ORIGINAL RESEARCH Dental Students' Perspective of Transitioning from Pre-Clinical to Clinical Practice

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Introduction: This study aimed to investigate how dental students at King Abdulaziz University Faculty of Dentistry transitioned from pre-clinical to clinical instruction and how this change affected their learning outcomes. Understanding this transition was crucial to identify the challenges faced by students and the support they required.

Methods: A mixed-methods approach was utilized, combining qualitative insights from focus group discussions with quantitative data from surveys. Focus groups gathered detailed student experiences regarding their transition, while surveys measured workloads, anxiety levels, and perceptions of clinical competence.

Results: The results showed that students have a lot of difficulties because of their heavier workloads, higher levels of anxiety, and the need for better integration of academic knowledge with practical abilities. Concerns over clinical competence and the necessity of improving communication with patients and healthcare teams are other characteristics of the transition phase. The findings highlighted how important structured support networks are for reducing transition-related stress and improving students' readiness for clinical duties. These networks include peer mentorship, orientation programs, and customized curriculum modifications.

Discussion: The study emphasized the value of early exposure to clinical settings and the inclusion of soft skill development in the curriculum, such as empathy and communication. The research advocated for comprehensive reforms in dental education, emphasizing the need for a holistic approach that addresses both the academic and emotional well-being of students. Dental faculties can contribute to the development of more competent and self-assured dental practitioners by improving support systems and incorporating practical experiences earlier in the educational timeline.

Keywords: dental education, transition experiences, pre-clinical to clinical, mixed-methods approach, student challenges, support systems, curriculum design, learning outcomes, clinical competence

Introduction

In the early pre-clinical years of dental school, theory-based learning is predominantly required, with supervised clinical patient-based activities added in the clinical years. The clinical phase, which is crucial for preparing students for future working practices, emphasises the application of theoretical knowledge to dental skills through clinical work with actual patients.¹ Empirical research in dental education has shown that the change from pre-clinical to clinical training involves several difficulties, just like in other health professions.^{2,3} In addition to increased workload, lack of confidence in applying theoretical knowledge and skills to real-world patient problems, ongoing learning, educational expectations, and assessment, these difficulties also include issues with professional socialisation and interprofessional collaboration.⁴ No matter how the curriculum is set up, evidence supports the notion that students experience what has been called the "shock of practice" during the pre-clinical-clinical transition in healthcare. Their position changes from being instructed and not in charge to taking on the added responsibility of patient care in addition to their routine academic commitments.⁵ The amount of information and abilities that students anticipate needing throughout clinical training is frequently different from what they actually experience, as they often perceive they lack the required skills for effective

clinical performance.⁶ Before beginning clinical training, students must establish links between the theoretical knowledge they learned in the pre-clinical stage and the critical thinking, clinical reasoning, and problem-solving abilities necessary for patient care.⁷ Students also experience stress from learning the necessary fine motor skills, as well as from managing patients and organisational systems.⁸ Additionally, learning and education in the dental clinic setting require restructuring of knowledge, much like in other health professions. Students receive direction and feedback on personal, professional, and educational development issues in the context of patient care.⁹ Evidence does, however, point to using three conceptual perspectives, educational, social, and developmental, to address transition-related challenges. From an educational perspective, by employing curriculum-based innovations and clerkship courses as problem-solving techniques. From a social perspective, establishing connections with staff, peers, and close friends demonstrates social integration. And from a developmental standpoint, using reflection and transferable learning skills encourages students to take charge of their education and the transition process.¹⁰

It is crucial that dental students smoothly transition from pre-clinical to clinical training as they begin unsupervised clinical practice after graduation. Therefore, educators must thoroughly understand their transitional experiences at this stage of training to effectively support them, minimise negative effects, and maximise experiential chances for lifelong learning.

Theoretical Framework

In health-related education, students are exposed to various social and emotional changes and need to develop the necessary skills to handle these situations.¹¹ Various theories, such as the organisational socialisation theory, can be used to explore these experiences.^{12,13} Although nurses and medical educators have used it, the literature on its use in dentistry is less extensive.^{14,15} This theory explores students' experiences transitioning from a pre-clinical to a clinical setting. It seeks to identify developmental opportunities they can exploit as they face the challenges of the transition.¹⁶ This approach can improve the quality of training programs by identifying the various challenges students face during their studies. It can also help them transition smoothly.

