

When the rubber meets the road: A qualitative descriptive study of medical students' reflections on transitioning to their first General Practice placement.

Sara Bashar Qasrawi, Maryam Tomerak, Shahad Abdulkhaleq Mamalchi, Fatima Atieh, Hasan AlAdraj, Mohamed Abdulla, Salim Fredericks, Ghufraan Jassim, Hani Malik, Eric Clarke, Denis Harkin, Shaista Salman Guraya

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Abstract

Background: Transitioning from preclinical-to-clinical training is a critical milestone of 'becoming and being' in a medical student's journey. Despite simulation-based learning, real-world clinical exposure remains indispensable in shaping professional identity. The clinical learning environment (CLE) is a complex interplay of social, cultural, and organizational factors that influence students' development as future healthcare professionals.

Objective: This study explores medical students' reflections on their first clinical placement in General Practice (GP), aiming to understand their experiences, challenges, and the CLE role in their learning and professional growth.

Methods: We analysed reflections from fourth year medical students following their initial GP placement. A qualitative descriptive (QD) approach grounded in naturalism was employed to explain our participants' transitioning encounters in clear, everyday language to ensure their experiences were presented in their own words, without bias. Content thematic analysis was conducted to identify key themes related to their experiences.

Results: Reflective writing offered a rich window into how students thought, felt, and acted during their GP rotations, revealing a fractured epistemological landscape. Students thought that 'knowing' from classroom would translate to 'doing' in clinic. But reality resulted in emotional overwhelm, a sense of failure and shame, and ultimately led to self-doubt, avoidance, and withdrawal. Students recounted transformative experiences that were shaped by patient interactions, moments of uncertainty, and the shift in professional roles. While emotional and cognitive challenges were common, rare encounters of supportive mentorship played a crucial role in the students' development.

Conclusions: Identity dissonance reveals why reflection is pivotal in bridging the transition from preclinical-to-clinical practice – not to be merely used as an assessment. We propose treating reflection not only as a personal insight but also as a communal insight, a developmental artifact. Shared reflection circles, narrative listening reflective sessions, and post-reflection dialogues can ease the journey of 'becoming and being'.

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Original Manuscript

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Key words:

1. Medical education
2. Identity formation
3. Reflective writing
4. Clinical learning environment

5. Qualitative descriptive study

Introduction:

Despite extensive simulation-based learning, the importance of a clinical learning environment (CLE) is foundational and irreplaceable for healthcare professionals. It is the unpredictable, ethically complex, and emotionally charged elements of real-life contexts that make the CLE unique in shaping how medical students think, feel, and act (1) as future healthcare professionals. According to Nordquist et al (2) CLE is a dynamic interplay of social, cultural, organisational and material context in which students learn while they work. During this, they are not just acquiring knowledge and skills, but are engaging in a situated learning process (3) comprising multifaceted realities of long, arduous and stressful journey of becoming a physician (4). Hence, an effective CLE has a crucial impact on the well-being, engagement, and professional socialization of learners and their teachers (2).

The theory of legitimate peripheral participation (LPP) by Wenger (5) helps us understand how novices begin on the periphery of practice and, through increasingly authentic participation, move toward fuller membership in the medical community. However, these seemingly neutral early experiences have a profound impact on medical students' confidence, their interpretation of their roles, and the internalization of professional norms (6). They integrate the values, attitudes, and ethical responsibilities of the profession into their evolving sense of self as they move from peripheral to central participation. However, it is not a linear and smooth process, but instead punctuated by moments of dissonance, confusion, and emotional complexity, all of which require thoughtful processing. Psychology-based curricular interventions (7) stress that such moments should be capitalised as learning opportunities by encouraging medical students to reflect through structured and formal reflections, which can help them make sense of their experiences by charting their path within the profession.

