

**A NEW BEGINNING IN HEALTH:
SOLUTIONS FOR SOMALIA'S
EMERGENCY HEALTH SERVICES**

Uğur DURMUŞ



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A PERSONAL JOURNEY: THE ROUTE TO SOMALIA

As an emergency medicine specialist, my journey into the world of healthcare commenced long before I stepped into a clinic or hospital to work. Those born only a few decades ago will remember how difficult it was to live in Istanbul in the 1980s, how difficult it was to get to the hospital and receive healthcare, and how it was considered a shame in society. The prevailing attitude was that seeking medical attention was to be avoided unless absolutely necessary. In the event of a serious health concern, individuals would meticulously prepare for their morning examination by donning their finest attire in the evening, as if it were a grand occasion. However, the advent of enhanced healthcare services, which have become increasingly accessible over time, has led to a notable transformation in this regard. Following the completion of my medical education and the commencement of my career, I encountered certain setbacks that garnered my attention, akin to those experienced by many individuals. However, it became evident that a paradigm shift had occurred over the past three decades, one that was unparalleled in history.

In 2021, following my own voluntary application to the Ministry of Health, I was assigned as an Emergency Medicine Specialist Physician to the Recep Tayyip Erdoğan Training and Research Hospital of the Ministry of Health in Mogadishu, the capital of Somalia. I was acutely aware of the inequalities in access and quality of healthcare services, especially in regions like Somalia where conflict and instability have a profound impact on the health of the existing population.

My initial encounter with the gravity of Somali health challenges occurred when I entered the emergency room and met my residents, a memory that remains vividly etched in my mind. The moment I encountered a patient in a state of extreme discomfort, with their body stretched like a bow (a condition known as “opisthotonus” in medical literature), was a poignant reminder of the stark disparities I had previously only encountered in medical literature. This condition, known as opisthotonus, is typically observed in cases of tetanus infection, a condition that I had previously encountered only in medical literature. The scarcity of the tetanus vaccine, which is widely available in Turkish healthcare facilities, underscored the severity of the situation. This experience profoundly impacted me, awakening a newfound sense of urgency for effective emergency health services and the remarkable resilience of the Somali people in the face of adversity.

Over the months that followed, I had the privilege of working alongside dedicated health professionals striving to improve health outcomes in Somalia. Every interaction, every story shared, deepened my understanding of the complexities surrounding healthcare delivery in emergencies. I learned that while the challenges are immense, so are the opportunities for innovation and collaboration. These experiences fuelled my passion to advocate for better health solutions in Somalia. The conviction that by sharing these narratives and insights, in collaboration with the reader, we can inspire action and cultivate a collective commitment to enhancing health services for those in need, is paramount. This book is not merely a reflection of the prevailing emergency health services in Somalia; it is a clarion call for all of us to contribute to a new beginning in health solutions.

I invite you to join me on this journey as we explore the chapters ahead. The exploration of the historical context, current challenges and innovative solutions that can pave the way to a healthier future for Somalia will be conducted in collaboration with the reader.

Uğur DURMUŞ

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1. Ahmed, Z., Ataullahjan, A., Gaffey, M. F., Osman, M., Umutoni, C., Bhutta, Z. A., & Dalmar, A. A. (2020). Understanding the factors affecting the humanitarian health and nutrition response for women and children in Somalia since 2000: a case study. *Conflict and Health*, 14, 1-15.
2. Mohamed, A. O. (2022). Modeling and forecasting Somali economic growth using ARIMA models. *Forecasting*, 4(4), 1038-1050.
3. Ibrahim, M., Rizwan, H., Afzal, M., & Malik, M. R. (2022). Mental health crisis in Somalia: a review and a way forward. *International Journal of Mental Health Systems*, 16(1), 12.
4. Banke-Thomas, A., Balogun, M., Wright, O., Ajayi, B., Abejirinde, I. O. O., Olaniran, A., ... & Afolabi, B. B. (2020). Reaching health facilities in situations of emergency: qualitative study capturing experiences of pregnant women in Africa's largest megacity. *Reproductive Health*, 17, 1-15.
5. Jama, M. A., Majdzadeh, R., Reynolds, T., Nur, I. M., Ismail, A. A., Mohamud, N. A., ... & Nur, F. A. (2023). Revising the essential package of health services through stakeholder alignment, Somalia. *Bulletin of the World Health Organization*, 101(11), 738.
6. Ahmed, A. D., & CAPTAIN, D. A. (2020). Al-Shabaab's reign of terror in Somalia: understanding factors contributing to the group's long-term survival in Somalia since 2006 (Doctoral dissertation, Fort Leavenworth, KS: US Army Command and General Staff College).
7. Tambo, E., Djuikoue, I. C., Tazemda, G. K., Fotsing, M. F., & Zhou, X. N. (2021). Early stage risk communication and community engagement (RCCE) strategies and measures against the coronavirus disease 2019 (COVID-19) pandemic crisis. *Global Health Journal*, 5(1), 44-50.
8. Mansournia, M. A., Collins, G. S., Nielsen, R. O., Nazemipour, M., Jewell, N. P., Altman, D. G., & Campbell, M. J. (2021). A checklist for statistical assessment of medical papers (the CHAMP statement): explanation and elaboration. *British journal of sports medicine*, 55(18), 1009-1017.
9. Van Der Linden, S. (2022). Misinformation: susceptibility, spread, and interventions to immunize the public. *Nature medicine*, 28(3), 460-467.

