

The Erosion of Clinical Competence in Global Dental Education: A Narrative Review of Quality Decline among New Graduates

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Abstract

Objective: Dentistry is a hands-on clinical profession in which competence is built through supervised, repetitive patient care rather than through knowledge acquisition alone. This review examines global evidence on whether structural, financial and curricular pressures on dental schools over the past two to three decades have measurably eroded the clinical competence of newly qualified dentists. **Methodology:** A narrative literature review was conducted using PubMed, Scopus, Google Scholar, and regulatory and grey literature published between 2000 and 2026, with emphasis on sources from 2018 onward, synthesising scoping reviews, cross-sectional and qualitative preparedness studies, and institutional workforce reports from multiple countries. **Major findings:** Uncontrolled growth in the number of dental schools, disproportionately concentrated in the private, fee-paying sector, has outpaced growth in patient populations, clinical infrastructure and qualified faculty in several major training markets. Persistent gaps between basic science and clinical training, inconsistent early clinical exposure, faculty shortages and burnout, and subjective and at times inflated competency assessment recur across countries with very different regulatory systems. Newly qualified dentists consistently self-report the weakest competence in surgical extractions, multi-rooted endodontics, management of medical emergencies, and treatment of medically compromised or special-needs patients, a pattern worsened by pandemic-related clinical disruption. Sub-Saharan Africa presents a contrasting picture of chronic undersupply rather than oversupply, with quality constrained chiefly by resource scarcity rather than commercialisation. Notably, formal regulatory audits in some high-income countries found no objective evidence that graduates are unsafe, indicating the crisis is uneven rather than universal. **Conclusion:** Declining educational quality is real, multifactorial and geographically variable rather than a single uniform global phenomenon. Enrolment capped to genuine clinical training capacity, sustained investment in faculty, standardised competency-based assessment, and harmonised international accreditation are needed to safeguard patient safety and the credibility of the profession.

Keywords:

Dental Education; Clinical Competence; Preparedness for Practice; Dental Curriculum; Dental Workforce; Accreditation

1. Introduction

Dentistry occupies an unusual position among the health professions: graduates are expected to perform irreversible, technically demanding procedures, including tooth extraction, cavity preparation, root canal access, and prosthetic tooth reduction, largely unsupervised within months of qualification. This places an unusually heavy burden on undergraduate curricula to produce not merely knowledgeable graduates but genuinely competent hands. Historically, dental training relied

on an apprenticeship-style model in which a limited number of students received extensive, closely supervised exposure to a broad case mix before being certified fit to practise.

Over the past two to three decades this model has undergone a structural transformation. The number of dental schools worldwide has grown rapidly, driven substantially by private and for-profit institutions responding to strong consumer demand for the qualification rather than to documented workforce need or available clinical training capacity [1]. At the same time, professional regulators, employers, and educators across multiple countries have raised recurring concerns about whether new graduates are genuinely "prepared for practice" [2,3]. These two trends are plausibly connected: where the number of enrolled students grows faster than the supply of patients, clinical chair-time, qualified supervising faculty, and quality-assured infrastructure, the average hands-on exposure available to each individual student must fall, even where the formal curriculum and stated learning outcomes remain unchanged on paper.

The objective of this review is to synthesise the international literature published mainly between 2000 and 2026 in order to (i) characterise the structural, institutional and pedagogical changes affecting dental schools worldwide; (ii) evaluate the empirical evidence on whether these changes have translated into measurable reductions in the clinical competence and confidence of new graduates; and (iii) identify where this evidence is strong, where it is contested, and what reforms have been proposed in response. The working hypothesis is that quality erosion in dental education is real but unevenly distributed: acute in markets where school proliferation has outpaced training capacity, and present for markedly different, resource-driven reasons in chronically under-served regions.

2. Materials and Methods

This is a narrative, scoping-style literature review rather than a systematic review conducted against a registered protocol; no formal PRISMA checklist was followed, consistent with the exploratory, multi-country nature of the question being addressed. Data sources searched included PubMed/MEDLINE, Scopus, Google Scholar, BMC Medical Education, the Journal of Dental Education, the European Journal of Dental Education, and the grey literature of relevant national and international bodies, including the UK General Dental Council, the Dental Council of India, the American Dental Education Association, and the World Health Organization.

