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A Comparative Analysis of Traditional Dental Screening versus Smart Phone Screening

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ABSTRACT

Teledentistry has emerged as a promising solution to address oral health disparities, particularly in resource-limited settings like rural South Africa, where low dentist-to-population ratios and high costs restrict access to dental care. The present study evaluated the reliability and accuracy of smartphone-based, remote dental screening compared to traditional chairside clinical examination screening. A cross-sectional study was conducted with 145 participants (≥18 years) attending the Tygerberg Oral Health Centre. Standardized intraoral photographs were captured using an Apple iPhone XS and uploaded securely to the Vula App for remote assessment. Diagnostic tools, including the International Caries Detection and Assessment System (ICDAS) and the Decayed, Missing, and Filled Teeth (DMFT) index, were employed to ensure consistency.

The results showed an "Almost Perfect Agreement" between clinical and photographic examinations, with Cohen Kappa coefficients ranging from 0.84 to 0.95 and strong Pearson correlations (>0.90). No statistically significant differences were observed, confirming teledentistry's reliability as a diagnostic tool.

Teledentistry offers a secure, and cost-effective method to improve access to dental care, particularly for underserved populations. By overcoming geographical and economic barriers, it aligns with public health goals, including South Africa's National Health Insurance (NHI) scheme, to improve equity and quality in healthcare delivery.

Key words

Teledentistry, Remote Dental Screening, Oral Health Equity, Digital Health, National Health Insurance (NHI), Diagnostic Reliability

INTRODUCTION

The COVID-19 pandemic fundamentally altered global health practices, necessitating innovations to adapt to safer working environments. In dentistry, the high risk of virus transmission—whether airborne, contact-based, or from contaminated surfaces—emphasizes the need for safer practices, such as the use of teledentistry.[1]

Teledentistry emerged as a key innovation during the pandemic, leveraging technology to bridge gaps between patients and healthcare professionals. Its use has increased, particularly in South Africa, where online platforms have become vital for pre-screening and consultations.[2] Teledentistry's potential extends beyond the pandemic, offering significant benefits in remote areas where access to dental care is limited .[3] It is particularly promising in the context of South Africa's upcoming National Health Insurance (NHI), which aims to provide equitable healthcare to all citizens.[4,5]

Oral diseases, including dental caries, are among the most common and preventable non-communicable diseases, affecting billions worldwide and significantly impacting quality of life.[6] Teledentistry offers a solution by facilitating remote dental consultations, thus improving access to care and potentially reducing the economic burden of oral diseases on society.[7]

Literature Review

Telehealth involves the exchange of clinical information or access to care via information technology. The global increase in internet access and smartphone use has significantly increased communication among healthcare practitioners.[8] Teledentistry, a subset of telehealth, uses telecommunications to facilitate dental consultations and treatment planning by exchanging clinical information and images over remote distances. Mobile health (mHealth), part of digital health, provides healthcare through smartphones, tablets, and wearables, with smartphones being the most frequently used device.[9]

Oral Disease Burden in South Africa

Teledentistry has significant potential to address oral health inequalities, especially in low- and middle-income countries, which face a disproportionate burden of disease. For instance, Africa, with 10% of the global population and only 3% of the health workforce, bears about a quarter of the world's disease burden.[10] In South Africa, where the Department of Health recommends a dental practitioner-to-patient ratio of 1:60,000[11], the actual ratio is far below this, leading to untreated oral diseases and delayed diagnoses.[12] Teledentistry can bridge this gap by enabling early detection of conditions like carious lesions, reducing disease burdens and improving care access. It facilitates the remote exchange of clinical information and images for consultation and treatment planning, making the process more accessible and less stressful.[13] In underserved areas, teledentistry encourages professional consultations over ineffective home remedies, promoting better oral health outcomes.

