

Revitalizing Dental Education: Aligning Curriculum with Contemporary Dentistry

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Dear Sir,

The undergraduate curriculum in Pakistan refers to the Bachelor of Dental Surgery (BDS) program offered by various universities. The curriculum is designed to provide students with the knowledge, skills, and clinical training to become competent general dental practitioner (GDP).

BDS curriculum is based on common teaching components divided into; Preclinical & Clinical years. Preclinical years include Basic Medical and non-clinical Dental Sciences. The Clinical Years include Medicine and Surgery along with Oral Pathology, Oral Surgery, Restorative Dentistry, Endodontics, Prosthodontics and Orthodontics.

Though the dental curriculum at the undergraduate level in the country strives to offer a thorough education in the field, there have been apprehensions about specific deficiencies in it.

Insufficient focus on soft skills:

Effective communication with patients, their attendants, peers and colleague, is a crucial aspect of dental practice. BDS curriculum in Pakistan does not place enough emphasis on developing communication skills, interpersonal skills, empathy, self-confidence, team work, cooperation, creativity, time management and character etc. A subject "Behavioral Science" was included in the curriculum with the thought to induce the non-scholastic abilities in the students but evidence suggests that dental graduates like other graduates miserably fail to show the indoctrinated soft skills. A current stu-

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Date of Submission: 25th July 2023

Date of 1st Revision: 25th October 2023

Date of 2nd Revision: 20th January 2024

Date of Acceptance: 20th February 2024

dy performed in four universities of Pakistan considers lack of clear policy direction about integration of soft skills in classroom teaching and practices and suggests to develop a comprehensive framework to the integrate soft skills in the ped-agogies¹.

Limited Integration of New Technologies and Materials:

Rapid advancements in dental technology and biomaterials require professionals to stay updated with the latest tools and techniques. BDS curriculum remains under criticism for not adequately incorporating training on new technologies, such as Digital Dentistry, Rotary Endodontics, Caries Detection Devices, CAD/CAM systems, CBCT and Laser Dentistry but induction of digital technology in the dental curriculum has revolutionized dental education in western world².

Inadequate Training in Practice Management:

Running a dental practice involves not only clinical skills but also business and management aspects. Some argue that the existing curriculum does not provide sufficient education on practice management, including financial management, marketing, and legal considerations. In Pakistan, curriculum of various universities available on online search don't allocate time for courses on practice management. On the contrary, the search results showed that a total of 22 practice management courses are taught merely in 10 dental schools in Canada assigning 27 to 109 teaching hours covering issues on bioethics, human resource management and private practice management³.

Non-differentiation between Oral Biology and Oral Anatomy:

Oral Anatomy (OA), has been part of undergraduate curriculum. In alignment with international curricula, Pakistan Medical & Dental Council (PMDC)

introduced Oral Biology (OB) as a teaching subject but for unknown reasons just changed the name with the same content. Although both subjects are related, they represent distinct fields within the broader study of dentistry. OA constitutes just one aspect of OB which is primarily concerned with macro and microscopic structures and form of the oral cavity, including the teeth, jaws, and surrounding tissues. It examines the shape, size, and position of teeth, the anatomy of the jawbones, and the structure of other oral tissues, such as the tongue, salivary glands, and oral mucosa. It also involves studying the development, eruption, and shedding of teeth, as well as their functional relationships with the surrounding oral structures. OB, on the other hand, is an extremely diverse field that encompasses Genetics, Molecular Biology, Cancer Biology, Oral Physiology, Genomics, Microbiology, Immunology, Biophysics and Biochemistry and therefore, needs to be taught as a separate subject in later years of the program. The diversity of this subject becomes evident when considering constitution of the OB Department at Rutgers School of Dentistry, USA. This department comprises faculty members who embody a diverse range, including basic scientists and clinical researchers. Their academic and research endeavors are dedicated to exploring the causes and development of oral cancers, infectious diseases, and tooth regeneration⁴.

Less number of teaching hours for Oral radiology & Forensic Dentistry:

Radiographs are considered sixth sense of a practicing dentist. It has been pointed out in a study that radiograph interpretation skills of undergraduate students are not up to the mark and they remain unchanged even after graduation. One of the problems with the undergraduate radiology teaching is the number of allocated contact hours to the subject and absence of Oral radiologists available for teaching⁵. The current version (2022) of the PMDC approved curriculum allocates 150 hours to Oral Medicine, Oral Diagnosis and Oral Radiology for teaching in 3rd year. There is no mention of outlined syllabus and matching outcomes of radiology course⁶.

Forensic dentistry is another important subject for undergraduates. By incorporating it in the curriculum future dentists will be able to play role in identifying victims of crime, accidents, and disasters and in identifying crime committers⁷. Significance of inclusion of FD in undergraduate curriculum has been emphasized by many authors⁸ and internationally many universities have included it as an integral component of their curriculum⁹. Teaching and training of FD is almost non-existent as per findings of a survey published in Pakistan¹⁰. Both these subjects should be included in the curriculum as full course with defined outcomes and syllabus so that the students give proper attention.

Non-existence of some contemporary courses:

Many subject educationalists have mentioned the urgency of including some important courses missing from the undergraduate curriculum. They include Implantology, Genetics, Esthetic Dentistry, Laser Dentistry and Evidence-Based Dentistry and Geriatric Dentistry. In recent years, owing to an increasing recognition of the implantology, several universities have incorporated implantology into their predoctoral curricula¹¹. A survey reveals that existing BDS curriculum approved by PMDC does not specify any criteria for minimum competency related to dental implants and recommends inclusion of fundamental knowledge about dental implants in the curriculum¹². Laser Dentistry, Evidence-based Dentistry, Esthetic Dentistry, and Geriatric Dentistry are contemporary disciplines that have yet to be integrated into the teaching schedule for undergraduate students studying in dental institutions in Pakistan.

The existing approved curriculum spans over a period of four years followed by 1-year of clinical internship. Each year 3-4 examination subjects are taught which renders no room to incorporate the mentioned missing disciplines. As a consequence, dental graduates remain short of knowledge and skills regarding various innovations in technology and clinical management.

OB, Oral Radiology, FD have been clustered with other core subjects to keep the program duration short¹³. Laser Dentistry, Implantology, Evidence-Based Dentistry and Research Methodology and Artificial Intelligence are not included in the present curriculum. To produce future dentists well abreast with dental modernization, all these subjects should be integrated in the curriculum as separate examination subject.

An important subject missing from curriculum is Geriatric Dentistry which deals with orodental care of elderly individuals. The global population is aging, and the elderly population is expected to increase significantly in the coming years. Older adults often have unique oral health needs, including age-related oral conditions and chronic medical conditions that can affect oral health. Therefore, future dentist must be equipped with the knowledge and skills to handle the aging population¹⁴. Pedodontics focuses on providing dental care to children from infancy to adolescence. A study revealed that the quality of dental care provided to children is subpar due to the absence of formal training for undergraduates in the country¹⁵.

A 5-year curriculum is the need of the hour as it will offer several potential advantages compared to a shorter 4-year program. With an additional year of study, a 5-year curriculum will allow for a more in-depth exploration of the various dental disciplines. In clinical training, the students will have more time to practice and refine their skills, encounter a wider variety of patient cases, and develop a higher level of proficiency before entering professional practice.

Dental education authorities and professional organizations should work in harmony to update and improve the BDS curriculum to align it better with the evolving needs and advancements in the field of dentistry.

Conflict of Interest

Authors have no conflict of interest and no grant funding from any organization.

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