10. Prunier, G. (2021). *The country that does not exist: A history of Somaliland*. Oxford University Press.
11. Mathijssen, A., & Mathijssen, F. P. (2020). Diasporic medical tourism: a scoping review of quantitative and qualitative evidence. *Globalization and Health*, 16, 1-15.
12. Omar, Y. S. (2020). Knowledge and skills transfer as peace-building mechanisms: A study of the Somali diaspora. In *Multidisciplinary issues surrounding African diasporas* (pp. 245-264). IGI Global.
13. Nanthambwe, P. (2024). Embodied grace: The implications of the incarnation to public practical theology in Sub-Saharan Africa. *HTS Teologiese Studies/Theological Studies*, 80(1), 9684.
14. Hatala, A. R., & Roger, K. (Eds.). (2021). *Spiritual, religious, and faith-based practices in chronicity: an exploration of mental wellness in global context*. Routledge.
15. Hassan, M. O., Ling, G. H. T., Rusli, N., Mokhtar, S., Wider, W., & Leng, P. C. (2023). Urban sprawl patterns, drivers, and impacts: the case of mogadishu, somalia using geo-spatial and SEM analyses. *Land*, 12(4), 783.
16. Ahmed, M. A. A. (2023). The capacity building and public service delivery in mogadishu municipality, banadir region, somalia. *Multi-disciplinary Journal of Horseed International University (MJHIU)*, 1(1), 15-45.
17. Bagchi, A. *The Developmental Phase of Private Health Care Sector: History of Nursing Homes in the Early Years after Independence in Kolkata*. HERITAGE, 12.
18. Ibrahim, M., Rizwan, H., Afzal, M., & Malik, M. R. (2022). Mental health crisis in Somalia: a review and a way forward. *International Journal of Mental Health Systems*, 16(1), 12.
19. Ali, M. A., Ahmad, F., & Morrow, M. (2021). Somali's perceptions, beliefs and barriers toward breast, cervical and colorectal cancer screening: a socioecological scoping review. *International Journal of Migration, Health and Social Care*, 17(2), 224-238.
20. Betancourt, T. S., Keegan, K., Farrar, J., & Brennan, R. T. (2020). The intergenerational impact of war on mental health and psychosocial wellbeing: lessons from the longitudinal study of war-affected youth in Sierra Leone. *Conflict and health*, 14, 1-8.
21. Deressa, W., Kayembe, P., Neel, A. H., Mafuta, E., Seme, A., & Alonge, O. (2020). Lessons learned from the polio eradication initiative in the Democratic Republic of Congo and Ethiopia: analysis of implementation barriers and strategies. *BMC Public Health*, 20, 1-15.

22. De Coning, C., Yaw Tchie, A. E., & Grand, A. O. (2022). Ad-hoc Security Initiatives, an African response to insecurity. *African security review*, 31(4), 383-398.
23. Hamza, M. K., & Hicks, M. H. R. (2021). Implementation of mental health services in conflict and post-conflict zones: Lessons from Syria. *Avicenna Journal of Medicine*, 11(01), 8-14.
24. Lal, A., Erondu, N. A., Heymann, D. L., Gitahi, G., & Yates, R. (2021). Fragmented health systems in COVID-19: rectifying the misalignment between global health security and universal health coverage. *The Lancet*, 397(10268), 61-67.
25. Mohamed, A. A., Bocher, T., Magan, M. A., Omar, A., Mutai, O., Mohamoud, S. A., & Omer, M. (2021). Experiences from the field: a qualitative study exploring barriers to maternal and child health service utilization in IDP settings Somalia. *International Journal of Women's Health*, 1147-1160.
26. Farih, O. A., Ali, A. O., Abokor, A. H., Ali, M. A., Egge, A. A. A., & Muse, A. H. (2024). Prevalance and determinants of hypertension among adults in Somalia using Somalia demographic health survey data, SDHS 2020. *Current Problems in Cardiology*, 102783.
27. Homer, C. S., Turkmani, S., Wilson, A. N., Vogel, J. P., Shah, M. G., Fogstad, H., & Langlois, E. V. (2022). Enhancing quality midwifery care in humanitarian and fragile settings: a systematic review of interventions, support systems and enabling environments. *BMJ Global Health*, 7(1), e006872.
28. Aburto, J. M., Villavicencio, F., Basellini, U., Kjærgaard, S., & Vaupel, J. W. (2020). Dynamics of life expectancy and life span equality. *Proceedings of the National Academy of Sciences*, 117(10), 5250-5259.
29. Bakonyi, J., & Chonka, P. (2023). *Precarious Urbanism: Displacement, Belonging and the Reconstruction of Somali Cities*. Policy Press.
30. Kassim, S. A., Cote, A., Kassim, S. M., Abbas, M., Baig, M. M. F. A., Ahmed, A. M., ... & Chen, R. (2021). Factors influencing treatment outcomes of tuberculosis patients attending health facilities in Galkayo Puntland, Somalia. *Journal of Public Health*, 43(4), 887-895.
31. Sofo, A. A. (2020). Assessment of corruption in the humanitarian assistance in Puntland State of Somalia. *Journal of Financial Crime*, 27(1), 104-118.