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Remote Dental Screening as a Tool in the NHI

Remote dental screening involves sharing photographs, radiographs, and clinical data between clinicians for diagnosis. This can be done through "store and forward" methods or in real-time via telephone or video calls. Intraoral photographs have proven to be valuable and reliable aids in diagnosing oral pathology.[14] The benefits of remote dental screening include reducing the transmission of communicable diseases, providing access to dental care in underserved areas, and allowing isolated patients to receive care. Additionally, clinicians in remote areas can consult specialists for advice on certain procedures, enhancing the quality of care.[15]

South Africa's National Health Insurance (NHI) system aims to provide high-quality healthcare to all citizens, especially those who are vulnerable and socio-economically disadvantaged. The NHI is based on principles of access, social solidarity, effectiveness, equity, affordability, and efficiency, with objectives to enhance healthcare services, pool risks and funds, procure services efficiently, and strengthen the public sector.[16,17] For the NHI to succeed, South Africa requires coherent systems that support the growth of e-health services, including remote monitoring tools, mHealth, and portal technology.[18] These technologies can streamline processes, increase efficiency, reduce waiting times, and enhance patient care by enabling healthcare workers to monitor and engage with patients remotely.[4]

Teledentistry and the COVID-19 Pandemic

The COVID-19 pandemic emphasized the importance of minimizing close contact between individuals.[19] Teledentistry aligns with social distancing rules by offering remote triaging and screening of patients. During the pandemic, suspected carriers were identified through teledentistry and advised to isolate, reducing exposure risks for healthy patients and healthcare staff while still providing emergency care.[20]

Mobile Applications and Their Utilization in Healthcare

Mobile applications are increasingly used by medical and dental practitioners to exchange sensitive patient information. However, platforms like WhatsApp, though popular, are not compliant with privacy regulations such as the Protection of Personal Information Act (POPIA), the General Data Protection Regulation (GDPR), and the Health Insurance Portability and Accountability Act (HIPAA).[21] The Vula App, developed in South Africa in offers a compliant alternative for secure communication and patient referrals. It is endorsed by the South African government and is the official referral app in the Western Cape Province.[22] The Vula App facilitates rapid patient evaluations, remote patient management, and secure data exchanges, contributing to improved healthcare quality.[23]

Several studies have investigated the diagnostic reliability of teledentistry. A study by Patterson and Botchway compared face-to-face dental screenings with intraoral image-based screenings, finding a diagnostic concordance ranging from 89% to 100%.[24] Similarly, a study by Kopycka-Kedzierawski et al. reported a 95% concordance in diagnosing dental caries in children using these two methods.[25] In the United Kingdom, Boye et al. found diagnostic concordance between visual and image-based screenings ranging from 87.8% to 95.8% in five-year-olds and 58.5% to 71.7% in ten-to-eleven-year-olds.[26] In South Africa, Bissessur and Naidoo reported a 93-98% diagnostic concordance, indicating high reliability in teledentistry.[27]

Legal and Ethical Concerns Associated with Data Sharing in Dentistry

The digitization of healthcare, including dentistry, raises important legal and ethical questions about data storage, sharing, and individual rights. In South Africa, regulatory bodies such as the Health Professions Council of South Africa (HPCSA), South African Health Products Regulatory Authority (SAHPRA), and others oversee the governance of digital health practices .[28] The South African Department of Health, aligning with the World Health Organization's definition of digital health, has yet to establish specific legislation for digital health.[29]

The Protection of Personal Information Act (POPIA), which came into effect on 1 July 2020, aims to protect individuals from data breaches, theft, and discrimination by establishing minimum requirements for processing personal information.[30] Compliance with these regulations is essential for any healthcare app used in teledentistry to ensure the protection and security of sensitive patient data.

AIMS AND OBJECTIVES

The present study determined the diagnostic reliability and accuracy of teledentistry compared to traditional clinical examinations for detecting dental caries. The objectives were to validate teledentistry as a practical, adaptive tool for improving access to oral healthcare and to demonstrate its potential in supporting public health strategies such as South Africa's NHI.

METHODOLOGY

Study Design and Population

A cross-sectional study was conducted with 158 parents or guardians (≥18 years) of children attending the paediatric dental clinic at Tygerberg Oral Health Centre. A purposive sampling technique was used, with a final sample size of 145 participants calculated using a Kappa statistic based on a positivity rating of 0.9.

Inclusion and Exclusion Criteria

Participants included those who provided verbal and written consent for their data and intraoral photographs to be uploaded to the Vula App. Off-site examiners were qualified HPCSA-registered dentists. Exclusion criteria applied to those not meeting these conditions.

Data Collection

Chairside examinations and image acquisition were conducted using an Apple iPhone XS. Intraoral photographs were captured under standardized conditions and securely uploaded to the Vula App for remote assessment. A pilot study with 10 participants refined the methodology.

Standardization and Calibration

Examiners followed WHO Oral Health Survey guidelines, with calibration exercises addressing diagnostic variability. Photographs were taken at specified angles and distances to ensure uniformity.

