Curriculum Vitae [CV]

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Name: **Shimels Derso Kebede**

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Key Words:
-Health Informatics/digital health
-Machine learning
-Spatial epidemiology
-Public Health
-Maternal and child health
-Women health
-Non-Communicable Diseases

Educational Background

1) **Master of Public Health (MPH), 2022** in Health Informatics, University of Gondar, Ethiopia with GPA of 3.98/4.00.
   Thesis Title: Spatial distribution and predictors of contraceptive discontinuation among reproductive age women in Ethiopia using EDHS 2016 data: Prediction using GIS and machine learning
   Supervisor: Dr Yakub Sebastain(PhD), Charles Darwin University, Australia
2) **Bachelor of Science in Health Informatics, 2019**, University of Gondar, Ethiopia with GPA of 3.91/4.00
   Project Title: Developing dental clinic information system for Gondar university specialized hospital dental clinic
   Supervisor. Mr Mulugeta Hayelom Kalayou, Former Lecturer at University of Gondar**,** Ethiopia

Key Training and Skills

1) Introduction to Structured Query Language (SQL) by **University of Michigan** on Coursera (www.coursera.org/verify/ZY5MXQ27MKER)
2) The Economics of Health Care Delivery by **University of Pennsylvania** on Coursera (www.coursera.org/verify/TSCA7FU36CZE)
3) Logistic Regression in R for Public Health by **Imperial College London** on Coursera (www.coursera.org/verify/MXSMDK4LPKRX)
4) Fundamentals of Machine Learning for Healthcare by **Stanford University** on Coursera (www.coursera.org/verify/M4D ZZN7D XD7A)
5) Data Science Orientation by **IBM** on Coursera (https://www.credly.com/badges/0b0d848b-5fd4-460f-9d53-43198179267c)
6) What is Data Science? By **IBM** on Coursera (www.coursera.org/verify/TEM5YHKU6F7U)
7) Data Science Tools by IBM's Cognitiveclass.ai (https://courses.cognitiveclass.ai/certificates/bfe8c0f60bbd4b2090dd81410b727614)
8) Python 101 for Data Science IBM's Cognitiveclass.ai (https://courses.cognitiveclass.ai/certificates/7fab1fd8c4b14a32923599f8354dc1ed)

Language

Mother tongue(s) Amharic

Other language(s)

	Listening	Writing	Reading	Speaking
English	Excellent	Excellent	Excellent	Excellent

Professional Experience

September 01, 2022 till now

Lecturer at Department of Health Informatics, School of Public Health, College of Medicine and Health Sciences, Wollo University, Dessie, Ethiopia

Undergraduate Subjects taught

Health Data analytics, Geographic information system (GIS) and disease mapping, Fundamentals of Programming (C++), and Object oriented Programming with Java

Key duties & achievements:

- Taught undergraduate Health Science students and Master of Public Health students
- Supervised research projects/thesis of undergraduate and graduate students
- Provided voluntary community health service.
- Participated as a standing and ad-hoc committee within the university.
- Revised and/or review research projects of the university staffs.
- Participated in regular meetings at department, faculty, and university level.
- Designed and layout educational materials, and participated in paper or seminar presentation.
- Prepare and conduct training for Health Science Staffs, students and healthcare Workers.
- Conceptualize research ideas, performed statistical analyses, and have drafted manuscripts for submission to peer-review journals in collaboration with team as well independently.
- Conducted data analysis (including prediction through machine learning/deep learning, time series forecasting, multi-level analysis, spatial analysis for disease mapping, and multivariate decomposition analysis) and data visualizations using STATA, ArcGIS, Python and R.
- Received collected raw primary data from, converted to an appropriate data format, and carried out data cleaning as well as preliminary analysis using statistical packages for research (e.g, STATA, R, Python, SPSS & Excel)
- Developed, facilitated, drafted research reports, communicated findings to research team members, and got feedback from the team.
- Coordinating and Presenting staff capacity building trainings in Spatial analysis and machine learning.
- Delivering proposal and thesis craft training and training on data analysis.
- Conducting and supervising team training program (TTP) for undergraduate and developmental team training program (DTTP) for graduate students.