Search terms combined "dental education," "dental school," "clinical competence," "preparedness for practice," "dental curriculum," "dental faculty shortage," and "dental accreditation," using Boolean AND/OR operators together with relevant country and region names. Publications from January 2000 to September 2026 were eligible, with priority given to sources from 2018 onward to capture the current state of the field; a small number of earlier sources were retained where they provided essential historical or trend data, such as long-run national graduate numbers.

Eligible sources comprised English-language peer-reviewed scoping and systematic reviews, cross-sectional and qualitative studies, regulatory thematic reviews, and editorials or commentaries presenting original data or documented statistics on dental curricula, clinical training capacity, faculty workforce, or graduate competence and preparedness. Papers addressing postgraduate specialty training exclusively, non-English-language sources, and opinion pieces without supporting data were excluded. Because of the heterogeneity of study designs retrieved, ranging from scoping reviews and cross-sectional surveys to qualitative interviews and regulatory audits, a thematic narrative synthesis was used in place of meta-analysis. Recurring themes were identified inductively across sources and grouped under headings reflecting the principal mechanisms reported.

As this review analyses only previously published, publicly accessible literature and does not involve the recruitment of human participants, the collection of patient data, or animal subjects, institutional ethical approval and informed consent were not required for this study.

3. Results and Discussion

3.1 Uncontrolled Growth and the Commercialisation of Dental Training

Growth in the global dental workforce has, in several of the largest training markets, been driven overwhelmingly by private-sector expansion rather than centrally planned capacity building. India provides the clearest documented example. The country's first dental college opened in Calcutta in 1920; by 1970 only around 8,000 students were graduating annually from Indian dental institutions

nationwide, a figure that had risen to 30,570 by 2010 [4]. This expansion has been driven almost entirely by private, self-financing colleges: of more than 300 dental colleges currently recognised nationally, some 290 or more are privately owned and fewer than 45 are government-run [4,5]. Commentators have linked this proliferation directly to commercial incentives rather than to documented population health need, noting that many private colleges operate with inadequate infrastructure, are chronically short-staffed, and rely on faculty who combine private practice with teaching and therefore have limited time to devote to student supervision [5].

Regulators have themselves acknowledged the problem. The Dental Council of India has publicly stated its intention to curb the "mushrooming" of new private colleges, restricting new approvals to institutions affiliated with an existing government medical college, and its then president was quoted asking directly, "What is the use of more colleges without any quality education and employment?" [6]. Independent journalism examining the sector has reached similar conclusions, describing India's achievement of a favourable national dentist-to-population ratio as having come "at the cost of a massive privatisation of dental education, uneven distribution of colleges and questionable control over the quality of dental services" [7]. This pattern, rapid private-sector growth outstripping regulatory and infrastructural capacity, is not unique to dentistry, but its consequences are amplified in a profession where competence depends on supervised, hands-on patient contact rather than classroom learning alone.

3.2 Regulatory Findings on "Preparedness for Practice": Convergence and Disagreement

A recurring question in the literature is whether documented structural pressures on dental schools actually translate into reduced clinical competence at the point of graduation, commonly studied under the construct of "preparedness for practice." A systematic review synthesising the international literature on this construct concluded that preparedness is multifactorial, encompassing not only technical clinical skill but also communication, professionalism, and self-directed learning capacity, and that it is influenced heavily by the volume and diversity of clinical exposure a student receives before graduation [2].

National regulatory bodies have investigated this question directly. In the United Kingdom, the General Dental Council conducted a formal thematic review, including a commissioned rapid evidence assessment of 89 publications, in response to sustained stakeholder concern that newly qualified UK dentists were insufficiently prepared for independent practice. Its 2020 report found that both trainees and supervisors believed more clinical experience at undergraduate level was needed, and that there was no shared understanding across the profession of what a "safe beginner" should look like; however, it also found no evidence that graduates were unsafe, and no elevated rate of fitness-to-practise referrals that would support the more alarming anecdotal claims in circulation [3]. This finding is important for an even-handed reading of the evidence: at least in a well-resourced, tightly regulated system, perceived decline in preparedness has not been shown to translate into demonstrable patient harm.

Findings from Australia present a broadly similar, if more nuanced, picture. A national survey of 120 stakeholders, including educators, employers, final-year students, graduates and practitioners, found that participants consistently rated the knowledge of dental graduates as meeting the standard required for safe entry to practice, with the clearest area of underpreparedness being non-clinical: managing the business and financial aspects of practice [8]. A companion qualitative study of newly graduated practitioners similarly found that most respondents felt well prepared for common clinical challenges, while identifying specific technical gaps, most often linked to limited clinical exposure during training, that they expected to close through supervised early practice and continuing professional development [9]. Taken together, the UK and Australian evidence suggests that, in well-resourced systems, the picture is one of specific, identifiable competency gaps rather than generalised incompetence, a distinction that is easily lost in public and professional commentary on the topic.