32. Rios, R. G. (2024). *The Impact of Clan Identity on Food Insecurity in Somalia: Examining the Aftermath of State Collapse* (Doctoral dissertation, American Public University System).
33. Anderson, M., Pitchforth, E., Asaria, M., Brayne, C., Casadei, B., Charlesworth, A., ... & Mossialos, E. (2021). LSE–Lancet Commission on the future of the NHS: re-laying the foundations for an equitable and efficient health and care service after COVID-19. *The Lancet*, 397(10288), 1915-1978.
34. Newman, M., & Leochico, C. F. D. (2022). Promoting disaster preparedness for children with special healthcare needs: A scoping review. *The Journal of Climate Change and Health*, 8, 100145.
35. Eba, K., Gerbaba, M. J., Abera, Y., Tadesse, D., Tsegaye, S., Abrar, M., ... & Medhin, G. (2023). Mobile health service as an alternative modality for hard-to-reach pastoralist communities of Afar and Somali regions in Ethiopia. *Pastoralism*, 13(1), 17.
36. Ho, A. F. W., De Souza, N. N. A., Blewer, A. L., Wah, W., Shahidah, N., White, A. E., ... & Ong, M. E. H. (2020). Implementation of a national 5-year plan for prehospital emergency care in Singapore and impact on out-of-hospital cardiac arrest outcomes from 2011 to 2016. *Journal of the American Heart Association*, 9(21), e015368.
37. Abrokwa, S. K., Ruby, L. C., Heuvelings, C. C., & Belard, S. (2022). Task shifting for point of care ultrasound in primary healthcare in low-and middle-income countries-a systematic review. *EClinical-Medicine*, 45.
38. Zemedie, B., Sultan, M., & Zewdie, A. (2021). Acute poisoning cases presented to the Addis Ababa burn, emergency, and trauma hospital emergency department, Addis Ababa, Ethiopia: a cross-sectional study. *Emergency medicine international*, 2021(1), 6028123.
39. Lee, Y. S., Behn, M., & Rexrode, K. M. (2021). Women's health in times of emergency: We must take action. *Journal of women's health*, 30(3), 289-292.
40. Lugada, E., Komakech, H., Ochola, I., Mwebaze, S., Olowo Oteba, M., & Okidi Ladwar, D. (2022). Health supply chain system in Uganda: current issues, structure, performance, and implications for systems strengthening. *Journal of pharmaceutical policy and practice*, 15(1), 14.
41. Banda, G., Mugwagwa, J., Mackintosh, M., & Mkwashi, A. (2022). *The Localisation of Medical Manufacturing in Africa*.
42. Salad, A. M., Malik, S. M. M. R., Ndithia, J. M., Noor, Z., Madeo, M., & Ibrahim, M. (2023). Prevalence of mental disorders and psy-

- chological trauma among conflict-affected population in Somalia: a cross-sectional study. *Frontiers in Public Health*, 11, 1219992.
43. Coombs, N. C., Campbell, D. G., & Caringi, J. (2022). A qualitative study of rural healthcare providers' views of social, cultural, and programmatic barriers to healthcare access. *BMC Health Services Research*, 22(1), 438.
 44. Said, A. S., & Kicha, D. I. (2024). Implementing health system and the new federalism in Somalia: challenges and opportunities. *Frontiers in Public Health*, 12, 1205327.
 45. Jadalrb, A. I. I. (2022). Community Private Organization and Health Service Delivery in Mogadishu, Somalia.
 46. Sambili, E., & Ngeno, N. (2022). Growth and Economic Transformation Strategy (Gets) for Somalia: Social Sector-Education and Health for Women and Youth Empowerment.
 47. Ssendagire, S., Mohamoud, S. A., Bashir, F., Jamal, M. A., Bulale, M., Azad, A., ... & Malik, S. M. M. R. (2023). Health research prioritization in Somalia: setting the agenda for context specific knowledge to advance universal health coverage. *Frontiers in Public Health*, 11, 1202034.
 48. De Waal, A. (2020). Somalia's disassembled state: clan unit formation and the political marketplace. *Conflict, Security & Development*, 20(5), 561-585.
 49. Hussein, M., Law, C., & Fraser, I. (2021). An analysis of food demand in a fragile and insecure country: Somalia as a case study. *Food Policy*, 101, 102092.
 50. Dahir, A., & Sheikh Ali, A. Y. (2024). Federalism in post-conflict Somalia: A critical review of its reception and governance challenges. *Regional & Federal Studies*, 34(1), 87-106.
 51. Lwanga-Ntale, C., & Owino, B. O. (2020). Understanding vulnerability and resilience in Somalia. *Jambá: Journal of Disaster Risk Studies*, 12(1).
 52. Raballand, G., Fiebelkorn, A., Heidenhof, G., & Schmidt, K. (2022). Reflections on the future role of the state in Somalia from the perspective of aid effectiveness. *Development Policy Review*, 40(1), e12549.
 53. Recchia, S. (2020). Pragmatism over principle: US intervention and burden shifting in Somalia, 1992–1993. *Journal of Strategic Studies*, 43(3), 341-365.
 54. Hassanain, S. A., Eltahir, A., & Elbadawi, L. I. (2022, June). Freedom, Peace, and Justice: A new paradigm for the Sudanese health