Erdogan and Bauer first proposed the concept of organisational socialisation in the 1990s to describe transitioning into a new role in medical education.¹² It divides the learning curve into three phases: the first is about acquiring knowledge, the second is about developing skills, and the third is about improving behaviour. The socialisation efforts required to facilitate the transition are provided in this phase. In Phase II, the newcomer's ability to adapt to the new role will be determined by factors such as self-efficacy and role clarity. The third phase focuses on newcomer outcomes, which include performance, dedication, and turnover. These results result from the accumulation of factors in the first two phases. A summary of the phases is shown in Figure 1.

Study Objectives

The proposed study intended to gain insight into the educational, social, and developmental perspectives of the transition experiences of dental students from pre-clinical to clinical settings at King Abdulaziz University Faculty of Dentistry (KAUFD) by conducting a mixed-method study. This will help educators modify their curricula to improve students' learning and facilitate easy transition.

Methodology

Study Design

The anticipated included sample size is 135 fifth-year dental students. Subsequently, a focus group interview included approximately ten students to represent their class (10 of each gender), and participation was voluntary.

Fifth-year dental students attending KAUFD who successfully passed 4th year. There is no gender, racial or ethnic preference for the studied population. The age of anticipated participants is 20 < years. For adherence with the Declaration of Helsinki, this study was evaluated and approved by the King Abdulaziz University Faculty of Dentistry (KAUFD) Research Ethics Committee (ethical approval number 120–10-22).

Fifth-year dental students attending KAUFD who successfully passed their courses in 4th year. Students who were willing to complete the questionnaire and consent to its use before beginning of the study. Publication of direct quotes



Figure I The phases based on concept of organisational socialisation model.

and anonymised responses was part of the consent. Fourth-year students failed students, or students who were not attending KAUFD were excluded.

This study used a sequential explanatory mixed-methods approach, collecting and analysing both quantitative (via surveys) and qualitative (through open-ended survey replies and focus groups) data using the conceptual framework of organisational socialisation theory.¹² First, a validated survey was used for the general overview of students' perceptions,¹⁷ adapted slightly for relevance to dental students. The results were analysed, and the questions with significant results were considered. Then, the focus group interview with the modified OST Atherley proposed will be created based on the survey results and analysis. It will be conducted using semi-structured open-ended questions to collect qualitative data that will explain the students' perception of specific issues in detail similar to.¹⁴ Figure 2 shows the study design steps.



Figure 2 Study design.

Recruitment Method

Survey

The fifth-year leaders were contacted, and two meetings were set for them to complete the survey. Incentives included the chance to enter a drawing for two reward vouchers for participation. Before accessing the survey, each participant gave their signed consent to participate in the study that will be published later on. Using Google Survey Forms, a self-administered questionnaire was created. Forty-four questions made up the questionnaire to assess students' perceptions of their experiences in relation to five transition-related domains: professional socialisation, workload, patient contact, knowledge and skills, and learning and education. 3-point Likert scale (agree, neutral and disagree). The two components of the research (survey and interview) and the significance of this study were explained throughout the sessions. The questionnaire had a brief introduction to the study, its objectives, and how long it would take to complete as well. Students were guaranteed that their lack of involvement would not negatively impact academics. A small explanation of the focus group interview process has been included at the end of the survey, and interested volunteers for the study's qualitative phase answered the last question by agreeing to participate.

Focused Group Discussion

Focus group discussions (FGDs) were held on the 23rd of May, 2023, to investigate transition experiences and perceptions further to get insight that cannot be attained through a survey alone. The discussions lasted 60 minutes in a virtual setting via Blackboard and were audio-recorded. Confidentiality and honesty were emphasised. Semi-structured open-ended questions that were created based on emergent themes from the surveys and available literature served as the foundation for the conversations. Focus groups and open-ended questions (OER) together provide distinctive venues for data gathering and examination of various elements of respondents' perceptions.

Data Analysis

Using IBM Corp.'s SPSS v23, the collected quantitative data was cleaned and analysed. The demographics and responses to each survey question for the participants were presented using descriptive statistics. The audio-taped focused group discussions were coded, and disagreements were settled at a consensus meeting. Using the modified OST framework described by Atherley et al, the qualitative data of the open-ended survey questions and FGD were analysed.¹⁴

Results

Quantitative Data

Characteristics of the Study Participants

Completed survey responses were received from 73% of the invited participants (98/135 students). The demographic characteristics of the participants are presented in Table 1. About 52% of the participants were female. Most of the participants' age (96%) were 20 to 24 years old, and (62%) had no prior health professions education experience.

