SCALING UP DIGITAL HEALTH IN CONFLICT COUNTRIES

To the Editor

While many developed countries forge ahead in the development and adoption of digital health technologies, the situation is very different in conflict-prone countries like Afghanistan, Somalia and Sudan. The Digital Health Index makes it clear that while a relatively peaceful country like Portugal has a fully-functional government-led body, digital health in conflict-ridden Afghanistan has no coordinating body. Furthermore, digital health makes up 1-3% of the annual spending of the public in Portugal[1] but for Afghanistan, not only is the story different, there is no national digital health strategy and no available data on annual public spending on digital health.[1] Certainly, there is much to be done. However, many health technology companies are usually found in developed countries where the political climate is more favourable and the potential for economic gains is high. But, can we blame them?

Consequently, the health indices in conflict-prone countries are relatively poor. For example, the infant mortality rate in South Sudan is 62 per 1,000 live births compared to 3 per 1,000 live births in Denmark.[2] Similarly, about 25% of children aged under-five have stunted growth in Somalia as opposed to about 2% in Australia.[3] In Afghanistan, the coverage for facility birth delivery, antenatal care, skilled birth attendants, oral rehydration therapy and Diphtheria-Tetanus-Pertussis vaccination is significantly lower for severe conflict provinces compared to the minimal conflict provinces. Also, the mean difference in the coverage of exclusive breastfeeding under 6 months and BCG (Bacillus Calmette–Guérin) vaccination is significantly higher in severe conflict provinces compared to the minimal conflict ones. However, there was no significant difference in the coverage of care-seeking for acute respiratory infections and contraceptives.[4] Also, there is lack of access to essential healthcare services in conflict-related countries, e.g in Afghanistan 23% of the population has poor access to healthcare resulting in a high mortality rate in the country.[5] These problems can be significantly improved as evident in Rwanda which used to be a conflict country but now has one of the best healthcare systems in Africa due to the use of digital health services.[6,7]

Digital health has a very wide spectrum of application from point-of-care diagnostics to portable imaging, biomarker sensing and patient-reported symptoms. Where available, it is becoming an essential component of clinical decision making, chronic disease management, telehealth services, prevention and wellness along with disaster support and care. Health researchers rely on digital health platforms for clinical trials, assessment and screening, treatment and screening, treatment adherence and post-market surveillance of devices.[8]

India, a relatively peaceful developing country is embracing the immense power of digital health in ending the relentless scourge of tuberculosis as it had a record-breaking 2.15 million new tuberculosis case notifications which signify an increase of 300,000 cases within one year.[9] A number of systematic reviews has found digital health interventions to be more effective and more efficient (especially for cardiovascular, musculoskeletal and psychological interventions).[10-12] Putting this altogether, digital health is not just creating the future, it is the future of healthcare.

We are concerned about the slow influx of high level and unprecedented healthcare innovations in conflict-prone regions not only because of their relatively poor health indices which can be significantly improved by these disruptive innovations, but also because their absence will further hinder achievement of the Sustainable Development Goals by 2030. Unsurprisingly, The World Health Organization expressed their worries in the draft Global Strategy on Digital Health[13] that makes a clarion call to countries lagging behind in their Digital Health journey to embrace and support its growth by bridging the capacity-gap, building collaborative structures and supportive digital health policy frameworks among others.

Furthermore, with a projected global shortage of skilled healthcare professionals of 12.9 million by 2035,[14] which will affect more conflict-prone countries as healthcare workers continue to flee from these risky regions, there is a need for innovative healthcare technologies to bridge this huge gulf.

The presence of 54Gene, a genomics start-up recently founded in Nigeria despite the country's on-going full-scale war with Boko-Haram terrorists is a welcome development. 54Gene aims to accelerate genomic studies in the world's most genetically-diverse continent that currently represents less than 2% in the global genomic dataset.[15] However, 54Gene's story is an exceptional story as it was able to secure US$4.5 million in seed funding. This is not the case of many health tech companies in conflict-ridden countries around the world.

There is an urgent need for a strong collaborative, research-oriented and capacity-driven digital health framework that will deliver on the promise of a value-based digital healthcare revolution in many of these unstable countries that have their healthcare systems hanging on life-support.[16] Until then, the world cannot boast of a technologically-driven and advanced healthcare that truly leaves no one behind.