- system after Sudan's 2019 Uprising. *Economic Research Forum (ERF)*.
55. Odhiambo, J., Jeffery, C., Lako, R., Devkota, B., & Valadez, J. J. (2020). Measuring health system resilience in a highly fragile nation during protracted conflict: South Sudan 2011–15. *Health policy and planning*, 35(3), 313-322.
 56. Valadez, J. J., Berendes, S., Odhiambo, J., Vargas, W., Devkota, B., Lako, R., & Jeffery, C. (2020). Is development aid to strengthen health systems during protracted conflict a useful investment? The case of South Sudan, 2011–2015. *BMJ Global Health*, 5(4), e002093.
 57. Belaid, L., Bayo, P., Kamau, L., Nakimuli, E., Omoro, E., Lobor, R., ... & Dimiti, A. (2020). Health policy mapping and system gaps impeding the implementation of reproductive, maternal, neonatal, child, and adolescent health programs in South Sudan: a scoping review. *Conflict and health*, 14, 1-16.
 58. Widdig, H., Tromp, N., Lutwama, G. W., & Jacobs, E. (2022). The political economy of priority-setting for health in South Sudan: a case study of the Health Pooled Fund. *International Journal for Equity in Health*, 21(1), 68.
 59. Jafer, E., Imana, G., Doda, Z., & Lemessa, A. (2022). Post conflict-induced displacement: Human security challenges of internally displaced persons in Oromia Special Zone Surrounding Finfinne, Ethiopia. *Cogent Social Sciences*, 8(1), 2103252.
 60. Haldane, V., De Foo, C., Abdalla, S. M., Jung, A. S., Tan, M., Wu, S., ... & Legido-Quigley, H. (2021). Health systems resilience in managing the COVID-19 pandemic: lessons from 28 countries. *Nature medicine*, 27(6), 964-980.
 61. Sheikh, A., Anderson, M., Albala, S., Casadei, B., Franklin, B. D., Richards, M., ... & Mossialos, E. (2021). Health information technology and digital innovation for national learning health and care systems. *The Lancet Digital Health*, 3(6), e383-e396.
 62. Ahmed, A. Y., Nor, F. A., Ahmed, M. Y., & Osman, M. M. (2023). Universal Health Coverage in Somalia: Charting the Path to Equitable Healthcare Financing and Governance. *Health*, 15(11), 1298-1317.
 63. World Health Organization. (2022). Country cooperation strategy for WHO and Somalia 2021–2025.
 64. El Bizri, L., Jarrar, L. G., Ali, W. K. A., & Omar, A. H. (2021). The role of community pharmacists in increasing access and use of self-care interventions for sexual and reproductive health in the Eastern

- Mediterranean Region: examples from Egypt, Jordan, Lebanon and Somalia. *Health Research Policy and Systems*, 19, 1-11.
65. Garber, K., Fox, C., Abdalla, M., Tatem, A., Qirbi, N., Lloyd-Braff, L., ... & Hassen, K. (2020). Estimating access to health care in Yemen, a complex humanitarian emergency setting: a descriptive applied geospatial analysis. *The Lancet Global Health*, 8(11), e1435-e1443.
 66. Dureab, F., Hussain, T., Sheikh, R., Al-Dheeb, N., Al-Awlaqi, S., & Jahn, A. (2021). Forms of health system fragmentation during conflict: the case of Yemen. *Frontiers in Public Health*, 9, 659980.
 67. Tappis, H., Elaraby, S., Elnakib, S., AlShawafi, N. A. A., BaSaleem, H., Al-Gawfi, I. A. S., ... & Spiegel, P. (2020). Reproductive, maternal, newborn and child health service delivery during conflict in Yemen: a case study. *Conflict and health*, 14, 1-16.
 68. Elnakib, S., Elaraby, S., Othman, F., BaSaleem, H., AlShawafi, N. A. A., Al-Gawfi, I. A. S., ... & Tappis, H. (2021). Providing care under extreme adversity: the impact of the Yemen conflict on the personal and professional lives of health workers. *Social science & medicine*, 272, 113751.
 69. Kadhim, K. T., Alsahlany, A. M., Wadi, S. M., & Kadhun, H. T. (2020). An overview of patient's health status monitoring system based on internet of things (IoT). *Wireless Personal Communications*, 114(3), 2235-2262.
 70. Hanson, K., Brikci, N., Erlangga, D., Alebachew, A., De Allegri, M., Balabanova, D., ... & Wurie, H. (2022). The Lancet Global Health Commission on financing primary health care: putting people at the centre. *The Lancet Global Health*, 10(5), e715-e772.
 71. Agartan, T. I. (2021). Politics of success stories in the path towards Universal Health Coverage: The case of Turkey. *Development Policy Review*, 39(2), 283-302.
 72. Bazyar, M., Yazdi-Feyzabadi, V., Rashidian, A., & Behzadi, A. (2021). The experiences of merging health insurance funds in South Korea, Turkey, Thailand, and Indonesia: a cross-country comparative study. *International Journal for Equity in Health*, 20, 1-24.
 73. Başar, D., Öztürk, S., & Cakmak, İ. (2021). An application of the behavioral model to the utilization of health care services in Turkey: A focus on equity. *Panoeconomicus*, 68(1), 129-146.
 74. Uner, M. M., Cetin, B., & Cavusgil, S. T. (2020). On the internationalization of Turkish hospital chains: A dynamic capabilities perspective. *International Business Review*, 29(3), 101693.