Individual reflective writing practice has become a key pedagogical tool in contemporary medical curricula, offering learners a space to make sense of complex, emotionally charged experiences (8). By cultivating metacognitive and meta-affective capacities, reflective writing enables a personal voice infused with emotions, which helps individuals identify and rationalize their developing sense of self. Wald et al. (7) used the metaphorical notion of a '*resiliency workout*' for guided and structured reflective writing, enabling medical students to regulate emotions, process feedback, and remain empathetically engaged with patients and colleagues. Primarily, in the early stages of clinical exposure, reflective writing can provide a structured pedagogical space for students to pause, process, and internalise the meaning of their experiences, providing them with a feeling of not only clinical competence but also practical wisdom, ethical clarity, and emotional resilience (9). While reflection has long been recognized as essential to professional development, its theoretical underpinnings particularly those rooted in epistemologies of practice and critical social inquiry remain underexplored in medical education (10). We echo recent

calls for continued theorization of reflection, not only as a tool for self-regulation, but also as a means to navigate uncertainty, challenge dominant discourses, and construct knowledge within complex clinical realities (11). To illustrate this, examining how medical students themselves narrate and reflect on their early clinical experiences through the lens of LPP contributes meaningfully to ongoing scholarship of 'becoming and 'being' - professional identity formation (PIF). A more descriptive-interpretive understanding allows medical educators to identify opportunities to support students' PIF and facilitate their transition from preclinical to CLE. In this research, we aimed to explore how medical students perceive and experience LPP in the CLE and how it influences their developing professional identity.

Methods:

Study design

We employed a qualitative descriptive (QD) approach to address our research question. As described by Sandelowski (12). QD is grounded in naturalism, requiring researchers to stay close to the data and portray participants' perceptions and experiences in their own words in an unadorned manner without introducing bias. The QD approach helped us explain the transitioning experiences of our participants using straightforward language. During data analysis, all involved researchers established their constructionist paradigmatic stance and acknowledged their sensitivities and inclinations. The research team engaged in reflexive discussions to remain aware of their own assumptions and positionalities ensuring interpretations remain grounded in participants' narratives. The senior author SSG is an expert in medical education and medical professionalism, with higher degree qualifications and research publications. Co-authors SAM, HR, and MA were medical students and classmates of the participants. SBQ, MT, and FA were junior medical students at the Royal College of Surgeons in Ireland - Medical University of Bahrain (RCSI-MUB).

Participants recruitment

Naturalistic inquiry nudges researchers to ensure that collected data is good enough to enable participants to express their experiences authentically and without external influence. Hence, we analysed reflective essays accounts written by a cohort of fourth-year medical students during their first General Practice (GP) placement to document the transition phase from pre-clinical to CLE. As part of the assessment, these structured essays comprised 500-700 words and were submitted using a 'Plagiarism Checker', Turnitin. Students were instructed to reflect according to the six stages (Description, Feelings, Evaluation, Analysis, Conclusion, and Action Plan) of Gibbs' reflective cycle (13). We prompted students to document specific learning moments and challenges encountered during their first clinical placement. "Challenging or difficult" clinical encounters were considered to highlight the choices and narratives of such critical incidents, which reflect medical students' values and attitudes in

the context of professional experiences (14).

The study aimed to explore how students began visualizing themselves as part of the clinical team, capturing the transformations that occurred during this pivotal stage of their PIF. To answer our study's objectives, we selected students who were attending their first clinical GP placement to ensure they had no significant prior exposure to clinical practice. To provide context to our reader, it is worth mentioning a brief overview of the RCSI-MUB curriculum. The first two and a half pre-clinical years are entirely theoretical and focus on basic science instruction. While clinical exposure begins in the second semester of Year 3, and the first GP rotation occurs in Year 4.

Year 4 is divided into five cohorts, each comprising approximately 40 students. We focused on the cohort that was the first to attend the GP placement at the start of Year 4. These students had completed their initial clinical placement and submitted their reflective writing assignments as part of their curriculum requirements. To ensure ethical rigor and preserve participant autonomy, we requested the Quality Enhancement Office (QEO) to act as an intermediary. The QEO contacted this specific cohort after they completed their placements and explained the rationale and purpose of our study. Only those students who expressed interest and gave written consent were included. Inclusion criteria required participants to be Year 4 medical students over the age of 18 who had completed their first clinical GP placement. Students who declined participation or did not respond were excluded from the study. Reflections from consenting students were accessed exclusively by a designated gatekeeper, who anonymised the documents before sharing them with the principal investigator. This approach ensured confidentiality and minimised any potential bias in data handling. Ethical approval was obtained from the Royal College of Surgeons in Ireland - Medical University of Bahrain Research Ethics Committee (REC/2023/153).