Isaac Iyinoluwa Olufadewa MHS[1,2,3]

Miracle Ayomikun Adesina BPT[1,2]

[1] College of Medicine, University of Ibadan, Ibadan, Nigeria
[2] Slum and Rural Health Initiative Research Academy, Ibadan, Nigeria
[3] Pan African University of Life and Earth Sciences, Ibadan, Nigeria
Email: isaacolufadewa@yahoo.com

………………………………………………………………

References

1. Global Digital Health Index. (2020). World Map. Available at: https://index.digitalhealthindex.org/map accessed 21 Sept 2020.
2. UNICEF. (2020). Key demographic indicators. Available at: https://data.unicef.org/country/ accessed 21 Sept 2020.
3. Global Nutrition Report. (2019). Country nutrition profiles. Available at: https://globalnutritionreport.org/resources/nutrition-profiles/ accessed 21 Sept 2020.
4. Mirzazada S, Padhani ZA, Jabeen S, et al. Impact of conflict on maternal and child health service delivery: a country case study of Afghanistan. *Confl Health* 2020;14:38. DOI: 10.1186/s13031-020-00285-x.
5. Editorial. *Lancet* 2020;395(10228):921. DOI: 10.1016/S0140-6736(20)30643-7.
6. Ngoc CT, Bigirimana N, Muneene D, et al. Conclusions of the digital health hub of the Transform Africa Summit (2018): strong government leadership and public-private-partnerships are key prerequisites for sustainable scale up of digital health in Africa. *BMC Proc* 2018;12(17). DOI: 10.1186/s12919-018-0156-3.
7. The African Exponent. (2020). Top 10 countries with improved healthcare system in Africa 2020. Available at: https://www.african.exponent.com/post/7167-top-10-african-countries-with-best-healthcare-system-2020 accessed 21 September 2020.
8. Christina J, Dasgupta N, Jordan M, et al. Digital Health and Patient Registries: Today, Tomorrow, and the Future. In: Gliklich RE, Dreyer NA, Leavy MB, et al., editors. *21st Century Patient Registries: Registries for Evaluating Patient Outcomes: A User's Guide: 3rd Edition*, Addendum [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2018. Available at: https://www.ncbi.nlm.nih.gov/books/NBK493818/ accessed 21 Sept 2020.
9. Nadda JP. India's leadership to end tuberculosis. *Lancet* 2019;393:1270-1272. DOI: 10.1016/S0140-6736(19)30487-8.
10. Jiang X, Ming WK, You JH. The cost-effectiveness of digital health interventions on the management of cardiovascular diseases: systematic review. *J Med Internet Res* 2019;21(6):e13166. DOI: 10.2196/13166.
11. Hewitt S, Sephton R, Yeowell G. The effectiveness of digital health interventions in the management of musculoskeletal conditions: systematic literature review. *J Med Internet Res* 2020;22(6):e15617. DOI: 10.2196/15617.
12. Fu Z, Burger H, Arjadi R, Bockting CLH. Effectiveness of digital psychological interventions for mental health problems in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Psychiatry* 2020;7(10):851-864. DOI: 10.1016/S2215-0366(20)30256-X.
13. World Health Organization. Global Strategy on Digital Health 2020-2024. Geneva: World Health Organization, 2019. Available at: https://www.who.int/docs/default-source/documents/gs4dh.pdf? accessed 21 Sept 2020.
14. WHO. (2013). Global health workforce shortage to reach 12.9 million in coming decades. Geneva: World Health Organization. Available at: https://www.who.int/mediacentre/news/releases/2013/health-workforce-shortage/en/ accessed 21 Sept 2020.
15. Adepoju P. Africa's first biobank start-up receives seed funding. *Lancet* 2019;394(10193):108. DOI: 10.1016/S0140-6736(19)31614-916.
16. Olufadewa II, Adesina MA, Ayorinde T. From Africa to the World: Reimagining Africa's research capacity and culture in the global knowledge economy. *J Glob Health* 2020;10(1):010321. DOI: 10.7189/jogh.10.010321.