Data Analysis

The datasets analysed included comparisons between clinical and photographic examinations and assessments of intra- and inter-rater reliability:

- Clinical Examination (Examiner 1) versus Photographic Examination (Examiner 2) - 145 observations
- Clinical Examination (Examiner 1) versus Photographic

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Examination (Examiner 1) - 145 observations
- Photographic Examination (Examiner 1) versus Photographic Examination (Examiner 2) - 145 observations
- Photographic Examination (Examiner 1) versus Photographic Examination (Examiner 1) - 14 observations
- Photographic Examination (Examiner 2) versus Photographic Examination (Examiner 2) - 14 observations

Statistical measures, including p-values, correlation coefficients, and Cohen Kappa coefficients, evaluated inter-rater reliability (agreement between different examiners), intra-rater reliability (consistency of a single examiner), and diagnostic accuracy. These analyses highlighted the reliability and validity of teledentistry as a diagnostic tool for dental screenings.

Utility

Chairside examinations allowed immediate patient interaction but posed exposure risks. Remote screening via the Vula App mitigated these risks and ensured secure data handling, offering a scalable solution for dental assessments in resource-limited settings.

RESULTS

Demographics

152 adults consented to participate in the present study but after excluding seven edentulous participants, the final sample comprised 145 participants, 41 males and 104 females, who were parents or guardians of children receiving dental care at the Tygerberg Oral Health Centre's paediatric dental clinic. The mean age of the participants was 40.23 years.

Table 1 summarizes the key findings of this study, providing a clear and concise overview of the results that are explained in detail in this results section.

Results	Kappa Coefficient	Agreement	DMFT Pearson Correlation	DMFT p(T<=t) two-tail	DMFT Mean Clinical Examination	DMFT Mean Photographic Examination	D Pearson Correlation	D p(T<=t) two-tail	D Mean Clinical Examination	D Mean Photographic Examination	M Pearson Correlation	M p(T<=t) two-tail	M Mean Clinical Examination	M Mean Photographic Examination	F Pearson Correlation	F p(T<=t) two-tail	F Mean Clinical Examination	F Mean Photographic Examination
Clinical Examination (Examiner 1) versus Photographic Examination (Examiner 2)	0.846	Almost perfect agreement	0.98	0.489	12.37	12.99	0.94	0.054	3.85	4.6	1.0	1.000	7.72	7.72	0.93	0.299	0.80	0.59
Clinical Examination (Examiner 1) versus Photographic Examination (Examiner 1)	0.94	Almost perfect agreement	0.99	0.828	12.39	12.58	0.97	0.575	3.82	4.06	1.0	1.000	7.77	7.77	0.78	0.519	0.91	0.76
Photographic Examination (Examiner 1) versus Photographic Examination (Examiner 2)	0.88	Almost perfect agreement	0.99	0.637	12.59	13.0	0.95	0.191	4.10	4.66	1.0	1.000	7.72	7.72	0.95	0.384	0.77	0.59
Photographic Examination (Examiner 1) versus Photographic Examination (Examiner 1)	0.95	Almost perfect agreement	1.0	0.949	12.59	13.0	0.99	0.899	4.10	4.66	1.0	1.000	7.72	7.72	1.0	1.000	0.77	0.59
Photographic Examination (Examiner 2) versus Photographic Examination (Examiner 2)	0.95	Almost perfect agreement	1.0	1.0	14.57	14.57	1.0	0.966	5.07	5.0	0.99	0.918	8.5	8.79	0.85	0.701	1.0	1.29

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Photographic examinations in teledentistry have demonstrated high reliability and accuracy compared to traditional clinical methods, as shown in this study evaluating dental metrics (DMFT, D, M, F). When comparing clinical examinations by Examiner 1 to photographic examinations by Examiner 2, a Kappa coefficient of 0.846 indicated near-perfect agreement, with a strong Pearson correlation for DMFT (0.98). The lack of statistically significant differences, as indicated by p-values, highlights the reliability of photographic methods as an alternative to clinical assessments in remote or resource-limited settings.

Similarly, when clinical examinations by Examiner 1 were compared to photographic examinations conducted by the same examiner, the results showed an even higher Kappa coefficient of 0.94, reinforcing the near-perfect agreement between the two methods. Pearson correlation coefficients were notably high for DMFT (0.99) and perfect for "M" (1.00), with no significant differences observed in p-values. These findings validate the consistency of photographic examinations when utilized by the same examiner across different settings.