Data collection and analysis

As common in QD, we used content thematic analysis (15, 16) to identify and describe core themes across all data. First, SSG, SBQ, MT, SAM, and FA independently analysed first six essays to identify initial codes. Next SAM, SBQ, MT, and FA consolidated the initial codes into sub-themes and preliminary themes. All codes, coding schemas, notes and memos were captured on Microsoft Excel, and version control was maintained throughout to ensure a transparent process. Later, SSG examined the worked Microsoft Excel spreadsheet and preliminary results and data with a naturalistic inquiry paradigm and envisioned that transitioning moments are marked with significant changes in thinking, feeling, and acting like a certain individual. Using the flexibility of QD methodology to describe and interpret data based on the study's purpose, we finalized interpretive themes, which were then applied to the remaining essays. Finally, the results were vetted by SAM, HR, and MA to ensure accurate interpretation, and the broader team reviewed the findings for further discussion.

Results:

Through QD methodology, we adopted a factist perspective for the content thematic analysis (15, 16) of the 26 reflective essays. We produced an

unadorned description and comprehensive summary of the phenomenon of interest using low inferential stance of participants' language. This analysis revealed how Year 4 medical students think, feel and act during their first clinical placement in GP. By remaining close to the data and ensuring a thick description of PIF as an abstract phenomenon, we are portraying our results as three interconnected dimensions of PIF; Theme I – Thinking (cognitive), theme II-Feeling (emotive), and theme III-Enacting (affective) shifts students undergo as they transition from peripheral to core participation within clinical practice. The innermost circle represents the internal cognition beginning with self-doubt, expanding into failure and role uncertainty. While the middle circle yields the emotional processes students described, ranging from fear of incompetence, guilt, shame, anxiety, and overwhelm. These internal experiences influenced the outward behavioral responses, which are depicted as the outer layer, ranging from withdrawal and avoidance to hesitation and rarely a proactive engagement. The size of the font reflects the frequency of the subtheme expressed across the reflective narratives. These interconnected themes share several common elements, which are illustrated in **Figure 1**.

Figure 1. Three interconnected themes: Thinking, Feeling, and Acting. These themes illustrate the dynamic progression of professional identity formation. Sub-themes are embedded within and sized proportionally to reflect their relative frequency and prominence in the data.

A key finding of this study was that PIF is not a continuum but a dynamic interaction of cognitive, emotional, and behavioral domains. Students' cognitive reflections (Thinking) shaped their emotional responses (Feeling), which in turn influenced their clinical engagement and decision-making (Acting). This directs us to explore the different dimensions through which student cognition operates to shape their PIF, illuminating the richness and diversity of their cognitive processes and highlighting the challenge to educators. We aim to establish a conceptual framework and a common language for educators, which we hope will promote further advances to support beneficial PIF. But clearly this interconnected process highlights the importance of structured support in medical education, ensuring that students navigate cognitive challenges, process emotional responses, and translate them into professional growth. Next, we provide a detailed account of the three identified themes supported by the verbatim excerpts from the reflective essays.

Theme I - What they think

Thinking involved students making sense of their clinical experiences by reflecting on their existing medical knowledge and its application in actual practice and ethical decision-making, as well as the expectations placed on them in their clinical placements and their role within the wider healthcare team. These cognitive processes appeared as failure, self-doubt, and role uncertainty, characterised by a lack of more profound awareness of the complexities of patient care.

Students taking patient history, clerking and performing technical skills on actual patients realised the disconnected realities of classroom versus real-world practice.

"a person's illness experience is deeply intertwined with his/her thoughts; with seemingly minor procedures like blood withdrawal being capable of causing significant distress when a person is uncomfortable about them."

A student mentioned that performing phlebotomy for the first-time on an actual patient seemed much more complex and challenging despite attempting this procedure in in-vitro (simulated environments), which led to a sense of failure.