75. Küçük, A., Özsoy, V. S., & Balkan, D. (2020). Assessment of technical efficiency of public hospitals in Turkey. *European Journal of Public Health*, 30(2), 230-235.
76. Demirbilek, Y., Pehlivan Türk, G., Özgüler, Z. Ö., & Meşe, E. A. (2020). COVID-19 outbreak control, example of ministry of health of Turkey. *Turkish journal of medical sciences*, 50(9), 489-494.
77. Gele, A. (2020). Challenges facing the health system in Somalia and implications for achieving the SDGs. *European Journal of Public Health*, 30(Supplement_5), ckaa165-1147.
78. Hordofa, T. T., Liying, S., Mughal, N., Arif, A., Vu, H. M., & Kaur, P. (2022). Natural resources rents and economic performance: post-COVID-19 era for G7 countries. *Resources Policy*, 75, 102441.
79. Abdi, K. A., MK, J., & Adem, M. (2024). The nexus between poverty and maternal healthcare utilization with a focus on antenatal care visits and choice of place of birth in Somaliland. *Frontiers in Public Health*, 12, 1417883.
80. Kimani, S., Kabiru, C. W., Muteshi, J., & Guyo, J. (2020). Exploring barriers to seeking health care among Kenyan Somali women with female genital mutilation: a qualitative study. *BMC international health and human rights*, 20, 1-12.
81. Moynihan, R., Sanders, S., Michaleff, Z. A., Scott, A. M., Clark, J., To, E. J., ... & Albarqouni, L. (2021). Impact of COVID-19 pandemic on utilisation of healthcare services: a systematic review. *BMJ open*, 11(3), e045343.
82. Haque, M., Islam, T., Rahman, N. A. A., McKimm, J., Abdullah, A., & Dhingra, S. (2020). Strengthening primary health-care services to help prevent and control long-term (chronic) non-communicable diseases in low-and middle-income countries. *Risk management and healthcare policy*, 409-426.
83. World Health Organization. (2021). Primary health care on the road to universal health coverage: 2019 global monitoring report.
84. Wenzel, V. (Ed.). (2023). *Case Studies in Emergency Medicine: A Collection of Memorable Clinically Relevant Cases with Clinical Pearls*. Springer Nature.
85. Horvat, T., Bendix, H., Bobek, V., & Skoko, H. (2021). Impacts of investments in infrastructure projects on emerging markets' growth: the case of East African countries. *Economic research-Ekonomska istraživanja*, 34(1), 2135-2161.
86. Katoue, M. G., Cerda, A. A., García, L. Y., & Jakovljevic, M. (2022). Healthcare system development in the Middle East and North Africa

- region: challenges, endeavors and prospective opportunities. *Frontiers in public health*, 10, 1045739.
87. Sheng, M., Reiner, M., Sun, K., & Hong, T. (2023). Assessing thermal resilience of an assisted living facility during heat waves and cold snaps with power outages. *Building and Environment*, 230, 110001.
 88. Rauf, H., Arshad, N., Khan, H. A., Khalid, M., & Pecht, M. Optimizing Hybrid Energy Storage Architectures Using Multi-Energy System Approaches for Telecom Base Stations Under Intermittent Grid Supply Conditions. Available at SSRN 5056442.
 89. Behnke, N. L., Cronk, R., Shackelford, B. B., Cooper, B., Tu, R., Heller, L., & Bartram, J. (2020). Environmental health conditions in protracted displacement: a systematic scoping review. *Science of the Total Environment*, 726, 138234.
 90. Shackelford, B. B., Cronk, R., Behnke, N., Cooper, B., Tu, R., D'Souza, M., ... & Jaff, D. (2020). Environmental health in forced displacement: a systematic scoping review of the emergency phase. *Science of the Total Environment*, 714, 136553.
 91. Atemoagbo, O. P. (2024). Investigating The Impact of Sanitation Infrastructure on Groundwater Quality and Human Health in Peri-Urban Areas. *International Journal of Medical Science and Clinical Invention*, 11(01), 7260-7273.
 92. Tortajada, C. (2020). Contributions of recycled wastewater to clean water and sanitation Sustainable Development Goals. *NPJ Clean Water*, 3(1), 22.
 93. Giannetti, B. F., Sevegnani, F., García, R. R., Agostinho, F., Almeida, C. M., Coscieme, L., ... & Lombardi, G. V. (2022). Enhancing the assessment of cleaner production practices for sustainable development: The five-sector sustainability model applied to water and wastewater treatment companies. *Sustainability*, 14(7), 4126.
 94. Bogren, M., Erlandsson, K., Johansson, A., Kalid, M., Igal, A. A., Mohamed, J., ... & Osman, F. (2020). Health workforce perspectives of barriers inhibiting the provision of quality care in Nepal and Somalia—A qualitative study. *Sexual & Reproductive Healthcare*, 23, 100481.
 95. Jelle, M., Seal, A. J., Mohamed, H., Mohamed, H., Omar, M. S., Mohamed, S., ... & Morrison, J. (2023). Understanding multilevel barriers to childhood vaccination uptake among Internally Displaced Populations (IDPs) in Mogadishu, Somalia: a qualitative study. *BMC Public Health*, 23(1), 2018.