The inter-examiner reliability of photographic methods was further supported when comparing Examiner 1 and Examiner 2 using photographic examinations. A Kappa coefficient of 0.88 and a DMFT Pearson correlation of 0.99, with perfect agreement for "M" (1.00), demonstrated strong consistency between the examiners. Again, no significant differences were identified, affirming the robustness of photographic methods regardless of the examiner conducting the assessment.

Intra-rater reliability was assessed through repeated photographic examinations conducted by the same examiners. For Examiner 1, a Kappa coefficient of 0.95 and perfect Pearson correlation for DMFT, "M," and "F" (1.00) indicated exceptional consistency in assessments over time. Examiner 2 also achieved a Kappa coefficient of 0.95, with strong Pearson correlations for DMFT (1.00) and "M" (0.918). The p-values in both cases confirmed no significant differences in repeated assessments, underscoring the dependability of the photographic method.

The high Kappa coefficients (ranging from 0.846 to 0.95) across all datasets demonstrated the reliability of photographic examinations in teledentistry. Pearson correlation coefficients (0.78 to 1.00) further confirm the strong linear relationships across examiners and methods. Importantly, the lack of statistically significant differences in any of the comparisons validates the consistency of this approach, regardless of examiner or repetition. These findings highlight the potential of teledentistry as an effective, scalable, and reliable diagnostic tool, particularly in scenarios where traditional clinical assessments may be impractical. The consistent and comparable performance of photographic examinations underscores their value in modern dental practice and their capacity to expand access to care in underserved or remote areas.

DISCUSSION

Table 1 provides a detailed summary of the study's main findings, which are discussed throughout this section.

The present study evaluated the diagnostic agreement, accuracy, and reliability between traditional clinical dental screening using DMFT (Decayed, Missing, Filled Teeth) scores and teledentistry methods. The sample comprised 145 participants, with the majority being female. This gender distribution might be attributed to the common practice of mothers or grandmothers accompanying children to medical and dental appointments. The study's primary focus was to assess whether teledentistry could be a reliable alternative to conventional dental screening methods, especially in identifying dental caries, tooth loss, and restorations.

Five datasets were analysed in the study, comparing different combinations of clinical and photographic dental examinations. The first three datasets involved 145 observations each, comparing clinical examinations by one examiner against photographic examinations by either the same or a different examiner. The last two datasets involved 14 observations each, comparing repeated photographic examinations by the same examiner to assess reliability. These comparisons aimed to evaluate the consistency and agreement between traditional clinical methods and teledentistry approaches in dental diagnostics.

The Cohen Kappa Statistic was employed to measure the degree of agreement between the different examination methods and examiners. The results revealed high levels of concordance across all datasets, with Kappa coefficients ranging from 0.84 to 0.95. These values indicate a strong agreement, classified as "Almost Perfect Agreement," between the clinical and photographic examination methods. This high level of agreement suggests that teledentistry can be as reliable as traditional dental screening for diagnosing dental conditions.

Specifically, the inter-rater reliability between different examiners (Examiner 1 and Examiner 2) using clinical and photographic methods was high, with a Kappa coefficient of 0.84. This suggests that both examiners were consistent in their evaluations, regardless of whether they used clinical or photographic methods. The reliability was even higher when the same examiner conducted both the clinical and photographic examinations, as seen in the Kappa coefficient of 0.94 for intra-rater reliability. This finding implies that individual examiners maintain a high level of consistency in their assessments over time, further supporting the reliability of teledentistry.

In cases where the same examiner used photographic methods on separate occasions, the Kappa coefficients were slightly higher, around 0.95. This could indicate that within a smaller sample size, the consistency of photographic examinations might be even more pronounced. However, further research with larger samples would be necessary to confirm this observation.

The Pearson correlation coefficients, which measure the linear relationship between two sets of data, were also calculated for the various comparisons. The coefficients exceeded 0.90 for most datasets, indicating a strong correlation between clinical and photographic DMFT scores. This strong correlation further supports the reliability of teledentistry as a diagnostic tool. The study found no statistically significant differences between the clinical and photographic methods, as indicated by p-values greater than 0.05 across all datasets. This lack of statistical significance suggests that both methods are equally reliable for DMFT evaluations.