"This patient was obese and I neither saw nor palpated the vein. I was hesitant, removed my gloves, and put the equipment away. I kept overthinking and doubting my abilities. Because of that, I lost confidence in doing other venepunctures"

Similarly, one of the students mentioned that the cultural sensitivity taught during case-scenario analysis and express-Team-Based Learning sessions (17) of personal and professional identity formation didn't seem to translate into the correct practices due to the untamed beast of unconscious bias, which hinders effective communication. Stereotyping appeared to be the most common flaw because of patients' physical attire and appearances.

"I was wrong about this patient, but worse, I used a stereotype and approached the consult with prejudice. I latched onto a stereotype and minimized her concern so quickly. I used an anchoring bias to make my judgment, which was rooted more in prejudice and arrogance than evidence-based medicine."

Students from an external/foreign culture in the clinical setting especially confessed to jumping to conclusions due to false perceptions of gender-based restrictions, language barriers, and conservative cultural norms in the contextual clinical settings.

"I must reassess my attitudes towards discussing sex and identify unrecognized barriers hindering me from effective communication in this aspect. Becoming more confident in my knowledge on the subject (culture) would assist me in navigating future situation. I recognized the need for diligent self-awareness of my implicit biases and in developing my cultural humility."

Another thought process worth highlighting is the lack of clear expectations of roles and responsibilities in terms of to what extent they can have thoughtful discussions with the patients, disclosure about their prognosis and treatment, and unfamiliarity with the scenarios surrounding confidentiality, informed consent, and patient autonomy. This cognitive dissonance often triggered cognitive conflict that can perpetuate uncertainty precipitating self-doubt and hesitation.

"I was uncomfortable and unsure of what to say in the absence of my GP Tutor. I was afraid of saying the wrong thing and falsely reassuring the patient. Being young and unmarried I felt in-equipped to navigate such a complex situation."

In the next theme we will see how these cognitive realizations actually translate

into “feeling or emotive” aspect of PIF.

Theme II - What they feel

Feelings are the emotional perceptions of the thought processes that we described in our first theme, triggered by uncertainty, challenges and expectations about students' roles, and a fractured translation of knowledge to practice. Fear, guilt, shame, anxiety and sense of overwhelm were the four dominating feelings we encountered in those 26 reflective essays.

Fear was the most encountered feeling, and it appeared in many varied situations. Students feared ‘harming the patient’, ‘making mistakes’, ‘challenging hierarchical decisions’ and ‘false reassurances to the patient’. These fears of inadequacy reflect a significant mental toll, which can hamper the behavioural capacity of students, either leading to avoidance, hesitancy and withdrawal from such crucial learning opportunities. We have supported these findings by the following excerpts respectively.

“I became scared when I struggled to remove the first tube, I was afraid that I would accidentally move the needle too deep and puncture the vein. When the lab technician realised my needle had come out, I felt guilty that the patient would have to be punctured again on the other side because my job was not good enough.”

Self-doubt and making mistakes stemmed from feelings of inadequacy when thrust into unfamiliar scenarios without structured preparation. Making students fear the sub-par consequences in unfamiliar situations like taking a history from a paediatric patient.

“I thought that I would be wasting the parents' time if I didn't get straight to the point, so I barely gave myself a chance to compose myself. I ended up rushing the encounter to keep up with my racing thoughts. During that time, I was constantly worrying about whether I was making mistakes or embarrassing myself. I unintentionally overlooked fundamentals of communication skills like eye contact as a consequence. Unfortunately, I experienced a feeling of inadequacy as a result of the encounter and my lack of knowledge in that area.”

However, there were few voices who felt that to overcome fear, they must try.

“I believe now that to overcome a fear, one must jump into the deep end. I find that through this experience, I learned that it is perfectly fine to take a step back and ask for help when necessary.”

The second common emotion is ‘guilt and shame’ when students couldn't meet self-imposed and patients' expectations of professional standards while doing a simple procedure of phlebotomy.

“I felt ashamed that I was not able to perform under pressure, and I was embarrassed that this happened in front of the patient.”

Another student's narration of a ‘well-child visit’ encounter depicts the moral

trauma felt by the student, which was shocking to begin with, but then led to an extreme feeling of shame, where students are not equipped to correct seniors or raise concerns in a hierarchical setting of medical practice.