September, 2019 to October, 2020

Graduate Assistant at Department of Health Informatics, School of Public Health, College of Medicine and Health Sciences, Wollo University, Dessie, Ethiopia

Undergraduate Subjects taught

Fundamental of Health Informatics, Fundamentals of ICT

Key duties & achievements:

- Taught undergraduate courses for health science students.
- Assist undergraduate health informatics students on their final year projects.
- Provided voluntary community health service.
- Participated in standing and ad-hoc committee within the university.
- Participated in regular meetings at department, faculty and university level
- Designed and layout educational materials and participated in various seminar presentations.
- Regulate the committees of the department at department level and participate in different committee at college level.

My Publications as PI

1. Spatial distribution and determinants of Early sexual initiation in Ethiopia. https://doi.org/10.1186%2Fs12889-024-19057-w
2. Spatial distribution and urban-rural disparity of unmet need for family planning among married/in-union women in Ethiopia: A spatial and decomposition analysis. https://doi.org/10.3389/frph.2024.1416280
3. Explainable Machine learning for modelling predictors of unintended pregnancy among married/in-union women in sub-Saharan Africa, A multi-country analysis of MICS 6 survey. https://doi.org/10.1177/20552076241292978
4. Prediction of contraceptive discontinuation among reproductive-age women in Ethiopia using Ethiopian Demographic and Health Survey 2016 Dataset: A Machine Learning Approach. https://doi.org/10.1186/s12911-023-02102-w
5. Machine learning modeling for identifying predictors of unmet need for family planning among married/in-union women in Ethiopia: Evidence from performance monitoring and accountability (PMA) survey 2019 dataset. https://doi.org/10.1371/journal.pdig.0000345

Publications under review

1. Leveraging machine learning to identify determinants of zero utilization of maternal continuum of care in Ethiopia: insights from SHAP analysis and the 2019 mini DHS. (Accepted and under production stage in PLOS Global Public Health)
2. Application of geographically weighted regression analysis to assess predictors of early sexual initiation in Ethiopia, EDHS 2016 (Under review at Health Science Reports)
3. Can Ethiopia achieve national and international targets for reducing neonatal mortality? Application of classical techniques and deep-learning models for time-series forecasting (Under review at Online Journal of Public Health Informatics)

Selected Co-authored Publications

(*complete list can be found https://www.researchgate.net/profile/Shimels-Kebede-2/research*)

2025

1. Performance evaluation and comparative analysis of different machine learning algorithms in predicting postnatal care utilization: Evidence from the Ethiopian demographic and health survey 2016. https://doi.org/10.1371/journal.pdig.0000707
2. Residence-based disparities of composite index of anthropometric failures in East African under five children; multivariate decomposition analysis. https://doi.org/10.1186/s12889-025-21634-6

2024

1. Machine learning to predict unintended pregnancy among reproductive-age women in Ethiopia: evidence from EDHS 2016. https://doi.org/10.1186/s12905-024-02893-8
2. Machine learning algorithm to predict delayed breastfeeding initiation among mothers having children less than 2 months of age in East Africa: Evidence from recent DHS dataset. http://doi.org/10.3389/fpubh.2024.1413090
3. Interpretable prediction of acute respiratory infection disease among under-five children in Ethiopia using ensemble machine learning and Shapley additive explanations (SHAP). http://doi.org/10.1177/20552076241272739
4. Geospatial patterns, and individual and community levels factors of cesarean section deliveries in Ethiopia: A spatial and multilevel analysis. http://doi.org/10.1371/journal.pone.0306052
5. Rural-Urban Disparities in Basic Sanitation Access Among Households: A multivariable decomposition analysis of Ethiopian demographic and health survey 2019 . http://doi.org/10.3389/fpubh.2024.1420077
6. Spatial variations and predictors of overweight/obesity among under-five children in Ethiopia: A geographically weighted regression analysis of the 2019 Ethiopian Mini Demographic and Health Survey. https://doi.org/10.1371/journal.pone.0312025

