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Final year of medical school in Spain: a student perspective on clinical rotations, examination and readiness for practice.

Último año de la carrera de medicina en España: perspectiva estudiantil sobre las rotaciones clínicas, los exámenes y la preparación para la práctica profesional.

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Abstract.

The final year of medical school represents a critical but underexamined transition point toward clinical practice. This paper argues that the current structure of Spanish undergraduate medical education generates a systematic gap between theoretical knowledge acquisition and clinical competence, which manifests most acutely during the final year. We propose that this gap is not an inevitable feature of medical training but rather the result of a curriculum design that prioritises knowledge-based assessment over competency-based learning. Drawing on evidence from competency-based medical education (CBME) frameworks, simulation research and mental health literature, we describe the main components of the final year—clinical rotations, OSCEs and the Final Degree Project—and analyse the structural and pedagogical factors that undermine students' readiness for practice. We conclude with evidence-informed recommendations and a call for curricular reform.

1. Introduction

Medical students in Spain operate within a system defined by intense academic pressure and high societal expectations. Research consistently documents elevated rates of anxiety, depression and burnout among medical undergraduates, with global prevalence estimates of anxiety symptoms ranging from 29.2% to 38.7%—substantially higher than the general population (1-2). These findings are not incidental: they reflect structural features of undergraduate medical education that reward information retention over clinical reasoning, and competitive ranking over collaborative learning.

The final academic year concentrates this tension in a uniquely acute form. Students face a simultaneous set of demands—clinical rotations across multiple specialities, Objective Structured Clinical Examinations (OSCEs), and the Final Degree Project (FDP)—while also navigating career decisions such as MIR (Médico Interno Residente) examination preparation. Unlike previous years, evaluation is no longer primarily written and knowledge-based: students must demonstrate integrated clinical competence in real and simulated settings.

This paper argues that the Spanish undergraduate medical curriculum produces a structural mismatch between the type of learning it incentivises and the type of performance it ultimately demands in the final year. We propose that this mismatch is not simply a problem of individual student preparation but of curriculum design: years of overloaded theoretical instruction without systematic performance-based assessment leave students ill-equipped for the competency-oriented

demands of their final year. Our argument draws on the framework of competency-based medical education (CBME)—an approach increasingly adopted internationally that prioritises demonstrable clinical abilities over time-fixed, content-heavy learning3—as an analytical lens to understand both the problem and potential solutions.

The article is structured as follows: we first describe the three core components of the final year (clinical rotations, OSCEs and FDP) as contextual background. We then argue, from a critical standpoint, that the design of the preceding curriculum creates systemic barriers to readiness. We consider counterarguments and existing responses—notably simulation-based training—before offering evidence-based recommendations. The aim is not merely to describe the final year but to position it as a diagnostic lens for broader curricular reform.

2. Components of the final year.

2.1 Clinical Rotations

Clinical clerkships constitute a significant proportion of the final year grade and typically span nine to ten months (4-6). They are divided into compulsory rotations—paediatrics, psychiatry, emergency medicine, gynaecology and obstetrics, internal medicine, primary care—and elective placements chosen by the student in relation to their intended speciality. During rotations, students are expected to develop a range of integrated skills: taking clinical histories, performing physical examinations, formulating diagnoses and differential diagnoses, proposing management plans, and contributing to team-based decision-making (4-6). This format positions them as junior members of a medical team, a role that requires not only clinical knowledge but interpersonal competence, professional identity and adaptive reasoning in unpredictable and clinical situations. It is worth noting that this is, for many students, the first sustained exposure to real clinical environments with evaluative consequences. The structural implications of this are discussed in the following section.

2.2 Objective Structured Clinical Examination (OSCE)

The OSCE is a standardised clinical assessment tool designed to evaluate practical and communicative abilities in simulated conditions (7). In the Spanish context, it is structured in two phases: a national theoretical call involving computerised clinical scenarios with management-oriented questions, and a practical call involving simulated consultations, procedural stations (suturing, AED management, cardiac arrest protocols) and actor-based scenarios (7-9).

Students are assessed by one or two examiners using a standardised checklist covering anamnesis, physical examination, clinical documentation, differential diagnosis, communication skills and technical competencies (10). The format varies across faculties in terms of station number, duration and weighting, which has implications for equity and comparability that exceed the scope of this article but merit acknowledgement. From the standpoint of CBME, the OSCE represents the closest approximation in Spanish medical education to competency-based assessment: it evaluates *what students can do* rather than what they know. The tension between this format and the predominantly knowledge-based learning methodology of preceding years is one of the central contradictions we seek to address. This contradiction is not unique to the Spanish context as recent evidence from Latin America underlines a transition to competency-based model where OSCEs are the main assessment tool, whereas it faces criticism for its lack on complexity in daily clinical practice and insufficient skills (11).