"I think I was in shock. I had just witnessed a child's legs forced open, by 3 adults, without explanation, permission, or communication. I had just witnessed a child scream and kick in fear and lack of understanding as adults she trusted forced her legs open. There must be a better way. I feel I participated in a traumatic event for the child, one that might stay with her unconscious, if not a developed memory. I feel at a loss on how to discuss this with the doctor. I feel (ac)complic(e) in causing unnecessary trauma to a child. There needs to be a better way, a more human way."

Guilt emerged from the imposter syndrome, where students felt incompetent, "unable to perform a given task," and felt responsible for distressing the patient.

"I felt guilty because I stereotyped and minimized her concern. I don't like to think I'm prejudice, but I was prejudiced toward her. I boxed her into a stereotype that may not even be real."

Surprisingly, guilt seemed to prompt students to take self-assessment and a desire to improve and learn better. On the contrary, shame drifted them towards avoidance and hesitancy. And this feeling of guilt was perpetuated when the healthcare staff showed their displeasure, even implicitly.

"I froze but the phlebotomist handled it and she expressed her anger with her body language, after a while I was standing in the booth and a colleague of hers came in and they spoke in their native language which I understood but she didn't know that I could understand them, she told her colleague that I was useless and I was going to be a failure because I couldn't perform a simple phlebotomy, she said a lot of hurtful things about me but I said nothing and stood there and once I got home I started doubting myself and cried about it because I thought I was worthless and not a good medical student and will be a failure."

Next, the feeling of anxiety and overwhelm was mainly tied to the procedural skills and communication elements where students required independent decision-making and interpretation. One student described paralyzing anxiety while measuring blood pressure incorrectly, which led to avoidance of the procedure afterwards.

"Failing to measure patient's BP correctly resulted in range of negative emotions and in confidence which led me to avoid measuring the BP of other patients rather than accepting my mistake and work on improving my skill."

Another student felt extremely overwhelmed by the chaos of medical practice - the noise, busy scenes, medical equipment, and the emotions of worried

families. The distress of patient relatives spread like an emotional contagion, affecting the student's mental and emotional well-being.

"I experienced an unforgettable moment one Thursday evening when I heard screams coming from the corridors of the emergency department. I immediately ran out to investigate and found a chaotic scene with a mother carrying a bleeding four-year-old boy, accompanied by around fifteen friends who were all crying and screaming. I was scared, anxious, and worried about the child's condition. I was also overwhelmed by the chaos and noise in the healthcare center."

In the next theme, we will see how these emotions translate into the affective component of 'acting' and tell which direction these narratives took in terms of remaining stuck to LLP or progressing towards the core aspect of communities of practice.

Theme III - What they enact

Acting is the translation of thoughts and emotions into observable behaviours, which ranged from being proactive to complete avoidance. Considering these reflective essays provide a snapshot of students' clinical experiences, this theme shows a mix of *hesitation, participation and some moments of growth*.

Patient care served as a catalyst to reveal the subtleties and nuances of students' actions. The majority of the voices reflected low efficacy in the form of underconfidence in performing technical skills, which led them to hesitation and withdrawal. Few voices were heard who felt confident and approached the clinical behaviours effectively. Softer skills like communication, rapport building and gaining patients' trust were the trickiest.

A prominent voice of incompetence emerged in dealing with ethical challenges. Maintaining probity and truthfulness in the middle of practicing and learning skills seemed the most challenging.

"As the nurse and I walked around the station, we came across a patient who needed an injection. I agreed to the nurse when he asked if I wanted to give an IM injection."

However, before I could ask the patient for consent to administer the injection, the nurse informed him that I was a doctor and that I would be administering the injection. This surprised me because obtaining consent for any medical procedure was standard practice. I tried to tell the patient, but I couldn't, so I gave the injection. "

Students learned that effective communication was key to patient care, especially in sensitive situations where they struggled with breaking bad news, realizing later that staying composed and exhibiting just the right amount of empathy was as important as delivering medical facts.

"I need to learn how to communicate bad news in a sensitive and empathetic manner without inappropriate emotional display and how to provide support to patients during emotionally difficult times."