Transition and Professional Socialisation

Most students felt the Clinical Dentistry Orientation during the diagnostic weeks made the transition into clinical study easier (72%) and agreed that it is vital for dentistry students who are new to the clinical space (85%). Most of them felt for the first time what it is like to work as a dentist (83%), and they were able to collaborate well with their peers (67%). However, only a few students felt ready to begin clinical training (39%), and most students felt nervous at the start of clinical training (82%). About half of the students have considered quitting their dentistry degree.

Workload

Regarding workload, the majority of the students found it heavy (83%) and felt a wide disparity between the workload in their clinical studies compared to the pre-clinical phase (85%). Most students also had difficulty adjusting to the work routine (63%).

	Frequency	Percentage
Gender		
Male	47	48
Female	51	52
Age		
>20	1	I
20–22	37	38
22–24	57	58
24>	3	3
Prior dental experience		
Yes	36	28
No	62	63
Dental professional in the family		
Yes	22	22
No	76	78
First in the family to attend dental school		
Yes	71	72
No	27	28

 Table I Characteristics of the Study Participants (N=98)

Knowledge, Knowledge Application and Skills

Most participants (61%) found the knowledge required in clinical practice to be different from my theoretical knowledge; however, most students felt they were able to apply their knowledge in practice (73%). With regards to skills, although most of the students felt they were prepared for clinical performance (66%), and most felt comfortable in performing clinical procedures such as dental examination (95%); however, about half of them felt confident about taking history (53%).

Learning and Education

Most students perceived engaging in chairside teaching as the most useful activity in clinical learning (81%). The majority of students agreed that problem-based learning was thought to be good preparation for practice (73%), and simulated patients (SPs) were seen as a useful learning tool by nearly most of the students (71%). Students also learnt a lot from their peers (80%) and regarded junior and senior staff as good teachers (77% and 65%, respectively). Many students confirmed that their learning is driven by questions from clinical staff (67%) and depends on the problems they encountered that day (58%). Besides, they are able to judge their own progress (79%). However, most students agreed that they study in different ways (68%) and more intensively than before the commencement of student clinics (60%).

Patient Contact

Students were strongly in favour of acquiring and retaining knowledge through contact with patients (79%), though almost half would have preferred having real patient contact early in the curriculum (48%). Only a few students were uncomfortable starting a conversation with a patient (14%) and performing examinations (17%).

A summary of the domains mentioned above is presented in Table 2.

Qualitative Data: Focus Group Discussion (FGD)

The findings presented here are based on the perspectives of Erdogan and Bauer regarding the phases and factors that influence organisational socialisation. Phase I focused on the characteristics, behaviours, and organisational efforts of the students.

Phase I Student's Characteristics

Positivity, resilience, self-regulation, and use of prior experience were Student characteristics that improved success tendencies.

