2 (9.52%)	17 (80.95%)		

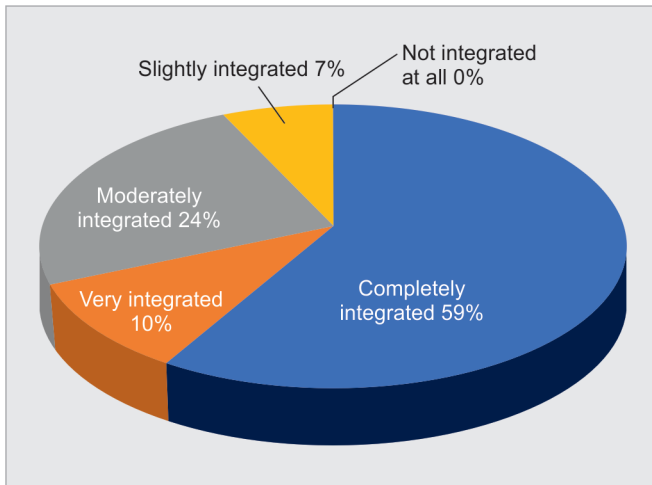


Fig. 1: This is a pie chart showing students' responses to question 12 "To what extent do you feel reflective practice should be integrated into your dental education curriculum?"

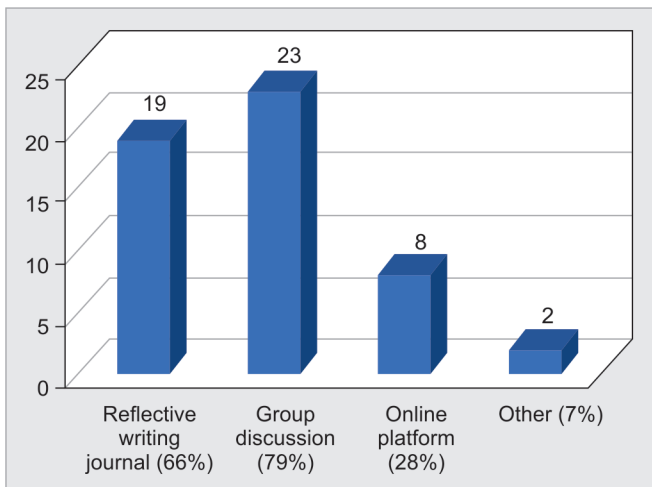


Fig. 2: This is a bar chart showing students' responses to question 13 "My preferred method for critical reflection is"

and "reflective writing journal" ($n = 19, 65.5\%$), while 27.6% ($n = 8$) selected "online platform". Other suggestions included "taking a walk outside and reflecting on the day's events" and "support groups"; each added by one student (3.4%).

The results show a statistically significant difference in the evaluation of dental students' perception of reflective practice before and after the session, favoring progress in reflective skills related to their capacity for self-assessment, reflection-on-action, and peer learning. Pre-session sex disparity was rectified after the session. Furthermore, students favored integrating reflective practice into the curriculum through organized group discussion.

DISCUSSION

This research evaluated third-year dental students' perception of the integration of reflective practice into the curriculum. Reflective writing was selected as a form of reflective practice. It is typically used to encourage critical thinking, self-awareness, and professional development.^{19,23} The results concerning the response to questions targeting students' ability to reflect on action and

reflect with others revealed a significantly higher percentage of students showing improvement. This is similar to the findings of Fullana et al. in 2016, who studied the perceptions of undergraduate students participating in reflective learning.²⁴ Degrees included nursing, environmental sciences, psychology, and social education. Students initially struggle to grasp the value of reflection. However, once guided through structured reflection processes, particularly through discussions with peers and mentors, many begin to recognize the role of reflective practice in their professional development.^{5,24} Gibbs' reflective cycle was followed as a frame to mentor students through the process. Though originally developed in the Eighties, the method is still a valuable educational tool to motivate students to analyze their thoughts and feelings, and plan future behavior in comparable situations.²⁵⁻²⁷