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The results of this study are particularly relevant in the context of oral healthcare in Africa, where there is a high burden of oral diseases and limited access to dental care. The World Health Organization (WHO) reported that the African region had the highest increase (120%) in caries in permanent teeth between 1990 and 2019. An estimated 480 million people in Africa, or 43.7% of the population, suffered from some form of oral disease in 2019. This burden is disproportionately borne by vulnerable and low-income populations, who often lack access to essential dental services. In South Africa, the prevalence of dental caries is alarmingly high, particularly among children. Kimmie-Dhansay et al. (2022) highlighted the increasing prevalence of dental caries in the country, particularly in underserved populations. South Africa faces significant disparities in access to healthcare, exacerbated by socioeconomic inequalities. Despite being an upper-middle-income country, with a population of 59.62 million, a large proportion of the population relies on public healthcare services, which are often under-resourced and overburdened.

The use of teledentistry presents a promising solution to address these challenges by providing remote access to dental consultations and improving the early detection of dental conditions**.** The present study findings suggest that teledentistry can serve as a reliable alternative to traditional dental screening methods, particularly in areas with limited access to dental care. By utilizing technology, teledentistry can bridge the gap in healthcare access, allowing for earlier diagnosis and treatment of oral diseases, which is crucial in preventing the progression of dental conditions and reducing the overall burden of oral disease. Moreover, the implementation of teledentistry aligns with the goals of South Africa's upcoming National Health Insurance (NHI) system, which aims to provide equitable access to quality healthcare for all citizens, regardless of their socioeconomic status. Teledentistry could play a vital role in the NHI's success by streamlining dental care delivery, reducing waiting times, and ensuring that dental services reach even the most remote and underserved populations. This aligns with the broader goal of universal health coverage (UHC) and the integration of oral health into primary healthcare.

The present study underscores the potential of teledentistry as a reliable and valid alternative to traditional dental screening methods. The high levels of agreement and strong correlation between clinical and photographic DMFT scores affirm its capability to accurately diagnose dental conditions, particularly in regions with limited access to dental care. In the context of South Africa's ongoing efforts to implement the National Health Insurance (NHI), teledentistry could play a pivotal role in enhancing equitable access to oral healthcare across diverse populations. By integrating technology, this approach has the capacity to transform dental care delivery, improving oral health outcomes while reducing the prevalence and burden of dental diseases in resource-constrained settings.

The findings further establish that standardized photographic methods yield accurate representations of clinical scenarios, validating teledentistry as a robust alternative for remote dental assessments. The study emphasizes the method's accuracy, consistency, and reliability, showcasing its viability for routine dental consultations, particularly in underserved areas. By employing consistent evaluation protocols, teledentistry demonstrates its effectiveness in bridging the gap between traditional care and remote access, highlighting its applicability in public health strategies aimed at improving oral health equity. These results present compelling evidence that teledentistry can serve as a scalable solution for addressing dental care disparities, offering a cost-effective, efficient, and sustainable model for delivering oral health services.

RECOMMENDATIONS

The implementation of teledentistry in South Africa presents a promising opportunity to enhance oral healthcare access, particularly in underserved and remote areas. Key recommendations for successful integration include regulatory measures, technical infrastructure, skill development, socioeconomic considerations, partnerships, funding, and incorporating teledentistry into the National Health Insurance (NHI) system.

Regulatory measures should be promulgated in collaboration with the Health Professions Council of South Africa (HPCSA) to establish legal frameworks, licensure requirements, and standards for teledentistry. Data privacy must be ensured by using secure, encrypted platforms, and quality assurance measures should cover equipment standards, data preservation, and skill training.

With regard to technical infrastructure requirements, it will be essential to begin in areas that have adequate internet access and to forge partnerships with telecommunication providers to expand services to remote regions. Reliable and user-friendly platforms, high-resolution intraoral cameras, and integration with existing electronic health records are critical. Furthermore, enhancement of technical skills is vital, and will require thorough training for dental professionals and educating patients about teledentistry services. In addition, socio-economic factors must be addressed by developing affordable service models, considering government subsidies, and ensuring cultural and linguistic inclusivity.

Collaborations and funding through public-private partnerships, domestic and international sources, and pilot programs will be essential to assess and expand the field and outreach of teledentistry. Teledentistry can be a useful tool for oral disease surveillance, providing early detection and ongoing monitoring. Integrating teledentistry into the NHI system is crucial, and healthcare facilities need to be equipped with necessary tools like smartphones and intraoral mirrors.