Table 2 Participants' Mean Scores for the Five Assessed Domains

Statement	Mean	SD	Agree (%)	Neutral (%)	Disagree (%)		
Domain I: Transition and Professional Socialization							
I. I experienced a great deal of stress in the first few weeks of clinical place.	1.28	0.62	82	9	9		
I. This was the first time I experienced what it is like to work as a dentist.	1.24	0.61	83	9	6		
I. The transition from pre-clinical to clinical training went smoothly.	2.06	0.74	24	31	45		
I. I felt ready to begin clinical training.	1.87	0.79	39	26	36		
I. The clinical staff provided sufficient support.	1.69	0.81	52	21	27		
I. Collaboration with my fellow student dentists was easy.	1.52	0.82	67	18	14		
I. The Clinical Dentistry/Orientation should be provided to all new students.	1.27	0.67	85	10	5		
I. The Clinical Dentistry/Orientation during the diagnostic weeks made the transition into	1.48	0.84	72	18	9		
clinical study easier.							
I. The early patient contact during 4th year made the transition easier in the 5th year.	1.36	0.81	82	14	4		
I. I have considered quitting my dentistry degree.	1.79	0.92	51	26	23		
Domain 2: Workload	I	<u> </u>	<u> </u>	I			
L. The workload of student dentist on clinical elegement is here with large work	1.20	0//	07		(
The workload of student dentist on clinical placement is neavy with long work.	1.27	0.00	05	11	0		
1. There is a huge difference between my workload before and after the transition.	1.27	0.65	65	15	0		
1. Thad difficulty getting used to the work routine.	1.0	0.00	63	25	12		
Domain 3: Knowledge, knowledge application and skills		1		[
I. The knowledge required in clinical practice is different from my theoretical.	1.55	0.76	61	16	23		
I. I am able to apply my knowledge in practice.	1.48	0.83	73	22	5		
I. I am able to do a dental (extra and intraoral) examination.	1.09	0.41	95	4	I		
I. I feel confident about the findings from history taking.	1.51	0.58	53	43	4		
I. I learn a lot from my peers (other dental students).	1.49	0.84	73	20	7		
I. I felt well-prepared to perform clinical skills.	1.58	0.87	66	24	10		
Domain 4: Learning and education							
I. You can learn a lot from chair-side teaching.	1.37	0.79	81	16	3		
I. I learned a lot from my peers (other dental students).	1.35	0.72	80	14	6		
I. Junior staff are good teachers.	1.43	0.80	77	19	4		
I. Senior staff are good teachers.	1.64	0.91	65	30	5		
I. In clinical practice, I study in a different way.	1.35	0.54	68	29	3		
I. I study more intensively than before the commencement of student clinics.	1.67	0.92	60	25	15		
I. What I study depends on the problems I have encountered that day.	1.79	1.00	58	34	9		
I. My learning is driven by questions from clinical staff.	1.54	0.83	67	22	11		
I. Problem-based learning (PBL) provided good preparation for clinical practice.	1.5	0.84	73	22	5		
I. Simulated patient clinics were good preparation for contact with real patient.	1.45	0.76	71	14	15		
I. I study primarily to pass tests and examinations.	1.82	0.87	48	30	22		
I. I am able to judge my own progress.	I.40	0.78	79	18	3		
Domain 5: Patient contact							
I. Contact with real patients is easy for me.	1.58	0.81	62	21	17		
I. Contact with real patients stimulates me to study.	1.60	0.87	64	24	12		
I. The knowledge I acquire from contact with real patients is easier to retain.	1.42	0.81	79	20	I		
I. I think patients feel uncomfortable when they are examined by a student.	1.87	0.89	47	33	20		
I. I am afraid to start a conversation with a patient.	1.96	0.50	14	10	76		
I. I feel uncomfortable when I examine a patient.	2	0.59	17	17	65		
I. I would like real patient contact earlier in the curriculum for all other courses.	1.92	0.99	48	34	17		

Positivity

The students indicated that the transition process was challenging and abrupt. They also said that they felt overwhelmed.

When I joined the clinics, I realised that the required information was too much and overwhelming, and I don't think any college student can deny that the requirements are overwhelming. (Male, FGD)

Another student did not believe there were major issues during the transition and tried to remain calm and remind themself that the year would pass.

There were no issues during the transition, and as time passed, we realised that it was all over. (Male, FGD)

Previous Experience

Many of them noted that the fourth year would be crucial in helping them prepare for this transition. They also noted that their knowledge needed to be improved to successfully move to the fifth clinical year.

There is a gap in the transition from the fourth to the fifth year. We didn't have time to learn how to do basic clinical techniques. (Female, FGD)

We needed more practice in preparing our clinics with the required tools needed for each procedure. Another issue was patient recruitment and how to contact them to get them treated. (Female, FGD)

Self-Regulation

The students noted that they needed to be prepared ahead for the day and have the mindset ready to ask questions if needed. They also said they needed to develop their own learning methods.

I advised my colleagues to watch videos and certain doctors in clinics on how to deal with patients to save time. Regarding knowledge, everything is fine, and self-learning from different trusted media sources was excellent, too. (Male, FGD)

Student's Behaviour

Students' feedback seeking, proactive information seeking, and relationship building were some of the behaviours that helped them adapt more easily to the clinical learning setting.

Feedback Seeking

Students were proactive in seeking feedback to enhance their clinical skills. Most of the students were eager to receive feedback during their first few months to help them ease into the clinical years.

To make the clinic more effective, we need to ask and get answers with feedback from doctors during the clinical session. (Female, FGD)

Information Seeking

To aid in their adjustment, the students sought advice from more experienced peers or friends. They felt unconfident asking their supervisors during the session.