Nearly half of the essays showed a similar trend towards technical skills, with only one-third able to perform these skills competently. And this lack of self-efficacy was also attributed to patients' perceptions and times of COVID-19.

"I really wanted to practice but most patients didn't give me the chance to practice on them and they were underestimating the new generation of medical students as they believe that we are not good enough. Some of them gave negative comments, they said that they will never trust covid medical students batch, as we were in a blinded learning for almost 2 years. Such comments made me question my abilities and made me full of self-doubt myself because I've heard the same comment from a lot of patients."

One of the student mentioned that major boost to their self-efficacy was external. Attending and supervising healthcare staff were the significant contributors to that.

"After removing the first skin tag my GP whispered "good job" and I was able to remove six more with confidence. I felt a sense of accomplishment that was indescribable, and I thanked my GP for helping me and giving me a chance to do this procedure."

Many student narratives described initial reluctance to participate, often due to self-doubt or fear of making mistakes. However, some quickly transitioned into more active roles, showing initiative and professional autonomy. A visibly annoyed GP, frustrated by patients repeatedly interrupting examinations, appreciated the students' proactive efforts to manage the situation.

"I noticed that my doctor was visibly frustrated by this since it was disrupting her consultations and the patients were losing their confidentiality. I asked my doctor to let me handle those patients. The next time this happened, I asked the patient at the door to meet me outside. I started by asking nicely "Why did you open the door?" and the patient replied, "I just need the lab test results and I've been waiting for hours now". After understanding the patient's intention, I de-escalated the situation by telling that I completely understand his frustration; however, the doctor is under the pressure of having to follow the order of what the system says, it would break the patient's privacy, and that once his turn comes in, I'll make sure to personally call him in."

Discussion:

The analysis of medical students' reflective essay accounts points to the critical role of thinking, feeling, and acting in shaping PIF. Reflective practice, especially through structured writing models like Gibbs', appears to mediate the students' meaning-making process, helping them process critical moments in early PIF (13). Our findings support the view that PIF is a dynamic, non-linear process punctuated by cognitive reflections which trigger emotional responses and dictate behavioural participation and engagement in clinical practice. Understanding this interdependent model provides medical educators with deeper insights into how to scaffold learning experiences that support students' transitions from peripheral to core participation in communities of practice. This

aligns with existing literature, which emphasises the importance of scaffolding learning experiences to support students' transition from pre-clinical to CLE.

Fracture between knowledge and knowing

A recurring theme was the fracture between theoretical knowledge and real-world application, highlighting the epistemological gap in medical education. While students expected a smooth transition, many encountered cognitive dissonance when faced with uncertainty and practical challenges. Our participants offered differing descriptions of their experiences. Still, these were most hinged on the negative and fearful apprehensions they experienced as they transitioned from the classroom to the clinical realm. This reflects a disconnect between the nature of knowledge and the nature of knowing. Seen through the lens of metaphysical perspectives, this disconnect highlights the pre-reflective beliefs and binary epistemological assumptions where students equate the knowledge learned to the experience gained (18). Participants demonstrated quite unmistakably this binary belief, especially about 'hard' technical skills, that classroom knowledge can seamlessly translate into competence in the clinical learning environment, which became the gist of these reflective essay accounts. When met with failures to perform simple technical procedures, students having false perceptions of being cloaked in competence experience self-doubt. Dripped in shame, guilt and overwhelmed by anxious thoughts, these new members of the clinical team lose self-confidence (19, 20). Such experiences stunt LPP and add to the slow pile-up of burnout quotient. However, there was a relatively mature understanding of epistemological perspective when it came to 'soft' skills, like professionalism-related matters of bias, consent, confidentiality, culture and challenging hierarchy (17). This can be attributed to the pre-existing understanding of professionalism as an abstract concept. Hence, students had internalised the professionalism interpretation, which is based on the evaluation of evidence across contexts and experts (21). The nature of knowing ranged from simplicity for technical skills to justification for professionalism matters (21). In the context of medical education, there is a perception that biomedical knowledge is often easier to acquire in an ideal environment compared to the biopsychosocial element – *'understanding of what it means to be a physician'* as mentioned by Rajan (22). And that's exactly what our students understood. However, when it came to execution, they were struck by an identity shock, which had significant repercussions on their ability to learn, perform and grow. Considering that most medical schools are still operating within the positivist paradigmatic orientations of their curricular structures, such results are expected (10). To navigate that, introducing learning activities that increase the students' understanding of the CLE and the uncertainty, sense of incompetence and failures that is associated with practising medicine should be introduced (23). An effective implementation of assessment methods that reflect epistemological complexity, such as self-reflective narratives and longitudinal evaluations, combined with early clinical exposure, is key. This gradual familiarisation with the ambiguity, messiness, and relational complexity of real-world clinical practice can help students become more resilient to the uncertainty that awaits them.

