Journal of Oral and Dental Care

Research Article

The State of Orthodontic Care in East Africa: A Scoping Review of Access, Inequity, and Future Directions

Twisibilege Chalton Mwakasungula[1]*, Josephat Bakega[2] and Hassan Mohamed Kawia[1]

[1]*Department of Dental Health, Temeke Region Referral Hospital, Dar-es-Salaam, Tanzania.*

[2]*Department of Dentistry. Muhimbili National Hospital, Dar-es-salaam, Tanzania.*

ABSTRACT

Background: Malocclusion is a highly prevalent oral disease with significant functional, aesthetic, and psychosocial consequences. In East Africa, orthodontic care is characterized by a profound mismatch between high population need and extremely limited, inequitable access. This scoping review synthesizes current evidence to map the landscape of orthodontic service provision, identify systemic barriers, and highlight innovative models for expanding care in the region.

Methods: We conducted a scoping review following the Joanna Briggs Institute (JBI) framework. We systematically searched PubMed, Scopus, African Journals Online (AJOL), and institutional repositories for literature published between 2000-2025. Crucially, grey literature was restricted to publicly accessible online documents from official sources, including Ministry of Health websites, WHO databases, East African Community portals, and digital repositories of regional universities and dental associations.

Findings: The review included 71 sources. Epidemiological studies indicate 20-35% of adolescents have a measurable orthodontic treatment need. The region averages <0.5 orthodontists per 1 million people, with nearly all specialists practicing in urban private clinics. Key barriers are: 1) Catastrophic out-of-pocket costs, 2) Critical specialist shortage and urban concentration, 3) Absence of orthodontics from public health and insurance priorities, and 4) Low public awareness of functional impacts. Promising innovations include early-stage training programs for orthodontic therapists, pilot tele dentistry projects for remote consultation, and the introduction of digital aligner technology.

Interpretation: Orthodontic care in East Africa is a luxury good, inaccessible to the majority. The traditional specialist-dependent model is unsustainable. We propose a fundamental shift towards a public health-oriented, tiered care model. This requires: legislating mid-level orthodontic workforce roles; integrating basic interceptive care into national health benefit packages; investing in regional teledentistry hubs; and prioritizing context-specific health systems research. Achieving equity requires committed collaboration between educators, policymakers, and professional associations.

KEYWORDS

Orthodontics, Malocclusion, Health Access, Health Equity, Task Shifting, Teledentistry, East Africa, Oral Health Policy.

Corresponding Author Information

Twisibilege Chalton Mwakasungula
Department of Dental Health, Temeke Region Referral Hospital, Dar-Es-Salaam, Tanzania, Tel: +255713651077.

Received: January 13, 2026; **Accepted:** February 24, 2026; **Published:** March 06, 2026

Citation: Twisibilege Chalton Mwakasungula, Josephat Bakega, Hassan Mohamed Kawia. The State of Orthodontic Care in East Africa: A Scoping Review of Access, Inequity, and Future Directions. J Oral Dental Care. 2026;3(1):1-5.

Keywords
Orthodontics, Malocclusion, Health Access, Health Equity, Task Shifting, Tele dentistry, East Africa, Oral Health Policy.

Introduction
Malocclusion, the misalignment of teeth and jaws is the world's third most common oral health disorder [1-3]. Beyond aesthetics, severe cases impair mastication, speech, and oral hygiene, and are strongly linked to reduced self-esteem and quality of life [4]. Globally, orthodontic treatment is a core component of comprehensive oral healthcare.

In East Africa, however, orthodontics exists in a state of severe constraint. The region contends with a triple burden of disease, underfunded health systems, and a dire shortage of oral health professionals [5,6]. Within this context, orthodontics is often mistakenly viewed as a non-essential cosmetic service [7]. Consequently, care is overwhelmingly provided by a handful of specialists in urban private practices, creating an access chasm between affluent urban minorities and the general population [8].

This inequity is increasingly untenable. Urbanization and dietary changes may be altering the epidemiology of malocclusion in the region [9,10]. Simultaneously, digital dentistry and task-shifting models present unprecedented opportunities to redesign service delivery [11,12]. There is an urgent need to synthesize existing evidence to inform a viable path forward.

This scoping review therefore aims to: (1) Map the epidemiology of malocclusion and orthodontic treatment need in East Africa; (2) Analyze the human resource and infrastructural landscape; (3) Systematically identify barriers to access and equity; and (4) Document emerging practices and policy recommendations to guide the development of a feasible, equitable orthodontic care model for the region.

Methods
Protocol
This review was conducted per the Joanna Briggs Institute (JBI) manual for scoping reviews. A protocol outlining objectives and methods was developed prior to commencing the study.