96. Pandian, J. D., Kalkonde, Y., Sebastian, I. A., Felix, C., Urimubenshi, G., & Bosch, J. (2020). Stroke systems of care in low-income and middle-income countries: challenges and opportunities. *The Lancet*, 396(10260), 1443-1451.
97. Mathers, C. D. (2020). History of global burden of disease assessment at the World Health Organization. *Archives of Public Health*, 78, 1-13.
98. Pires, S. M., Desta, B. N., Mughini-Gras, L., Mmbaga, B. T., Faye-mi, O. E., Salvador, E. M., ... & Devleesschauwer, B. (2021). Burden of foodborne diseases: think global, act local. *Current Opinion in Food Science*, 39, 152-159.
99. Challoumis, C. (2024). Integrating Money Cycle Dynamics and Economocracy for Optimal Resource Allocation and Economic Stability. *Journal of Risk and Financial Management*, 17(9), 422.
100. Agius, C., Rosamond, A. B., & Kinnvall, C. (2020). Populism, ontological insecurity and gendered nationalism: Masculinity, climate denial and Covid-19. *Politics, Religion & Ideology*, 21(4), 432-450.
101. Illouz, E. (2023). The emotional life of populism: How fear, disgust, resentment, and love undermine democracy. *John Wiley & Sons*.
102. Miller, M. K. (2021). Shock to the system: Coups, elections, and war on the road to democratization. *Princeton University Press*.
103. McGorry, P. D., Mei, C., Chanen, A., Hodges, C., Alvarez-Jimenez, M., & Killackey, E. (2022). Designing and scaling up integrated youth mental health care. *World Psychiatry*, 21(1), 61-76.
104. World Health Organization, & United Nations Children's Fund. (2021). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. *World Health Organization*.
105. Ahmed, M. M. (2024). Revolutionizing healthcare in Somalia: the role of digital innovations in enhancing access and quality. *Exploration of Digital Health Technologies*, 2(6), 360-368.
106. Bowsher, G., El Achi, N., Augustin, K., Meagher, K., Ekzayez, A., Roberts, B., & Patel, P. (2021). eHealth for service delivery in conflict: a narrative review of the application of eHealth technologies in contemporary conflict settings. *Health Policy and Planning*, 36(6), 974-981.
107. Wahba, H. M., Emara, T. H., Elbokl, A., Mohamed, M. H., Essa Salwe, A. M., & Du'ale, A. A. (2020). The feasibility of the 'treat and teach' telemedicine package: the Somali pilot. *Health and Technology*, 10, 1515-1523.

108. Carter, D., Kolencik, J., & Cug, J. (2021). Smart internet of things-enabled mobile-based health monitoring systems and medical big data in COVID-19 telemedicine. *American Journal of Medical Research*, 8(1), 20-29.
109. Ahmed, M. M., Dirie, N. I., Mohamud, A. K., Elmi, A. H., Musa, S. S., Alhammadi, O. A. S., ... & Lucero-Prisno, D. E. (2024). Advancing digital healthcare in Somalia: a review of modern technologies and their implications. *BMC Digital Health*, 2(1), 1-6.
110. David Williams, O., Yung, K. C., & Grépin, K. A. (2021). The failure of private health services: COVID-19 induced crises in low-and middle-income country (LMIC) health systems. *Global Public Health*, 16(8-9), 1320-1333.
111. Siddiqi, S., Aftab, W., Raman, A. V., Soucat, A., & Alwan, A. (2023). The role of the private sector in delivering essential packages of health services: lessons from country experiences. *BMJ global health*, 8(Suppl 1), e010742.
112. Hussein, M. A. (2024). The Effects of Aid in Somalia: Unintended Consequences and Lessons Learned. *Journal of Economic Cooperation & Development*, 45(2).
113. Fu, J. X. (2024). How Can Monitoring Benefit Investors? Evidence from 85 Billion Cell Phone Signals. *Evidence from*, 85.
114. Chastonay, O. J., Lemoine, M., Grazioli, V. S., Canepa Allen, M., Kasztura, M., Moullin, J. C., ... & Bodenmann, P. (2021). Health care providers' perception of the frequent emergency department user issue and of targeted case management interventions: a cross-sectional national survey in Switzerland. *BMC Emergency Medicine*, 21, 1-10.
115. Roder-DeWan, S., Madhavan, S., Subramanian, S., Nimako, K., Lashari, T., Bathula, A. N., ... & Chopra, M. (2023). Service delivery redesign is a process, not a model of care. *bmj*, 380.
116. Shaheen, R., & Salim, H. (2025). AI and Health: Hopes and Fears. In *Intersection of Human Rights and AI in Healthcare* (pp. 233-252). IGI Global Scientific Publishing.
117. Al-Worafi, Y. M. (2024). Quality of Tertiary Healthcare Services in Developing Countries: Status and Future Recommendations.
118. World Health Organization. (2020). Health policy and system support to optimize community health worker programmes for HIV, TB and malaria services: an evidence guide.
119. Partiwī, N. (2024). Investigate the effectiveness, mechanisms, and scalability of community-based interventions designed to reduce health disparities. *Advances in Healthcare Research*, 2(1), 49-65.