2.3 Final Degree Project (FDP / Trabajo de Fin de Grado)

The FDP is a compulsory research or bibliographic project regulated by national legislation (12). Students select a supervisor and topic at the start of the year and produce a project following the structure of a systematic review, original research or clinical case report. The work is assessed by both the supervisor and an evaluation committee and defended orally, with marks ranging from

0 to 10. Outstanding projects may be submitted for publication or academic recognition. The stated learning outcomes of the FDP—critical appraisal, hypothesis formulation, scientific method, communication, self-evaluation—are aligned with the higher-order competencies that CBME frameworks emphasise. However, the FDP is implemented in parallel with clinical rotations and OSCE preparation, raising practical questions about workload distribution and time allocation that are rarely addressed in formal curriculum planning at the beginning of the semester.

3. The structural argument: a curriculum misaligned with its own demands.

Having described the components of the final year, we now turn to our central argument: that the difficulty students face in this year is not primarily a matter of individual preparedness, motivation or resilience, but a predictable outcome of how the preceding five years are structured. We identify three structural problems: (1) a predominance of knowledge-based, low-integration assessment throughout the degree; (2) insufficient longitudinal clinical exposure; and (3) a mental health crisis that is structurally produced yet individually addressed.

3.1 Problem 1: Assessment Misalignment

For most of the medical degree in Spain, students are evaluated primarily through written examinations that reward memorisation and information retrieval over practical application. This is a well-documented feature of traditional medical education that CBME frameworks have explicitly sought to correct (3). The consequence is not that students fail to acquire knowledge, but that they develop it in a form that is not easily transferable to clinical reasoning under real or simulated conditions. When these same students reach the OSCE—a setting that explicitly rewards the integration of knowledge with procedure, communication and clinical reasoning—they face a qualitative shift in what is expected of them, one for which their prior assessment experience has not prepared them. The difficulty of OSCEs is not, in this view, a measure of individual ability: it is a measure of curricular discontinuity.

3.2 Problem 2: Limited and Late Clinical Exposure

Clinical competence, like any complex performance skill, develops through deliberate practice over time. CBME literature consistently emphasises that competencies cannot be assessed—let alone developed—without adequate and progressive clinical exposure throughout the degree (3). In the Spanish model, clinical contact is concentrated in the later years, with the final year representing the primary environment for sustained patient contact whereas the rest of the degree lacks in clinical exposure. This design means that students enter their final year both under-practised in clinical settings and under-supervised in the transition from theory to practice. Evidence suggests that perceived readiness for clinical practice is shaped by four key factors: a supportive clinical education system, competent faculty, institutional support, and students' own preparedness (13-14). When the first three are underinvested, the burden of readiness falls disproportionately on the student—a conclusion that reframes 'low readiness' not as a personal deficit but as a systemic failure. Recent qualitative data from medical student evaluations remarks the importance of a supportive environment to support technical expertise, as students specifically value teaching methods that links theory with clinical application (15).

3.3 Problem 3: Mental Health as a Structural, Not Individual Problem

The mental health literature on medical students documents a consistent pattern: high rates of anxiety, depression and burnout that correlate with academic pressure, highly competitive assessment environments and perceived and consistent lack of control (1-2, 18). What is less often acknowledged is that these outcomes are not random: they are concentrated in systems where learning is characterised by overload, low autonomy and performance anxiety—precisely the features of the traditional knowledge-heavy model. Institutional responses typically focus on individual-level interventions: counselling services, mindfulness programmes, resilience training.

While these may be valuable, they do not address the systemic source of distress. A CBME-informed approach would argue that reducing cognitive overload through integrated, application-oriented learning—rather than adding mental health support on top of an unchanged curriculum—is the more structurally coherent intervention.

4. Counterarguments and responses

The argument outlined above is not without complication. Three counterarguments deserve consideration.

First, one might argue that a knowledge-intensive preclinical curriculum is a necessary foundation for clinical competence, and that early clinical exposure without adequate theoretical grounding could compromise patient safety. This is a legitimate concern. Our argument is not that theoretical content should be reduced, but that its integration with practical application should be built progressively from the first years of the degree, in line with spiral curriculum models16 and early clinical contact programmes that have shown positive effects on student motivation and clinical identity without compromising knowledge acquisition.