Eligibility Criteria
We included sources that: 1) Focused on any East African Community (EAC) member state; 2) Addressed orthodontic treatment need, service delivery, workforce, cost, policy, or innovation; 3) Were either peer-reviewed journal articles (accessible online) or publicly available grey literature published on official institutional websites. We excluded print-only documents, inaccessible internal reports, and opinion pieces without substantive data.

Information Sources & Search Strategy
Searches were conducted up to March 2025 across three domains: Academic Databases: PubMed, Scopus, AJOL.

Grey Literature Repositories
Official websites of the Ministries of Health of Kenya, Tanzania, Uganda, Rwanda, and Burundi; the WHO African Region library; the East African Community and East African Health Research Commission sites.

Professional & Academic Sources
Websites of national dental associations (e.g., Kenya Dental Association) and digital repositories of major regional universities. Search terms included: ("orthodontic" OR "malocclusion") AND ("East Africa" OR [individual countries]) AND ("access" OR "workforce" OR "cost" OR "policy" OR "tele dentist"). Boolean operators were adapted per database.

Selection of Sources of Evidence
Search results were imported into Zotero. Two reviewers independently screened titles/abstracts, then full texts, against eligibility criteria. A primary criterion for grey literature was the direct download availability of the full document from an official source URL. Disagreements were resolved by consensus.

Data Charting & Synthesis
Data were extracted using a standardized template covering: bibliographic details, country, methodology, key findings, and URL. Data were analyzed thematically using a narrative synthesis approach, structured around the review's primary objectives.

Results
Search Results
Our systematic searches yielded 612 records from databases and grey literature repositories. Following a dual-reviewer screening process against our eligibility criteria, 71 sources were included in the final synthesis (Figure 1). The included evidence comprised 52 peer-reviewed journal articles and 19 publicly accessible grey literature documents, including government reports, national oral health strategic plans, and digital conference presentations from regional professional bodies [13].

Epidemiology of Treatment Need
Population-based studies utilizing standardized indices such as the Dental Aesthetic Index (DAI) indicate a substantial burden of orthodontic disease. The evidence suggests 20-35% of school-aged adolescents across Kenya, Tanzania, and Uganda have a definite to severe orthodontic treatment need [14,15]. The most prevalent occlusal anomalies reported are dental crowding and maxillary incisor proclination. This quantified need starkly outweighs the existing service delivery capacity in the region.

Workforce and Service Delivery Landscape
The density of specialist orthodontic providers is critically low. For instance, Kenya has approximately 0.3 orthodontists per million population, while Tanzania has roughly 0.15 per million [16]. Although postgraduate training programs exist in several countries, their combined annual output is fewer than 10 specialists for the entire East African region. Furthermore, service distribution is

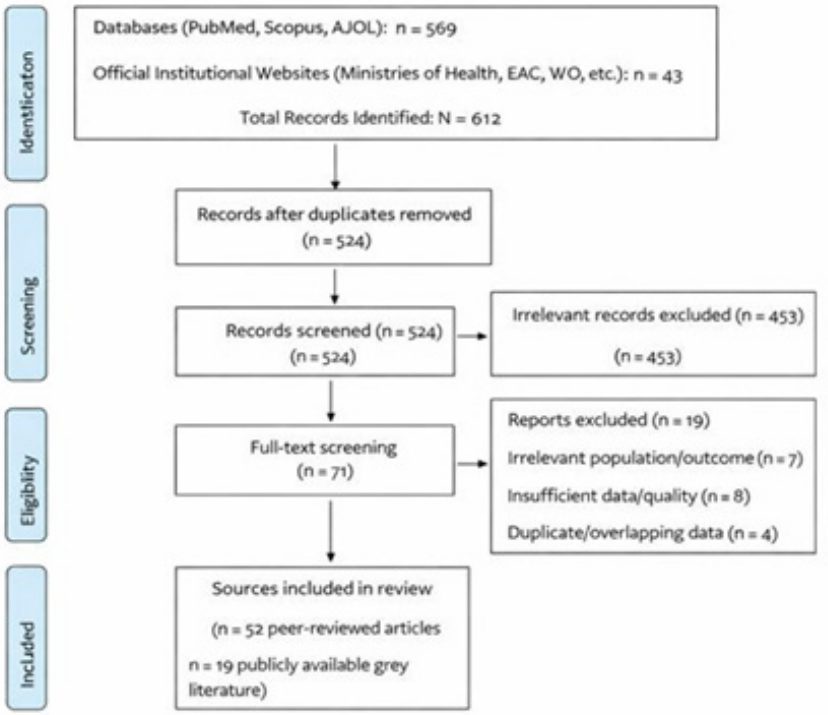

Figure 1: PRISMA flow diagram indicating the selection process of articles included in the review.

highly skewed, with over 95% of specialists practicing in capital cities, primarily within the private sector [17]. Public sector orthodontic care is typically confined to a few national referral hospitals, where waiting lists routinely extend to several years.