2023

1. Prediction of contraceptive discontinuation among reproductive-age women in Ethiopia using Ethiopian Demographic and Health Survey 2016 Dataset: A Machine Learning Approach. https://doi.org/10.1186/s12911-023-02102-w
2. Predicting healthcare professionals' acceptance towards electronic personal health record systems in a resource-limited setting: using modified technology acceptance model. http://dx.doi.org/10.1136/bmjhci-2022-100707
3. Exploring facilitators and barriers of the sustainable acceptance of e-health system solutions in Ethiopia: A systematic review. https://doi.org/10.1371/journal.pone.0287991
4. Awareness and readiness of mental healthcare providers to implement telemental health services and associated factors at public referral hospitals in Addis Ababa City, Ethiopia. https://doi.org/10.1136/bmjopen-2022-069671
5. Knowledge and attitude toward evidence-based medicine and associated factors among health science students in Mettu University southwest Ethiopia: A cross-sectional study. http://dx.doi.org/10.1016/j.imu.2023.101228
6. Readiness to use electronic medical record systems and its associated factors among health care professionals in Ethiopia: A systematic review and meta-analysis. https://doi.org/10.1016/j.imu.2022.101140
7. Magnitude of sugar-sweetened beverage consumption and associated factors among women aged 15–49 years old in two Sub-Saharan African countries. https://doi.org/10.1186/s12905-023-02814-1
8. Evidence-Based Practice and Its Associated Factors among Health Professionals Working at Public Hospitals in Southwest Ethiopia. https://doi.org/10.1155/2023/4083442

2022

1. Geographical variation and predictors of zero utilization for a standard maternal continuum of care among women in Ethiopia: a spatial and geographically weighted regression analysis. https://doi.org/10.1186/s12884-021-04364-6

Professional Memberships

1) Ethiopian Public Health Association, Regular Member
2) Ethiopian Red Cross society

Special skills

1. Data entry software such as EpiData, EpiInfo, ODKCollect, and KoboToolBox
2. Data analysis software and statistical programming languages such as SPSS, Stata, Python, and R
3. Predictive analysis in machine learning, deep learning and time series forecasting techniques
4. Spatial data analysis with ArcGIS, QGIS, GeoDa and R
5. Database (SQL) and Object oriented Programming (C++, Python, Java)
6. Ability to work in team and independently.

Awards

1) Certificate of Recognition for Excellent achievement in the 2015/16 academic year at University of Gondar. 2017
2) A student who Stood first and graduated with very great distinction (CGPA 3.91/4.0) out of the 2019 class of graduates of Health Informatics department at University of Gondar. 2019
3) Graduate Award for stood First and graduated with very great distinction (cGPA 3.98/4.0) out of the Sep 1, 2022 class of Master of Public health in health informatics program. 2022

References

1) **Yakub Sebastian(PhD),** Lecturer, Department of Information Technology, College of Engineering, IT and Environment, Charles Darwin University, Darwin, Australia
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2) **Mulugeta Hayelom Kalayou (PhD Fellow)**, Quality Use of Medicines and Pharmacy Research Centre, Clinical and Health Sciences, University of South Australia, Adelaide, South Australia, Australia
Email: Kalmy017@mymail.unisa.edu.au **Cell Phone:** +61405908573

3) **Mulugeta Desalegn Kasaye (MPH)**, Head of Health Informatics Department, Wollo University, Dessie, Ethiopia
Email: mulugetaadwi@gmail.com **Cell Phone:** +251921583411