120. Torri, E., Sbrogiò, L. G., Di Rosa, E., Cinquetti, S., Francia, F., & Ferro, A. (2020). Italian public health response to the COVID-19 pandemic: case report from the field, insights and challenges for the department of prevention. *International Journal of Environmental Research and Public Health*, 17(10), 3666.
121. Webb, E., Hernández-Quevedo, C., Williams, G., Scarpetti, G., Reed, S., & Panteli, D. (2022). Providing health services effectively during the first wave of COVID-19: a cross-country comparison on planning services, managing cases, and maintaining essential services. *Health Policy*, 126(5), 382-390.
122. Tappis, H., Ramadan, M., Vargas, J., Kahi, V., Hering, H., Schulte-Hillen, C., & Spiegel, P. (2021). Neonatal mortality burden and trends in UNHCR refugee camps, 2006–2017: a retrospective analysis. *BMC public health*, 21, 1-9.
123. Larrea-Schiavon, S., Vázquez-Quesada, L. M., Bartlett, L. R., Lam-Cervantes, N., Sripad, P., Vieitez, I., & Coutiño-Escamilla, L. (2022). Interventions to improve the reproductive health of undocumented female migrants and refugees in protracted situations: A systematic review. *Global Health: Science and Practice*, 10(6), 1-15.
124. Singh, N. S., Atallahjan, A., Ndiaye, K., Das, J. K., Wise, P. H., Altare, C., ... & Wise, P. (2021). Delivering health interventions to women, children, and adolescents in conflict settings: what have we learned from ten country case studies?. *The Lancet*, 397(10273), 533-542.
125. Abdi, N., Bait, S., Hasnain, A., Marino Lauria, S., Savigliano, R., Scarcia, Y., & Schiraldi, M. M. (2022). Prioritize special economic zones establishment through a multi-criteria decision-making approach: A case study on the federal states of Somalia. *International Journal of Engineering Business Management*, 14, 18479790221100075.
126. Bile, K., Warsame, M., & Ahmed, A. D. (2022). Fragile states need essential national health research: the case of Somalia. *The Lancet Global Health*, 10(5), e617-e618.
127. Lubogo, M., Karanja, M. J., Mdodo, R., Elnossery, S., Osman, A. A., Abdi, A., ... & Malik, S. M. M. R. (2022). Evaluation of the electronic early warning and response network (EWARN) system in Somalia, 2017–2020. *Conflict and Health*, 16(1), 18.
128. Sari, Ö., & Bashir, A. M. (2021). A retrospective evaluation of patients hospitalized in the internal medicine department at the Turkey Recep Tayyip Erdogan Somalia Mogadishu Training and Research Hospital. *Turkish Journal of Internal Medicine*, 3(4), 177-187.

129. Umer, A., Zinsstag, J., Schelling, E., Tschopp, R., Hattendorf, J., Osman, K., ... & Zemp, E. (2020). Antenatal care and skilled delivery service utilisation in Somali pastoral communities of Eastern Ethiopia. *Tropical Medicine & International Health*, 25(3), 328-337.
130. Wulifan, J. K., Dordah, A. D., & Sumankuuro, J. (2022). Nomadic pastoralists' experience accessing reproductive and maternal health-care services in low and middle-income countries: a contextual scoping review. *Pastoralism*, 12(1), 47.
131. MOHAMED, M. A. THE DETERMINANTS OF VIOLENCE AGAINST WOMEN AND ACCESS TO HUMAN RIGHTS IN PUNTLAND. sorer.somaliren.org.so
132. Farah, F. Q., Aynalem, G. L., Seyoum, A. T., & Gedef, G. M. (2023). The prevalence and associated factors of success of labor induction in Hargeisa maternity hospitals, Hargeisa Somaliland 2022: a hospital-based cross-sectional study. *BMC Pregnancy and Childbirth*, 23(1), 437.
133. Mahamed, D. A. (2023). Factors influencing the use of modern contraceptives among Somali women pastoralist and their partners in Garissa, Wajir, and Mandera Counties in Kenya.
134. Jones-Esan, L., Somasiri, N., & Lorne, K. (2024). Enhancing Healthcare Delivery Through Digital Health Interventions: A Systematic Review on Telemedicine and Mobile Health Applications in Low and Middle-Income Countries (LMICs).
135. Weiss, T., Perkmann, M., & Phillips, N. (2022). Scaling technology ventures in Africa: new opportunities for research. *Innovation*, 24(4), 552-567.
136. Philbrick, W., Milnor, J., Deshmukh, M., & Mechael, P. (2022). Information and communications technology use to prevent and respond to sexual and gender-based violence in low-and middle-income countries: An evidence and gap map. *Campbell systematic reviews*, 18(4), e1277.
137. Winders, W. T., Garbern, S. C., Bills, C. B., Relan, P., Schultz, M. L., Trehan, I., ... & McQuillan, R. (2021). The effects of mobile health on emergency care in low-and middle-income countries: A systematic review and narrative synthesis. *Journal of global health*, 11.
138. World Health Organization. (2023). Promoting the health of refugees and migrants: experiences from around the world. World Health Organization.
139. Bijani, M., Abedi, S., Karimi, S., & Tehranineshat, B. (2021). Major challenges and barriers in clinical decision-making as perceived