I know that we must have knowledge on certain points and keep on recalling them most of the time to avoid asking the supervisors during the session. I try to go to the nearest clinic to ask my friends. (Female, FGD)

The problem is that I'm afraid to go ask the doctor to avoid hearing a reply that I may not want to hear, something like "You are supposed to know this". (Female, FGD)

Relationship Building

Establishing a relationship with their supervisors was an important aspect of the transition. Many students see their supervisors as good role models influencing their learning experience.

While others can be a symbol of good morals, I see them as ideal persons. So, if I ever had the chance to be a doctor one day, I shall behave just like them. (Male, FGD)

Organisational Factors

Formal orientation programmes and organisational insiders are part of the organisational factors that can influence the transition process. While socialisation techniques and organisational insiders mirrored social perspectives, the administration of formal orientation programs reflected the educational perspective.

Formal Orientation

The participants commended the efforts of the dental faculty in organising orientation programs to help facilitate their transition. However, they noted that an additional orientation course would be helpful in their transition to target their clinical training.

We had about a month or two before we entered the clinic; in this short period, it would be more helpful to take additional online courses on how to deal with and communicate with patients tips & tricks. (Male, FGD)

In the fourth-year clinical part, I felt that I was already prepared for it. Phantom labs in the third year were very useful and prepared me for the fourth year. It was hard at the beginning to deal with real patients. (Female, FGD)

Organisational Insiders

Clinical supervisors are important individuals who play a significant role in the students' transitions. Some students noted that their supervisors and senior students helped them during their clinical experiences.

It was like a mix of feelings. The transition was not in one rhythm. Some doctors were good at supporting and understanding this transition, while others were not. (Male, FGD)

Some students suggested that during pre-clinical years, they assist senior students in the clinic to get some experience with the clinical work.

In pre-clinical years, students should work as assistants in the clinics of the board program or with senior students. (Male, FGD)

Students would attend clinics as assistants, meaning each student would attend a particular clinic in the fifth or sixth year. We will gain some experience and tricks we wish we had noticed from the beginning. (Male, FGD)

Phase II Student's Adjustment

Role Clarification

Many students needed more clarification on their roles within the clinics and felt that they needed an orientation course to provide them with clear expectations.

There is something that needs to be done and followed by some departments to clarify the process in the clinics. We need a guideline including what to do in each situation. (Male, FGD)

Team Dynamics

The students expressed their concerns about the team dynamics and inconsistency. They were uncertain of their roles and how they should act in certain situations when their supervisors had different opinions.

I noticed something while working in clinics: different supervisors came from different schools, and this affected us so much. We know that each supervisor has their own way of treating patients, and that is expected. What we don't expect is different approaches are also seen among doctors with the same background. This has a strong impact on the procedure I'm using, the material chosen, or even the techniques used. (Male, FGD)

A doctor teaches me a certain technique or to use a certain material. While another doctor will recommend something different. That's why there is a little struggle and conflict in clinical education, hand techniques and practical work. (Male, FGD)

Workload

The students noted that they were concerned about the level of knowledge they would need to acquire and the number of requirements they needed to fulfil. They felt that they were practising dentistry rather than learning dental techniques.

The number of requirements in the fourth and fifth years is just different, with more pressure on the fifth year; otherwise, everything was fine. (Male, FGD)

It is the requirement of the departments! There are too many as if we are already graduated dentists and not students. (Male, FGD)

Self-Efficacy

Although they agreed that the courses they received on communication skills were sufficient in the pre-clinical years, they needed help applying this knowledge to clinical settings.

We already knew it from the senior colleagues and supervisors, from the advice given to us, but there are no fundamentals that allow us to say that we're confident in communicating with patients. (Male, FGD)

Along with feeling their background knowledge on the subject was inadequate, the students expressed concerns about their degree of confidence in their ability to communicate effectively with clients during the early stages of their transition.

Phase III

Outcomes

Internal Motivation

Many students said that because they were focused on getting high grades in pre-clinical years, the learning experience helped underline the need for the intrinsic drive to learn during clinical years.

As a student, I used to be concerned only about my grades in the pre-clinical years. It would be better to give room for students by making the first few cases or the first month without an evaluation so we can have an inner motivation to work. (Male, FGD)

Personal and Professional Development

The students emphasised how important it is to provide the best possible care to patients and treat them as humans rather than fulfilling their requirements. They had an inner feeling as they were already practising dentists.