3.3 The Persistent Gap Between Basic Science, Simulation and Genuine Clinical Competence

Even where regulators have not found evidence of unsafe practice, a consistent theme across the literature is a structural disconnect between the basic science and clinical phases of dental curricula, and inadequate patient-care experience to build genuine competence for unsupervised practice. A scoping review synthesising twelve international studies on current challenges in dental education

identified recurring themes across many, though not all, national systems: poor integration between the basic science and clinical phases of the curriculum; inadequate patient-care experience relative to what unsupervised practice demands; insufficient exposure to geriatric, paediatric-special-needs, and medically compromised patients; limited public health experience; and persistent difficulty incorporating new clinical technologies into an already saturated curriculum [1].

The evidence base for how much, and what kind of, early clinical exposure actually builds durable competence remains thin. A systematic review of early clinical exposure in undergraduate dental education found that, despite widespread curricular reform toward competency-based education and substantial investment in patient exposure and simulation technologies, no consolidated evidence base yet exists to guide how such exposure should be designed, implemented or evaluated [10]. In practical terms, this means many dental schools are redesigning clinical curricula, sometimes reducing hands-on time in favour of simulation, without robust evidence that the substitution preserves competence outcomes.

Graduate self-assessment studies from diverse national systems converge on similar patterns of relative strength and weakness. At the University of the West Indies, graduates exposed to a competency-based curriculum reform reported greater overall preparedness for general practice than those trained under the prior curriculum, suggesting that curricular design measurably affects self-perceived competence [11]. At the University of Malaya, both employers and graduates rated new dentists as competent in routine restorative and diagnostic procedures but less confident in more complex surgical and prosthodontic work [12]. A 2025 study of graduates from an Iranian dental school similarly found competence self-ratings clustering around a "moderate" level for independent service delivery, with wide variation by clinical domain [13]. In Switzerland, a study evaluating a new, more objective grading system for clinical skills in dental student clinics found that traditional grading approaches had allowed considerable variability in how consistently clinical competence was actually assessed before certification [14], a concern echoed in a broader literature review of clinical skills assessment methods in dental education, which concluded that assessment tools varied widely in validity and reliability across institutions [15]. Read together, these studies from four unrelated health systems suggest that documented competency gaps in specific procedural domains, particularly surgical extractions, complex prosthodontics, and multi-rooted endodontics, are a genuinely international phenomenon rather than an artefact of any single country's regulatory failure.

3.4 Faculty Shortages, Burnout, and the Credibility of Competency Assessment

A further, less visible driver of quality decline is the capacity and stability of the teaching workforce itself. In the United States, national faculty census data show a sharp rise in dental faculty vacancies, from 383 unfilled positions in 2018–2019 to 645 in 2022–2023, with nearly 60% of US dental schools reporting difficulty recruiting full-time faculty and more than 40% struggling to retain them. Contributing factors identified include an average earnings gap of roughly \$86,000 between academic clinical faculty and private-practice dentists, heavy administrative and research workloads layered onto clinical teaching duties, and burnout rates that rank dental faculty among the most affected of any group in health professions education [16,17]. A parallel, cross-professional analysis has identified a broader shortage of high-quality clinical training sites and supervising preceptors across health professions education in the United States, noting that the number of available training placements has not expanded in line with growing student numbers, intensifying competition for the clinical hours students need to complete their training [18].

This matters directly for competence, because fewer full-time, well-supported supervisors per student reduces the amount of direct, high-quality chairside observation and feedback each student can receive, precisely the mechanism regulators have identified as central to whether a genuine "safe beginner" standard is met [3]. It also raises questions about the reliability of the assessments used to certify competence in the first place. Evidence from clinical education more broadly shows that faculty ratings of trainees' performance are influenced by raters' own clinical skill levels and comfort with strict grading, introducing systematic variability into what is meant to be an objective judgement of readiness to practise [19]. Where faculty are simultaneously overworked, under-supported, and under institutional pressure to graduate cohorts on schedule, the incentives to award a borderline pass rather than document a deficiency are considerable, even without any deliberate intent to lower standards.