- ved by emergency medical services personnel: a qualitative content analysis. *BMC emergency medicine*, 21, 1-12.
140. World Health Organization. (2021). WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas. World Health Organization.
141. Watson, M. F., Bacigalupe, G., Daneshpour, M., Han, W. J., & Parra-Cardona, R. (2020). COVID-19 interconnectedness: Health inequity, the climate crisis, and collective trauma. *Family process*, 59(3), 832-846.
142. Workie, E., Mackolil, J., Nyika, J., & Ramadas, S. (2020). Deciphering the impact of COVID-19 pandemic on food security, agriculture, and livelihoods: A review of the evidence from developing countries. *Current Research in Environmental Sustainability*, 2, 100014.
143. Lindvall, K., Kinsman, J., Abraha, A., Dalmar, A., Abdullahi, M. F., Godefay, H., ... & Schumann, B. (2020). Health status and health care needs of drought-related migrants in the Horn of Africa—a qualitative investigation. *International Journal of Environmental Research and Public Health*, 17(16), 5917.
144. Kasina, N. (2023). *Humanitarian Aid and Human Development in Post War Recovery—a Case Study of Somalia 2010-2022* (Doctoral dissertation, University of Nairobi).
145. Gele, A., & Gele, A. (2020). 24. G. Workshop: Reconstructing public health institutions in Somalia. *European Journal of Public Health*, 30, 5.
146. Nagar, D., & Nagar, D. (2022). The United Nations Role the Horn of Africa: The Case of Somalia. *Challenging the United Nations Peace and Security Agenda in Africa*, 159-252.
147. Kiruja, J., Essén, B., Erlandsson, K., Klingberg-Allvin, M., & Osman, F. (2022). Healthcare providers' experiences of comprehensive emergency obstetric care in Somaliland: an explorative study with focus on cesarean deliveries. *Sexual & Reproductive Healthcare*, 34, 100768.
148. World Health Organization. (2020). Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030. World Health Organization.
149. World Health Organization. (2023). Global research agenda on health, migration and displacement: strengthening research and translating research priorities into policy and practice.
150. Elmi, M. A., Hashi, A. O., Dahir, U. M., Abdurahman, A. A., & Rodriguez, O. E. R. (2024). *Electronics in Healthcare: Adaptation*

- and Challenges of Digital Records in Somali Hospitals. *International Journal of Electronics and Communication Engineering*, 11(9), 1-10.
151. Samatar, E. H. (2024). The influence of climate change on crop production: Evidence from Somalia. *Edelweiss Applied Science and Technology*, 8(4), 1428-1447.
 152. Mohamed, Z. A. (2023). *United Nations Mission and Peace-Building in Mogadishu, Somalia* (Doctoral dissertation, Kampala International University).
 153. Morrison, J., & Malik, S. M. M. R. (2023). Population health trends and disease profile in Somalia 1990–2019, and projection to 2030: will the country achieve sustainable development goals 2 and 3?. *BMC Public Health*, 23(1), 66.
 154. Watson, J., Yazbeck, A. S., & Hartel, L. (2021). Making health insurance pro-poor: lessons from 20 developing countries. *Health Systems & Reform*, 7(2), e1917092.
 155. World Health Organization. (2023). *Working for health multi-partner trust fund annual report 2020: accelerated progress towards UHC and SDGs through a transformed health workforce*. World Health Organization.
 156. Beigbeder, Y. (2023). *The role and status of international humanitarian volunteers and organizations: The right and duty to humanitarian assistance* (Vol. 12). BRILL.
 157. Dahie, H. A., Osman, M. A., Jimale, Y. A., Mohamud, F. I., Hussein, H. A., Alasow, M. O., ... & Abdullahi, A. M. (2024). Anxiety, depression and access to mental health services among internally displaced persons in Mogadishu, Somalia: a cross-sectional survey. *BMJ open*, 14(11), e084275.
 158. Osman, A. A., & Abebe, G. K. (2023). Rural displacement and its implications on livelihoods and food insecurity: the case of inter-riverine communities in Somalia. *Agriculture*, 13(7), 1444.
 159. Arslan, E. (2021). *Structuring Recommendations Guided by Somalia Basic Health Indicators and Current Analysis of Health Organization*. *Academic Researches in*, 44.
 160. Jaspars, S., Majid, N., & Adan, G. M. (2023). Somalia's evolving political market place: from famine and humanitarian crisis to permanent precarity. *The Journal of Modern African Studies*, 61(3), 343-366.
 161. Abdinoor, A. W. (2023). *Project Management Practices and Sustainability of Donor-funded Health Projects: a Case of Somali Health and Nutrition Programme, Abudwak District, Galmudug State of Somalia* (Doctoral dissertation, University of Nairobi).