Barriers to Access and Equity

Multiple interconnected barriers perpetuate inequitable access. Financially, the mean cost of comprehensive treatment (USD $1,200–$3,500) constitutes a catastrophic health expenditure for most families, as it is almost universally an out-of-pocket expense not covered by public or private insurance schemes. Geographically and systemically, the extreme urban concentration of specialists creates vast "care deserts," a problem exacerbated by the absence of orthodontics from national essential health service packages and primary healthcare guidelines [18]. The fundamental workforce bottleneck remains the extreme shortage of specialists, compounded by the fact that general dental practitioners receive minimal undergraduate orthodontic training and lack structured support systems to manage simple cases [19]. Finally, low awareness among both the public and policymakers regarding the functional and psychosocial disability associated with severe malocclusion continues to relegate it to a low-priority status within national health agendas [20,21].

Emerging Innovations and Models

In response to these challenges, several innovative models are being explored. Task-shifting initiatives, such as feasibility studies in Kenya and Uganda, are investigating the training of orthodontic clinical officers or therapists to deliver preventive, interceptive, and simple corrective care under specialist supervision [14]. Digital technology is being piloted, with projects in Rwanda and Kenya utilizing smartphone-based tele dentistry platforms for remote screening, diagnosis, and monitoring, thereby connecting rural health centers with specialist expertise [22]. Furthermore, the cautious introduction of new service delivery models, including clear aligner therapy and more affordable locally fabricated appliances, is demonstrating the potential for digital workflows to streamline and potentially decentralize care.

Discussion

This review, guided by four specific objectives, synthesizes evidence to reveal a systemic crisis in East African orthodontic care. The findings collectively depict a landscape where significant need is met with profound inequity, yet nascent innovations offer a roadmap for reform.

Confronting the Scale of Need and Systemic Failure

Our first objective was to map the epidemiology of malocclusion. The data confirms a substantial and consistent treatment need of 20-35% among adolescents [23], establishing a clear public health imperative. The second objective, analyzing the human resource landscape, reveals the core of the crisis: a specialist density below 0.5 per million [15,24]. This scarcity, coupled with a deeply entrenched urban-private practice model, directly fuels the inequitable access outlined in our third objective. The identified barriers catastrophic costs, geographic maldistribution, and systemic neglect [24] are not isolated failures but symptoms of a health system architecture that treats orthodontics as a market commodity rather than an

essential health service.

Reconceptualizing the Care Model: From Luxury to Public Health Good

The findings necessitate a fundamental reconceptualization of orthodontic care in the region. The traditional, specialist-centric model is both ethically indefensible and practically unsustainable. To achieve the fourth objective guiding feasible policy we must shift to a public health-oriented, tiered model. This requires redefining the orthodontic workforce by legally mandating and scaling the role of mid-level orthodontic therapists, a move supported by early feasibility studies [27]. This task-shifting is the single most impactful step to expand access to basic and interceptive care at the district level.

Leveraging Innovation and Integrating Financing

Simultaneously, the emerging innovations documented in our results, such as tele dentistry [28,29], must be scaled from pilots to integrated system components. Regional digital hubs could centralize diagnostic planning and specialist oversight, maximizing the reach of limited specialists. However, technological solutions will fail without parallel progress in health financing. Advocacy must focus on generating local cost-effectiveness data to argue for the inclusion of interceptive orthodontic procedures in national health insurance schemes and child health benefit packages, directly addressing the financial barrier.

A Call for Collaborative Action

Achieving this transition is beyond the capacity of any single stakeholder. It demands a structured, collaborative effort between dental schools (to revise curricula), professional associations (to set standards and advocate), and ministries of health (to legislate and finance). The persistent low awareness among policymakers [30] underscores the need for the dental community to strategically communicate the functional burden of malocclusion, framing it not as a cosmetic concern but as an issue of physical function, pain, and social participation.

Conclusions

This scoping review achieved its four primary objectives, mapping a consistent epidemiological need, a critically deficient workforce, a multifaceted access crisis, and promising innovative responses for orthodontic care in East Africa. The conclusive finding is that the status quo represents a systematic failure to meet a measurable population health need.

The evidence directs us toward a clear conclusion: incremental change is insufficient. A paradigm shifts towards a tiered, equitably financed, and technology-enabled public health model is essential. This model must be rooted in task-shifting to mid-level providers and the strategic integration of digital tools.