CONCLUSION

Teledentistry offers a ground-breaking solution to the most pressing challenges in oral healthcare, including geographic and economic barriers that limit access to care. By enabling remote screenings and consultations, it addresses delays in diagnosis, promotes early intervention, and streamlines treatment planning. The present study highlighted the transformative potential of teledentistry to revolutionize dental care delivery, particularly in underserved and resource-limited areas.

Through its integration into healthcare systems, teledentistry provides a reliable, technology-driven approach to bridging service gaps and enhancing oral health equity. By reducing logistical barriers, it ensures timely access to care, improving diagnosis and treatment outcomes for populations traditionally excluded from regular dental services.

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The findings of the present study reinforce teledentistry's capacity to redefine oral healthcare delivery. By leveraging accessible and adaptable technology, it offers a sustainable pathway to enhance the efficiency and reach of dental care. In underserved areas, teledentistry holds the promise of transforming dental service provision, ensuring that critical oral health needs are met effectively and equitably. This innovative approach not only improves patient outcomes but also addresses systemic barriers, fostering a future where high-quality oral healthcare is universally accessible.

CONFLICT OF INTEREST

The authors declare that the manuscript was created without any commercial or financial associations that may give rise to a conflict of interest.

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None

REFERENCES

1. Cumbo E, Gallina G, Messina P, Scardina GA. Alternative Methods of Sterilization in Dental Practices Against COVID-19. International Journal of Environmental Research and Public Health. 2020 Aug 8;17(16):5736.
2. Madonsela P. Telehealth services on the up as COVID-19 maintains grip [Internet]. Health-e News. 2021 [cited 2025 Jan 14]. Available from: https://health-e.org.za/2021/08/17/telehealth-services-on-the-up-as-covid-19-maintains-grip/
3. Tanser F, Gijsbertsen B, Herbst K. Modelling and understanding primary health care accessibility and utilization in rural South Africa: An exploration using a geographical information system. Social Science & Medicine. 2006 Aug;63(3):691–705.
4. Sibahle Malinga. Telehealth untapped in local healthcare industry [Internet]. ITWeb. 2019 [cited 2025 Jan 14]. Available from: https://www.itweb.co.za/article/telehealth-untapped-in-local-healthcare-industry/G98YdMLxBBBMX2PD
5. Department of Health. NATIONAL HEALTH INSURANCE BILL [Internet]. 2023 [cited 2025 Jan 14]. Available from: https://www.health.gov.za/wp-content/uploads/2023/07/NHI-Bill-2023.pdf
6. World Health Organization. Oral health [Internet]. World Health Organization. 2024 [cited 2025 Jan 14]. Available from: https://www.who.int/news-room/fact-sheets/detail/oral-health
7. Alabdullah JH, Daniel SJ. A Systematic Review on the Validity of Teledentistry. Telemedicine and e-Health. 2018 Aug;24(8):639–48.
8. Guo S, Chen Y, Mallineni SK, Huang S, Liu B, Zhang S, et al. Feasibility of oral health evaluation by intraoral digital photography: a pilot study. Journal of International Medical Research. 2021 Feb;49(2):030006052098284.
9. Wu J, Xie X, Yang L, Xu X, Cai Y, Wang T, et al. Mobile health technology combats COVID-19 in China. Journal of Infection [Internet]. 2020 Jul 27;82(1). Available from: https://www.sciencedirect.com/science/article/pii/S0163445320305053
10. Fortuin J, Naidoo S. Opportunities for Teledentistry in South Africa. South African Dental Journal . 2015;70(8):342–6.
11. Smit D, Osman Y. The availability of the basic oral health care package in the Western Cape. South African Dental Journal. 2017;72(6).
12. Tiwari R, Bhayat A, Chikte U. Forecasting for the need of dentists and specialists in South Africa until 2030. Goli S, editor. PLOS ONE. 2021 May 17;16(5):e0251238.
13. Wakhloo T, Reddy G, Chug A, Dhar M. Relevance of teledentistry during the COVID-19 pandemic. Journal of Family Medicine and Primary Care. 2020;9(8):4494.