What I see with my friends. They consider the patient a requirement because of the pressure and deadline, so we must finish quickly. It's not fair! (Female, FGD)

Now, in the Fifth Year, I Have Become a Doctor! (Female, FGD)

Discussion

This study has shed light on students' experience in their transitioning from a pre-clinical to a clinical setting. It is a mixed-methods study, which makes it possible to gain a thorough understanding of the transition process' developmental stages, including the students' characteristics, the changes they made, and the results related to professional

identity and patient-centred care. The study's findings demonstrate that, despite the transition's challenges, students handled it well by turning to their seniors and peers for both intellectual and emotional assistance. Students altered their learning habits and improved their ability to reflect and collaborate with others.

According to the quantitative data analysis findings, participants' knowledge, learning and education domains had the highest percentage of easier transitioning. Similarly to another study were it demonstrated that most students believed they could study on their own and found it easy to remember what they had learnt in clinical practice once they were interested in a certain subject.¹⁷ This could be explained by the FGD results, which showed more student involvement in their clinical training through self-regulation and seeking feedback from supervisors and information from their peers. Being an efficient method of learning for dental studies,¹⁸ self-regulation is a strategy where students take the initiative in attaining the necessary academic abilities by independently assessing their current level of knowledge and making efforts to address any deficiencies in knowledge.^{19,20} Additionally, the FGDs revealed this, where participants had the opportunity to ask for feedback to raise their performance. As an essential competency, early targeting the development of self-regulation skills such as self-assessment, goal setting, and introspection may prove valuable for a smooth transition and a positive view of the shift even though they thought it was abrupt, difficult, and stressful.²¹

The findings presented here followed Erdogan and Bauer's methods regarding the identified themes describing the three consequential phases and factors influencing organisational socialisation.¹² Part of phase I was the students' characteristics, which included positivity as an essential element. Some students implied that despite any difficulties they may have faced during this transitional phase, they were resilient in dealing with them. Resilience is a dynamic skill that can enable people to thrive and face adversities in clinical training.²² Therefore, it is important to build their resilience in adapting to a new learning environment, which is part of their developmental perspective. Additionally, to support students in navigating the transition to the clinical setting by using action learning sets.¹⁶

Regarding the impact of students' relations with their senior peers, it has been shown that such collaboration has significantly improved their development, which is in accordance with previous studies.^{23–25} Senior students who have gone through comparable academic situations might provide younger students with useful advice that will give them realistic expectations of their knowledge and skills while providing professional support. Therefore, encouraging these helpful peer networks is crucial during dentistry training and transition. One method to foster such support systems is by setting aside designated sessions for students to exchange notes and discuss clinical case studies with peers and by giving them chances to communicate with seniors early in their training program. Another method is peer assessment and feedback; however, conflicting views exist on their validity and reliability in medical education.²⁶

Nevertheless, it has been used to evaluate students' psychomotor, interviewing, and communication skills.²⁶ Moreover, when it comes to enhancing the transitional process, using mentors as socialising tools to facilitate introductions and connections can be helpful. It is well-established that mentors contribute to students' personal, professional and emotional development by providing guidance, supervision and experience in managing challenges.²⁷ However, it might confuse students when supervisors have diverse viewpoints or approaches to patient treatment. Conflicting opinions may arise due to background variations. While it can be difficult, it also allows students to improve their critical thinking and adaptation skills.^{24,28} Institutions can improve the efficiency of student supervision and facilitate a smooth transition for dental students by investing in the training and evaluation of supervisors through periodic training and continuous assessment to keep them up to date with the latest evidence-based practices and teaching methodologies. Additionally, providing communication channels between students and their instructors encourages a positive mentoring and learning connection that makes collaboration, direction, and feedback efficient.

Despite the students exhibiting confidence in their abilities after the transition, one of the potential challenges in the transition to the clinical phase is the emotional responses, particularly fear and anxiety, as students transition towards more direct patient care responsibilities. These feelings are not uncommon and have been extensively reported in previous studies.^{29–31} The root of these emotions is frequently tied to perceived gaps in their knowledge and skills, as well as an occasional uncertainty about the tasks they need to undertake in the clinical environment.²⁴ The multitasking demands of clinical settings further exacerbate this heightened sense of anxiety. Students often find themselves juggling various responsibilities and roles, which can be overwhelming, especially in the early stages of their clinical experiences. The presence of conflicting opinions from clinical tutors also contributes to this anxiety, creating an atmosphere of

ambiguity and uncertainty.³⁰ To manage these stresses and uncertainties, students adopt various strategies. These include preparing written learning journals, gaining insights from peers' experiences, and seeking advice from clinical tutors. Such proactive approaches help them to bridge the knowledge and skills gap between the classroom and the clinic. They also enable students to develop coping mechanisms for handling the pressures and demands of real-world clinical settings.²⁴