Second, it might be objected that Spanish medical schools operate within regulatory constraints—including the national curriculum framework established by Real Decreto 822/2021—that limit their capacity for reform (12). This is true, but it does not preclude innovation within existing structural parameters: pedagogical approaches, assessment formats and clinical placement design are all modifiable at the institutional level without requiring regulatory change.

Third, one could argue that simulation-based training already provides an effective bridge between theoretical and clinical learning. The evidence here is promising: simulation training has been shown to significantly improve students' confidence and core skill competency in controlled settings (17). However, simulation is currently used as a supplement rather than an integrated component of the curriculum, and its effects on real-world clinical performance remain incompletely established. Treating simulation as a solution to a curriculum design problem risks addressing the symptom rather than the cause.

5. Evidence-based recommendations

The following recommendations address both the immediate challenges of the final year and the broader curricular reforms we believe are necessary. They are presented at two levels: recommendations for students navigating the current system, and recommendations for institutions responsible for changing it.

5.1 For Students in the Current System

The table 1 presents practical, evidence-based recommendations for students undertaking clinical rotations and OSCEs. These are drawn from published research and clinical education literature, and are intended to operate within the existing system rather than as endorsements of it.

5.2 For Institutions: Structural Recommendations

At the curricular level, we propose three institutional reforms grounded in CBME principles and supported by the evidence reviewed:

1. Progressive integration of performance-based assessment from the first year of the degree, reducing the structural discontinuity between pre-clinical and clinical learning phases. This does not require abandoning knowledge-based examinations but supplementing them with applied tasks that build CBME competencies longitudinally.

2. Earlier and more structured clinical contact, incorporating role modelling, supervised patient interaction and reflective practice as formal curriculum components from the second or third year. Evidence on early clinical exposure consistently shows benefits for clinical identity, motivation and readiness without adverse effects on knowledge outcomes.

3. Integration of simulation-based training as a core curriculum component rather than an elective supplement. Given the evidence that simulation significantly enhances core skill competency and confidence,17 it merits a formal place within the assessed curriculum, not merely as OSCE preparation but as a developmental tool across the degree.

Table 1. Practical, evidence-based recommendations for students undertaking clinical rotations and OSCEs.

Scope	Recommendation	Evidence Reference
Clinical clerkships	Observe residents' interaction with patients as a role model for professional conduct and team integration	19
	Display proactivity and critical thinking in patient management; demonstrating clinical curiosity signals professional identity formation	19
	Show adaptability in unexpected clinical situations; the ability to manage uncertainty is a core CBME competency	19
	Request assistance when uncertain, rather than making unverified assumptions that may affect patient safety	20
	Seek updated clinical guidance and research papers when confronted with unfamiliar presentations; consider collaborative writing opportunities with clinical staff	Author's recommendation
OSCEs	Verbalise clinical reasoning at each step (think-aloud method); examiners assess the reasoning process, not only the outcome	19
	Apply a structured approach to each station to avoid missing steps in the clinical reasoning process	19
	Practise time management across station types; both excessive speed and excessive time on a single station are penalised	Author's recommendation
	Apply validated stress-reduction techniques (cardiac biofeedback, mindfulness, psychological intervention), which have been shown to improve perceived performance	21
	Maintain physical activity and regular sleep in the preparation period; both correlate positively with OSCE performance	22
	Simulate OSCE stations using standardised checklists and timed practice; examiners penalise disorganised case resolution more than incorrect diagnoses	Author's recommendation

6. Conclusions

- The final year of Spanish undergraduate medical education is demanding, not merely because of the volume of tasks it contains, but because it asks students to perform a type of integrated, adaptive clinical competence that their preceding training has not systematically built. This paper has argued that the gap between theoretical knowledge and clinical readiness is a structural problem, rooted in a curriculum that prioritises knowledge retention over competency development.
- We have sought to move beyond descriptive accounts of final-year challenges toward a critical analysis grounded in CBME frameworks, mental health evidence and simulation research. The argument is that these three bodies of evidence converge on the same conclusion: that individual-level interventions—however valuable—cannot substitute for curricular reform.
- In the current system, students can improve their performance through the strategies outlined in table 1. But the ambition of this article is broader: to contribute to a conversation about what medical education in Spain should look like in order to produce graduates who are not merely knowledge-trained, but genuinely prepared for practice.
- That conversation requires institutions, regulators and educators to engage critically with the design assumptions that have shaped medical training for decades— and to consider whether those assumptions remain fit for purpose.

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