Emotional labour

The tension between expectations and real-world clinical failures is likely to result from the complex and contextualised patient encounters that constitute clinical medicine. The slow unveiling of the complexity inherent in the simple task of measuring blood pressure and phlebotomy seemed a shocking reality for the students. Performing such skills on a human patient versus a simulator is much more complex than anticipated and triggers the destabilising emotion of shame and guilt (20). Only very few experienced healthcare providers were able to recognise a student's struggle with such emotional responses, missing an excellent opportunity to support them. Another source of stress emerged from the hidden curriculum (24) "little white lies" (25) when the nurse introduced the student as a doctor to practice IM injection. Students felt ashamed, amalgamated with fear of consequences, and were unable to challenge the attending who performed intimate examinations without proper consent and exposure.

Another source of emotional labour emerged from the materiality of everyday life in a clinical learning environment. Emotionally charged family of the patient, a chaotic and loud environment buzzing with sounds of technology and material things have been reported to hinder the learning process (26). Fenwick's (27) seminal work has highlighted the limited attention to materiality (objects, technologies and their nature) in learning. Medical curricula focus too heavily on human-centred practice, ignoring the vital role of material factors like technology and environment in shaping clinical learning. Students struggle with the tension between standardized medical protocols and the unpredictable realities of patient care, leading to anxiety and uncertainty. Without structured support mechanisms to process emotional distress, students may struggle to engage confidently in clinical settings, reinforcing avoidance behaviours that limit their participation and professional growth (20). This advocates for current apprenticeship approach to training to include a developmental perspective, providing effective feedback and supporting learner self-assessment and reflection. Facilitating reflective debriefings after stressful experiences and acknowledging the presence of shame and guilt in the learner by avoiding humiliation and leveraging effective feedback can provide students with tools to navigate these complex emotions constructively (19).

Agency vs avoidance

The reflections endorsed our recent work (28) that a supportive attending and superior were decisive factors in boosting medical students' self-efficacy. Judging medical students and setting harsh, unrealistic expectations of 'cloaked in competence' are the most dreadful fears students perceive (29, 30). Learning happens when psychological safety is assured. However, published literature suggests that supportive and encouraging preceptors who discuss failures (31) and perplexity of CLE and provide constructive feedback can lead to '*prepared*' (9) graduates. However, unlike Wald et al (9), in our case none of the reflections mentioned that mistakes were discussed, areas of improvement were identified, or a debrief was conducted to maximise the learning (32). This is a critical glaring absence, prompting educators to make spaces in the curriculum to discuss 'failures' with students and the preceptors and clinical teachers (11). According to Wenger's LPP, constructive failure processing mechanisms should be dealt with sophisticated reflection-in-action (33). It should comprise of

awareness, collaboration, negotiation, evaluation and realisation to enable a conscious understanding of the change that is occurring in our medical students. Such structured processes will lead to graduated autonomy and avoidance of withdrawal. This leads us to consider the broader educational implications of our findings.