The student feedback emphasises the significance of institutional and organisational efforts in offering orientation sessions to help with the transfer process. Several students preferred an earlier orientation. If the orientation process is initiated earlier, students may have more time to become acquainted with the institution and its resources before their official transition. To improve the transition process, clinical orientation sessions with hands-on activities can be implemented into the curriculum of the pre-clinical year. This will increase the students' understanding of their roles and supervisors' expectations.²⁴ Furthermore, connecting fundamental theoretical concepts to evidence-based clinical contexts during the pre-clinical orientation sessions helps provide a deeper comprehension of the material.

Regarding the workload domain, it was noted that students are experiencing a heavy workload, which is similar to the findings of other studies.^{17,25} This has affected them negatively and led to cognitive overload. Several strategies to mitigate the negative impact of cognitive overload should be considered, such as sequencing information, giving clear instruction, utilising multimedia and visual aids, performing regular revaluation and others.³¹ Educators might reevaluate and use these educational strategies to reduce cognitive load and encourage effective lifetime learning. Students' capacity to process, retain, and apply knowledge can be improved by balancing the presentation of information, giving them the right assistance, and encouraging active interaction. This will eventually promote their continuous professional development and success.

The gap between theoretical communication skills and their practical application in clinical settings is a common challenge for many students. This was noted by the students, which is in accordance with other studies.^{17,25} Social and educational perspectives were challenging for the students during the transitional stage. The third perspective (developmental) emphasises the importance of students' adaptability, proactively close to the educational and social disparities with transformation and participating in constructive, self-regulated learning activities.¹⁰

Prioritising academic performance through achieving high grades is often heavily weighted during the pre-clinical years. However, as the students transition to the clinical years, they frequently realise that academic excellence alone is not enough to succeed in their clinical setting. As they advanced through their clinical years, students became more aware and shifted to a patient-centred approach. Their improved comprehension of clinical requirements and the gradual acquisition of stability show dedication, development, and maturation as they accept their professional roles.^{32,33}

In the process of transitioning from theoretical learning to practical clinical application, dental students often encounter a gap in both knowledge and skills. Self-directed learning techniques like reflections, journals, or portfolios positively impact students' ability to recognise important events and improve their professional growth.²⁴ Students' success in the clinical years and beyond is based on their ability to actively engage in their learning and take responsibility for their professional development.^{32,33} According to Kashbour et al, the use of learning journals, coupled with insights from peers and guidance from clinical tutors, plays a vital role in managing the inherent stress and uncertainty of this transition. These strategies not only bridge the knowledge and skills gap but also foster a sense of competence and confidence in students as they step into their professional roles.²⁴

This study provided insightful information about dental students' experiences as they moved from pre-clinical to clinical settings. It emphasized the value of mentorship, peer support, and self-regulation techniques in promoting more seamless transitions. The results underlined the need of institutional assistance, including organized orientation programs and instructional techniques that lessen cognitive overload and close the gap between theory and practice. Despite its strength, there are several limitations as its reliance on self-reported data, which could be biased. Furthermore, results from a particular university cohort might not be applied in other contexts. Additional studies are required to determine how a developmental perspective affects the transition process in many professional fields, including healthcare Clinical tutors' differing viewpoints may cause students to feel uncertain, which could affect their confidence. Finally, although the study found successful transitional techniques, it did not conduct an assessment of their long-term effects on patient care outcomes and student development.

Conclusion

Several key areas should be considered to optimise the transitional process and enhance student performance during training: establishing peer/mentoring support systems and clarifying the roles, responsibilities, and expectations. Future research in dental education should focus on empirically evaluating the effectiveness of strategies used in the transition from theoretical learning to clinical practice, such as reflection, self-learning, and peer mentoring. This research should include quantitative studies to assess the impact of these strategies on student performance, as well as longitudinal studies to understand their long-term effects on professional development. Additionally, involving clinical academics in this research is crucial for gaining a broader perspective and ensuring practical relevance. Their insights can aid in refining these strategies and integrating them more effectively into the dental curriculum, thereby enhancing student preparedness for clinical practice and ultimately improving patient care outcomes.

Disclosure

The authors report no conflicts of interest in this work.

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