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# Qualitative exploration of manual dental records in the digital era using sociotechnical systems theory: insights from a teaching dental institution

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## Abstract

**Background:** Dental records are essential repositories of patient information that support diagnosis, treatment planning, continuity of care, and medicolegal accountability, making them a fundamental component of safe, effective, and transparent dental practices. This study aimed to explore the perceptions and experiences of academic and nonacademic clinical staff regarding a paper-based patient record system at a Malaysian public dental institute. **Methods:** A qualitative phenomenological design underpinned by the sociotechnical systems theory was employed. Purposive sampling recruited 20 full-time staff (10 academic, 10 nonacademic) with at least 1 year of experience using the manual record system and no prior training in electronic dental records. Semi-structured, one-on-one interviews were conducted between May 2025 and October 2025, audio-recorded, transcribed verbatim, and analyzed using Braun and Clarke's thematic analysis. Rigor was enhanced through independent coding, member checking, reflexive journaling, and adherence to the Consolidated Criteria for Reporting Qualitative Research checklist. **Results:** Four main themes were identified: (1) inefficiency and accessibility challenges; (2) accuracy, legibility, and record integrity; (3) continuity of care and patient safety risks; and (4) desire for digital transition and system improvements. **Conclusion:** Although manual paper-based dental records remain central to documentation in teaching dental institutions, they present growing inefficiencies and safety concerns, highlighting the need for sociotechnical-informed strategies that align human processes, technology, and institutional support to enhance record-keeping and patient care. © 2026 Yeungnam University College of Medicine, Yeungnam University Institute of Medical Science.

## Author keywords

Computerized medical records systems; Dental records; Dentistry

## Indexed keywords

### **EMTREE medical terms**

adult; aged; article; checklist; clinical article; controlled study; dental practice; dentistry; electronic medical record; female; human; interview; male; medical record; middle aged; patient care; patient information; patient safety; qualitative research; systems theory; teaching; thematic analysis; treatment planning; young adult

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