Educational implications

This cross-sectional analysis of one sub-set of a single cohort at a European medical school in the Middle Eastern context might be a naïve effort, limiting the contextualization of our research findings. Considering medicine is a social science and students perform in the social contexts of clinical environments, we need to introduce more constructionist non-binary perspectives to the biomedical elements of the curriculum by providing more self-directed study opportunities (34). Despite the known benefits of reflective practice in the medical curriculum, we are not yet reaping the full benefits (35). The literature suggests we need to reflect upon reflection (10). Incorporating uncertainty curricula (23), dealing with failures to normalize struggle (36), graduated autonomy models (37) constructing inclusive, non-judgmental learning spaces punctuated with frequent reflections upon reflections is required. Early identity struggles, if left unaddressed, may carry over into residency, where clinical demands intensify, increasing the risk for emotional exhaustion and disengagement (38). By implementing structured identity support and normalising professional uncertainty early in training, medical schools can better prepare students for the emotional and professional complexities of long-term clinical practice.

Reflective essay accounts rooted in the discipline of psychology have nicely elucidated these problems evident from our results. However, the application of reflection is heavily steered by the assessment discourse and is divorced from original theories of reflection and reflective practice (39). So clearly, the solution lies one step ahead - post reflective writing group reading/listening/discussions (8, 40) and in multi-disciplinary domains (41). Inspired by Hodges (39), we advocate for ongoing, theory-informed exploration of reflection in medical education, particularly its role in navigating complexity, challenging dominant discourses, and shaping knowledge through diverse epistemological lenses and predominantly a critical social inquiry. Yet, the solution of viewing medicine from a more sociological perspective is compelling; the medical profession strongly believes in identity formation, whose disciplinary roots are entrenched in philosophy, psychology, and sociology. Yet new ways of knowing in medical schools gravitate towards psychology only (42). However, the results of this study point to a more holistic approach when teaching professionalization of medical students in this humane profession (43). We must look and discuss with our students the elements of resilience, humility, uncertainty, accepting failures, and limitations rooted in psychological and sociological principles (11). Such multidisciplinary understanding may bridge the disconnect between the nature of knowledge and the nature of knowing.

Limitations and strengths

We have presented the findings of a QD study of Year 4 medical students' reflective essay accounts from their first GP placement, which portray their

thoughts, feelings, and actions as they transition to clinical practice as medical students. This study offers insights from a Middle Eastern clinical learning environment, a context that is underrepresented in the literature on professional identity formation, thereby contributing to the global understanding of medical education. The QD method in this study focused on reflective essays because they provided us with a unique window into critical moments that prompt students to engage in introspection. By providing vivid personal accounts, these essays highlighted the student's narratives of key learning moments and challenges. Also, having student researchers from the same cohort helped us to interpret the data more truthfully. Their shared contextual understanding enabled us to ensure that the analysis remained authentic and reflective of the lived experiences of their peers, reducing the likelihood of misinterpretation and enhancing the credibility of the findings.

However, it must be acknowledged that this research has limitations. We analysed 26 reflective essay accounts of students focused solely on GP placements, the findings may not fully capture the professional identity struggles that occur in other specialties, which may have different levels of complexity. Moreover, we captured students' narrations, using reflective essay accounts, which can be merely the medium for expressing inner idealistic thoughts and feelings (when writing reflections or participating in discussions) (11) and are not drawn from discourse analysis (44). Additionally, these reflective essays were submitted as part of an assessment process, and the findings may be subject to social desirability bias, where students may downplay certain struggles or amplify professionalism, knowing their work is being evaluated. We also acknowledge that, as with any single research method, it is not a holistic attempt, and we may find alternative aspects with other observational, ethnographic, or phenomenological examinations. Despite this, we believe this work reminds us of the complexities of transitioning moments in medical students' PIF.

Conclusion:

We have presented the findings of medical students' transitioning moments from pre-clinical to CLE. These reflective essays showed PIF as fluid and complex, shaped by cognitive dissonance, emotional responses, and behavioural enactment. Students' relatively simplistic pre-reflective epistemological beliefs contributed to the cognitive dissonance, precipitating emotions of shame and guilt, leading to avoidance and withdrawal. By recognising the fractured nature of epistemological understandings, we as educators can design more adaptive learning structures that embrace uncertainty, normalise failure, and foster professional resilience. As educators, we have already bridged the gap between knowledge and knowing by acknowledging the profession's demand of an equal mastery of scientific expertise alongside humanistic engagement. However, small final steps are needed. We need to reflect upon reflections. Let's make such curricular spaces to support the PIF of our new clinical team members.

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Supplementary Files