14. Estai M, Winters J, Kanagasingam Y, Shiikha J, Checker H, Kruger E, et al. Remote dental screening by dental therapists. BDJ Team. 2016 Nov;3(10).
15. Thompson T, Brophy T, Modgil V, Pearce I. Remote healthcare consultations: the new era of outpatient medicine. Trends in Urology & Men's Health. 2020 Sep;11(5):25–8.
16. Department of Health. National Health Insurance in South Africa [Internet]. South African Department ofHealth; 2011 [cited 2025 Jan 14]. Available from: https://www.gov.za/sites/default/files/nationalhealthinsurance.pdf
17. Matsoso MP, Fryatt R. National Health Insurance: The first 18 months. SAMJ: South African Medical Journal [Internet]. 2013 [cited 2025 Jan 14];103(3):154–5. Available from: https://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0256-95742013000300021
18. Simnikiwe Mzekandaba. Minister wants coherent e-health services [Internet]. ITWeb. 2015 [cited 2025 Jan 14]. Available from: https://www.itweb.co.za/article/minister-wants-coherent-e-health-services/APero3MZE1a7Qb6m
19. Hunter P. The spread of the COVID -19 coronavirus. EMBO reports. 2020 Mar 17;21(4).
20. Ghai S. Teledentistry during COVID-19 pandemic. Diabetes & Metabolic Syndrome: Clinical Research & Reviews. 2020 Sep;14(5):933–5.
21. Masoni M, Guelfi MR. WhatsApp and other messaging apps in medicine: opportunities and risks. Internal and Emergency Medicine. 2020 Feb 15;15(2):171–3.
22. Department of Health Western Cape. vula-app@westerncape.gov.za VULA MOBILE PUTS HEALTHCARE WORKERS DIRECTLY IN TOUCH WITH ON-CALL SPECIALISTS, MAKING THE REFERRAL PROCESS MUCH QUICKER THAN BY FAX OR PHONE. 18 SPECIALITIES AND GROWING 0 TRAINING REQUIRED E-REFERRAL PLATFORM FOR THE PROVINCE VULA E-REFFERAL APP HOW DO I JOIN? VULA MOBILE IS NOW THE OFFICIAL E-REFFERAL APP OF THE WESTERN CAPE DEPARTMENT OF HEALTH [Internet]. 2019 [cited 2025 Jan 14]. Available from: https://d7.westerncape.gov.za/assets/departments/health/FP/vula_poster_-_12.3.2019_2.pdf
23. Lambrechts A. Home [Internet]. Vula Mobile. 2021 [cited 2025 Jan 14]. Available from: https://www.vulamobile.com/
24. Patterson S, Botchway C. Dental screenings using telehealth technology: a pilot study. Journal (Canadian Dental Association) [Internet]. 1999 Jan 1;64(11):806–10. Available from: https://www.researchgate.net/publication/13410115_Dental_screenings_using_telehealth_technology_a_pilot_study
25. Kopycka-Kedzierawski DT, Billings RJ, McConnochie KM. Dental screening of preschool children using teledentistry: a feasibility study. Pediatric Dentistry [Internet]. 2007 May 1;29(3):209–13. Available from: https://pubmed.ncbi.nlm.nih.gov/17688017/
26. Boye U, Willasey A, Walsh T, Tickle M, Pretty IA. Comparison of an intra-oral photographic caries assessment with an established visual caries assessment method for use in dental epidemiological studies of children. Community Dentistry and Oral Epidemiology. 2013 Apr 9;41(6):526–33.
27. Bissessur S, Naidoo S. A comparative analysis of traditional dental screening versus teledentistry screening. South African Dental Journal. 2019;74(1).
28. Cachalia F, Klaaren J. A South African Public Law Perspective on Digitalisation in the Health Sector. Digital Pathways at Oxford Paper Series [Internet]. 2021 Jul 16;15. Available from: https://www.bsg.ox.ac.uk/sites/default/files/2021-07/A%20South%20Africa%20public%20law%20perspective%20on%20digitalisation%20in%20the%20health%20sector.pdf
29. National Department of Health Republic of South Africa. National Digital Health Strategy for South Africa 2019 – 2024. Pretoria: National Department of Health Republic of South Africa; 2019 p. 1–36.
30. South African Government. Protection of Personal Information Act 4 of 2013 | South African Government [Internet]. www.gov.za. 2013. Available from: https://www.gov.za/documents/protection-personal-information-act

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The Continuing Professional Development (CPD) section provides for twenty general questions and five ethics questions. The section provides members with a valuable source of CPD points whilst also achieving the objective of CPD, to assure continuing education. The importance of continuing professional development should not be underestimated, it is a career-long obligation for practicing professionals.