South Africa - AHRI:Sesikhona!(we are here):Use of smartphone-based GPS technology to measure ultra-high resolution mobility patterns of young adults in rural KwaZulu Natal

Sweetness H Dube

Report generated on: September 4, 2023

Identification

SURVEY ID NUMBER
AHRI.Sesikhona.GPS.2023.v1

TITLE
AHRI:Sesikhona!(we are here):Use of smartphone-based GPS technology to measure ultra-high resolution mobility patterns of young adults in rural KwaZulu Natal

COUNTRY

Name	Country code
South Africa	ZA

ABSTRACT
This is a first of its kind study using smartphone-based GPS technology to record ultra-high resolution mobility patterns of approximately 800 young adults (comprising the Sesikona! Cohort) aged 20-30 years in rural KwaZulu Natal.

The Sesikhona! study aims to:
i) Determine typologies of movement in the age-group 20-30 in a HIV hyper-endemic population.
ii) Quantify movements in and out of known high HIV risk locations.

The long-term aim of the study is to design a location-intelligent smartphone intervention using real-time, precision messaging targeting those at high risk of HIV acquisition, transmission, and treatment failure.

This study currently involves young adults aged 20-30 years who participated in the AHRI HIV survey in 2019 and are resident members in Sothern PIP. Between June 2021 and March 2023, an initial cohort of 208 individuals who agreed to participate in the study were either offered a smartphone with a customized Ethica app or installed the app in their personal smartphone if their device was consistent with the technological requirements of the study protocol. The app attempts to record the smartphone's location at a temporal resolution ranging between 30 minutes and 1 second (depending on whether the participant is moving and has good connectivity) and upload the data to a secure study server every hour. Consenting participants are followed for a minimum period of 6 months. Participants are also requested to completed surveys at enrolment, 1 and 3 months and post study (6 months) to examine changes in attitudes towards the use of GPS technology to study mobility before, during and after the study. If the study does not receive location data from participants for over two days the study staff contact participants by phone or home visit to establish the cause.

We use the REDCap software to collect demographic data and consent the participants. The location data and surveys are captured on the Ethica app.

KIND OF DATA
Smartphone-based geo-codes

UNIT OF ANALYSIS
Unique space-time records

Version

VERSION DESCRIPTION
v1.0.0

Scope

TOPICS

Topic	Vocabulary	URI
GPS technology, smartphone-based GPS, human mobility, young adults, HIV	Africa Health Research Institute	www.ahri.org

KEYWORDS

Keyword	Vocabulary	URI
Human mobility, HIV, GPS technology	Africa Health Research Institute	www.ahri.org

Coverage

GEOGRAPHIC COVERAGE

Movement patterns of Sesikhona! Participants anywhere in South Africa.

UNIVERSE

A random sample of adults aged 20-30 years old who were resident in Southern PIPSA, participated in the 2019 HIV surveillance and consented to participate in the study.

Producers and sponsors

PRIMARY INVESTIGATORS

Name	Affiliation
Prof. Frank Tanser(Principal Investigator)	Africa Health Research Institute
Prof Adrian Dobra	University of Washington
Prof Till Barnighausen	Africa Health Research Institute

PRODUCERS

Name
Africa Health Research Institute

FUNDING AGENCY/SPONSOR

Name	Abbreviation	Role
National Institute of Health	NIH	Funder
German Science Foundation	DFG	Funder
Academy of Medical Sciences Newton Fund	NAF	Funder

Sampling

SAMPLING PROCEDURE

Participants were randomly selected from the 2019 AHRI HIV surveillance program if they were aged 20-30 years old and had participated in the HIV survey in 2019 and were resident members in the southern PIP.

Data Collection

DATES OF DATA COLLECTION

Start	End
2021-06-01	2023-03-30

Data Processing

DATA EDITING

Raw uncleaned space-time data records obtained from Sesikhona! participants via the Ethica app

Access policy

ACCESS CONDITIONS

Access to the data requires accurate completion of the online data access application form accessible on the AHRI Data repository(<https://data.ahri.org/>). Data users are required to abide by the data use conditions stipulated on the application for access to the data. Failure to do so may result in their data access privileges being revoked by the Data Custodian. In order to recognise the effort and intellectual contributions of AHRI investigators in producing and curating the data, users of AHRI data must acknowledge the source of the data and abide by the terms and conditions under which the data is accessed and must cite the dataset in publication using the citation provided as part of this documentation. All analytical datasets published on the AHRI Data Repository are assigned digital object identifier (DOIs) and the DOIs can be found on the Data Repository under Study Description tab - Access policy. AHRI data users are required to always cite the dataset using the relevant DOI.

CITATION REQUIREMENTS

Tanser, F., Dobra, A., & Barnighausen, T. (2023). AHRI:Sesikhona!(we are here):Use of smartphone-based GPS technology to measure ultra-high resolution mobility patterns of young adults in rural KwaZulu Natal [Data set]. Africa Health Research Institute. https://doi.org/10.23664/AHRI.SESIKHONA.GPS.2023

Metadata production

DDI DOCUMENT ID

DDI.AHRI.Sesikhona.GPS.2023.v1

PRODUCERS

Name	Abbreviation
Africa Health Research Institute	AHRI

Data Dictionary

Data file	Cases	Variables

Download related resources

Technical documents

DDI:Sesikhona

Title	DDI:Sesikhona
Author(s)	Sweetness H Dube
Date	04/09/2023
Country	South Africa
Language	English
Publisher(s)	Sweetness H Dube
Filename	AHRI.Sesikhona.GPS.2023.v1.pdf