3.5 Technological Change and Pandemic-Era Disruption

Curricula have also struggled to keep pace with technological and epidemiological change. A scoping review of artificial intelligence applications in dental education found rapid growth in AI-assisted diagnostic and simulation tools, alongside considerable heterogeneity in educator readiness, ethical frameworks, and curricular integration across institutions, meaning students at different schools are being prepared very unevenly for a technologically evolving profession [20].

The COVID-19 pandemic provided an unplanned natural experiment in the fragility of clinical training capacity. A scoping review of 135 papers on the pandemic's impact on dental education found widespread disruption to teaching-learning quality, clinical exposure, assessment practices, and student and staff mental health across multiple countries, alongside some genuine gains in the use of digital and remote learning tools [21]. National-level data from Malaysia illustrate the practical consequence for competence: in a survey of final-year students and recent graduates whose clinical training was interrupted by the pandemic, self-rated competence in performing endodontic treatment on multi-rooted teeth was only 29.8%, the lowest of all assessed skills, followed by assessing orthodontic treatment need at 37.1% and prescribing drugs at 46.6%; final-year students who had not yet graduated were significantly less prepared than the cohort that had already completed training before the worst disruption [22]. These findings reinforce the pattern identified elsewhere in this review: competence deficits cluster around technically demanding, lower-frequency procedures, and are worsened, though not solely caused, by disruption to clinical training capacity.

3.6 A Tale of Two Crises: Oversupply Versus Undersupply

It would be a mistake to treat "declining quality in dental education" as a single, globally uniform phenomenon with one cause. In much of South Asia and parts of the Middle East and Latin America, the dominant driver is oversupply: commercially motivated proliferation of private schools without matching investment in patients, faculty or infrastructure [4-7]. Sub-Saharan Africa illustrates the opposite problem. As of the mid-2020s, only around 84 dental schools were operating across 26 of the region's 47 countries, and the density of practising dentists remained roughly 0.37 to 0.44 per 10,000 population, a small fraction of the ratio found in high-income countries, while an estimated 42% of the region's population lived with untreated oral disease as of 2021 [23]. Here, quality constraints stem chiefly from chronic under-investment: too few schools, too few qualified faculty relative to population need, and limited research and specialty training infrastructure, rather than from unregulated commercial growth. Comparative analysis of what distinguishes internationally competitive dental schools, encompassing research output, faculty scholarly productivity, international research networks, and depth of specialty training, found that only a small number of African institutions, concentrated in Egypt and South Africa, currently register on global rankings for dentistry, underscoring how differently the "quality" problem manifests depending on a region's starting resource base [24].

This distinction matters for policy. Interventions appropriate to an oversupplied, commercially distorted market, such as capping new school approvals, tying enrolment numbers to documented clinical capacity, and strengthening accreditation audits, are not the same interventions needed in an under-resourced region seeking to expand access to care without compromising training standards. A single global narrative of "incompetent graduates" risks obscuring these very different underlying mechanisms and the correspondingly different reforms each requires.

4. Conclusion

The evidence assembled in this review supports a qualified but serious conclusion: quality decline in dental education is real, well documented across multiple independent health systems, and plausibly linked to measurable gaps in the clinical competence and confidence of new graduates, particularly in technically demanding, lower-frequency procedures such as surgical extractions, multi-rooted endodontics, and management of medically complex patients. The principal drivers identified across the literature, unregulated growth in the number of dental schools relative to available clinical training capacity, persistent disconnection between basic science and clinical teaching, faculty shortages and burnout, and inconsistent competency assessment, recur across countries with markedly different regulatory and economic systems, suggesting they are structural rather than incidental.

At the same time, the evidence does not support a claim that new graduates are universally or categorically incompetent. Formal regulatory audits in at least some well-resourced systems have found no objective evidence of unsafe practice, and graduate self-assessment studies consistently describe specific, identifiable skill gaps rather than global incompetence. The crisis is therefore better characterised as uneven and mechanism-specific: driven by commercialised oversupply in some regions and by chronic resource scarcity in others, with different implications for reform in each case. Coordinated responses, enrolment numbers tied transparently to documented clinical training capacity, sustained investment in faculty recruitment and retention, adoption of objective, competency-based assessment frameworks, and closer harmonisation of international accreditation standards, offer the most credible route to protecting both patient safety and the long-term credibility of the dental profession.

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