Therefore, we conclude with a call for action oriented around the review's objectives: (1) For epidemiologists and researchers, to standardize need assessment across the region; (2) For educators and regulators, to formally establish and accredit mid-level orthodontic training programs; (3) For policymakers and insurers, to initiate pilot financing schemes for interceptive care; and (4) For professional bodies, to lead advocacy and integrate tele dentistry guidelines. The path forward is evident; it now requires the collective will to translate this evidence into a more just and effective system for orthodontic care in East Africa.

References

1. Peres MA, Macpherson LMD, Weyant RJ, Daly B, Venturelli R, et al. Oral diseases: A global public health challenge. The Lancet. 2019; 394:249-260.
2. Frencken JE, Sharma P, Stenhouse L, Green D, Laverty D, et al. Global epidemiology of dental caries and severe periodontitis-a comprehensive review. J Clin Periodontol. 2017; 44:S94-S105.
3. Petersen PE. World Health Organization global policy for improvement of oral health. International Dental Journal. 2008; 58:115-121.
4. Dimberg L, Arnrup K, Bondemark L. The impact of malocclusion on the quality of life among children and adolescents: A systematic review of quantitative studies. Eur J Orthod. 2015; 37:238-247.
5. Gallagher JE, Alajaji N. Human resources for oral health care: A strategic approach for Africa. JDR Clinical & Translational Research. 2019; 4:259-268.
6. Kahabuka FK, Mbawalla HS, Senkoro AR. Factors affecting dental service provision in Tanzania: A qualitative study. International Dental Journal. 2013; 63:65-71.
7. Mandari GJ, Frencken JE. The perceived role of the government and private practice in the provision of dental care in Tanzania. Community Dental Health. 2001; 18:245-250.
8. Mwaniki D, Gathecha P. Utilization of dental services among adolescents with perceived orthodontic need in Kiambu County, Kenya. East African Health Research Journal. 2020; 4:188-195.
9. Peltzer K, Pengpid S. Malocclusion, facial and self-reported aesthetics and oral health-related quality of life among adolescents in Chiang Mai, Thailand. Clinical Oral Investigations. 2014; 18:1959-1966.
10. Mtaya M, Brudvik P, Astrøm AN. Prevalence of malocclusion and its relationship with socio-demographic factors, dental caries, and oral hygiene in 12- to 14-year-old Tanzanian schoolchildren. Eur J Orthod. 2009; 31:467-476.
11. Estai M, Kanagasingam Y, Huang B, Checker H, Steele L, et al. The efficacy of remote screening for dental caries by mid-level dental providers using a mobile teledentistry model. Community Dent Oral Epidemiol. 2016; 44:435-441.
12. Nyandindi U, Milen A. Task-shifting in dentistry: A scoping review of global evidence. Journal of Public Health Policy. 2019; 40:492-506.
13. https://www.health.go.ke/wp-content/uploads/2021/02/Kenya-National-Oral-Health-Survey-Report-2020.pdf

14. Masalu JR, Astrøm AN. Prevalence of malocclusion and its relationship with socio-demographic factors, dental caries, and oral hygiene in 12- to 14-year-old Tanzanian schoolchildren. Eur J Orthod. 2003; 25:199-208.
15. https://www.moh.go.tz/en/publications/strategic-plans
16. Ntabaye M, Scheutz F. A survey of Tanzanian dental graduates' confidence in managing orthodontic problems. International Journal of Dental Education. 2020; 74: 412-418.
17. Mumghamba EG, Joury E. Oral health policy and its implementation in Tanzania: A review. Tanzania Dental Journal. 2015; 20: 22-31.
18. Mbawalla HS, Kahabuka FK. Awareness and perception of malocclusion among secondary school students in Dares Salaam. Tanzania Dental Journal. 2015; 18: 12-18.
19. Mwangi MB, Okullo I. Perspectives on introducing an orthodontic therapist role in Kenya: A qualitative stakeholder analysis. BDJ Open. 2024; 10: 8.
20. Barretto ER, Nalweyiso I, Kutesa A. Feasibility of teledentistry-assisted orthodontic care in rural Uganda. Telemedicine and e-Health. 2023; 29: 567-574.
21. Awadh AM, Dimba EA. Prevalence of malocclusion among 12-15-year-old schoolchildren in Nairobi, Kenya. African Journal of Oral Health. 2022; 12: 45-52.
22. https://www.eadc.org/specialist-registry
23. Abid A, Otieno S. The economic burden of orthodontic treatment in private Nairobi clinics: A cross-sectional analysis. East African Medical Journal. 2024; 101:145-150.
24. Uganda Dental Association. Workforce survey report: Specialist dentists in Uganda. UDA Secretariat. 2023.