Students' critical self-evaluation was generally improved by reflective writing. However, for the question, "During interactions with patients, I consider how their personal thoughts and feelings are influencing the interaction," the effect of teaching reflective writing was not statistically significant. Thus, considering reflection in action, students still need to be more attentive to patients' feelings. Priddis and Rogers in 2018 acknowledged the use of a reflective practice questionnaire to assess domains of reflection for the general population and mental health practitioners.²⁸ Moreover, Kanthan and Senger in 2011 found that medical and dental students were not able to reflect well when it comes to reflection in action and emotional responses.²⁹

After the reflective writing session, an evident shift in attitudes was noted. Before the instruction, students declared reluctance or uncertainty about the relevance of reflection to their education. However, after having been exposed to reflective writing, students recognized the importance of reflective practice. This shift underscores the effectiveness of structured reflective activities in enhancing student perceptions of the value of self-assessment and reflection in clinical practice. Moreover, the post-session survey showed that students want reflective practice to be completely integrated into the dental curriculum. It was previously described that healthcare students benefited from reflective writing assignments that facilitated their learning.³⁰⁻³³ The use of reflective logbooks and portfolios for updating clinical assessments in dentistry was also recommended.³⁴

Otero et al.³⁵ reviewed the differences between females and males in cognitive reflection and stated a small magnitude of difference. Sex differences in reactions to reflective writing were assessed in our study. The participants' age and sex distributions were statistically insignificant and, in general, had a minimal impact on their decisions either before or after the session. Nonetheless, prior to the session, a notably greater proportion of females reflected on their experiences following patient interactions. Following the instructions, this sex disparity eventually decreased, suggesting that structured reflective practices might be useful in promoting more uniform reflective behaviors between the sexes. This change in reflective skills confirms Bridwell-Bowles' claim in 1992 that, despite the existence of socially constructed differences between men's and women's mental processes, these differences are adaptable and subject to educational interventions.³⁶ Additionally, according to Wicks' findings in 2015, structured reflective practice has been shown to reduce sex discrepancy, indicating that guided reflection may decrease gender-based differences in writing styles.³⁷

Even with these improvements, the study highlighted challenges in getting learners to write reflectively. The results

showed the preferred methods of reflective practice; with the majority of students choosing group discussion. In particular, students who are used to objective evaluations such as multiple-choice exams may find reflective writing unfamiliar and less useful. This preference for non-essay-based assessments reflects a wider challenge within dental education, where fostering reflective behavior may conflict with established assessment methods. These results are consistent with Tsang's research in 2011, who also found that students prefer reflective group discussions to individual reflective writing because of advantages like exposure to different perspectives and peer learning.³⁸ Further supporting the idea that encouraging reflection necessitates accommodating students' preferred methods of learning. Jonas-Dwyer et al. in 2013 also emphasized the difficulties in introducing reflective practice to dental students used to objective evaluations.³³

Furthermore, faculty attitudes and the manner reflective practice is introduced in the curriculum take a crucial role in overcoming the challenges of encouraging students to write reflectively.^{17,18} As noted in both the literature and this study, students are more likely to embrace reflective writing if they receive clear guidance and feedback from their instructors. Students need this support in order to get over their initial discomfort and form the habit of self-reflection.

This study was limited to students' immediate perceptions, and in contrast, the long-term effects of reflective writing on clinical practice should also be evaluated in future studies. Reflective writing's importance in dental education would be better understood if it were known how it affects students' clinical reasoning, problem-solving, and decision-making abilities over time.

Another limitation of the study is the lack of different instructors' perceptions of teaching reflective practice. In order to successfully incorporate reflective writing into dental education, future research should concentrate on finding strategies to better prepare faculty members. An interesting field to research would be evaluating the obstacles to incorporating reflective writing and other reflective practice exercises into the dental education curriculum.

CONCLUSION

The outcomes of this study indicate that reflective writing as a form of reflective practice is well received by dental students, especially when structured instructions are offered. Students favored the integration of reflective practice into the curriculum through group discussion. Nonetheless, there are challenges in student engagement, and it is crucial to address these by improving faculty assistance and exploring new methods for integrating reflective practice into the curriculum.

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