

Cultural adaptation of a brief digital cognitive tool to detect cognitive impairment in cardiometabolic diseases in Ghana

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Background

The lack of sensitive, properly validated, and locally adapted cognitive assessment tools in Ghana is a primary barrier to accurate detection of cognitive decline and equitable brain health care in the country

The proposed work aims to fill these gaps by culturally adapting and norming a brief digital cognitive battery, the Tablet-Based Cognitive Assessment Tool Brain Health Assessment (TabCAT BHA).



Figure 1. The TabCAT

Once the tool is adapted and normed, we will use it at the Cape Coast Teaching Hospital (CCTH) to capture cognitive performance in 150 patients living with hypertension and diabetes

Specific objectives:

1. To culturally adapt the TabCAT-BHA tests (Birdwatch, Match, Animal Fluency, Line Length) and develop regression-based norms.
2. To examine the relationship between cardiometabolic diseases (diabetes and hypertension) and TabCAT-BHA performance.

Methods

To accomplish these objectives, we will employ a three-phase approach:

1. We will conduct cultural adaptation of the TabCAT-BHA following the specialized framework of the International Test Commission (ITC) guidelines
2. Following adaptation, we will develop regression-based norms derived from a cohort of 180 clinically healthy individuals (age ≥ 50) from the coastal belt of Ghana, specifically, Central region and Greater Accra.
3. Once the tool is adapted and normed, we will use it at the Cape Coast Teaching Hospital (CCTH) to capture cognitive performance in patients living with hypertension and diabetes. A summary of workflow is shown in **Figure 2**.

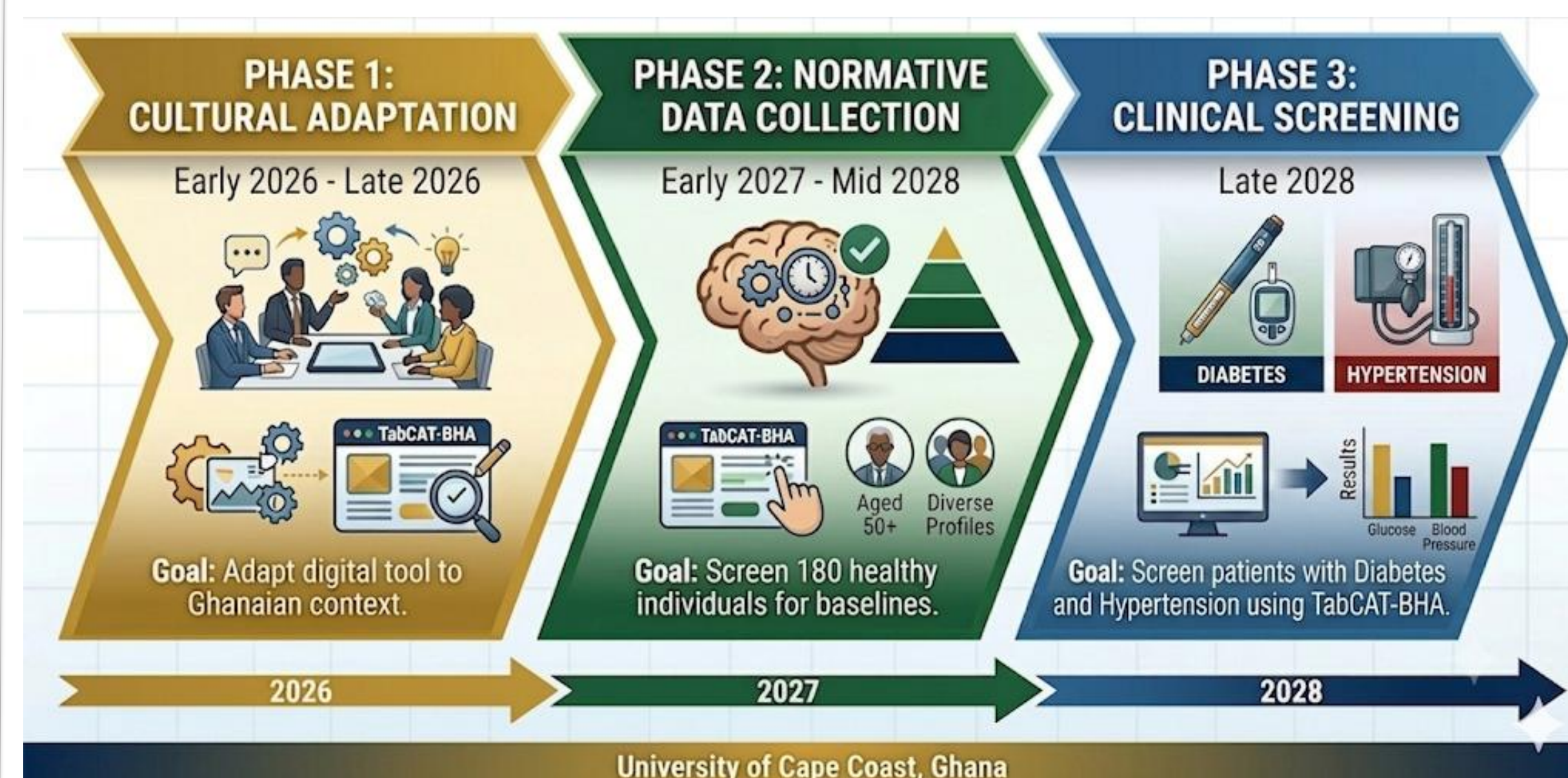


Figure 2. Cultural Adaptation of TabCAT-BHA and Deployment

Expected Outcome

The culturally adapted versions of the TabCAT-BHA tests will demonstrate high acceptability ($>95\%$) and completion rates ($>98\%$) in 180 community dwelling clinically healthy older adults

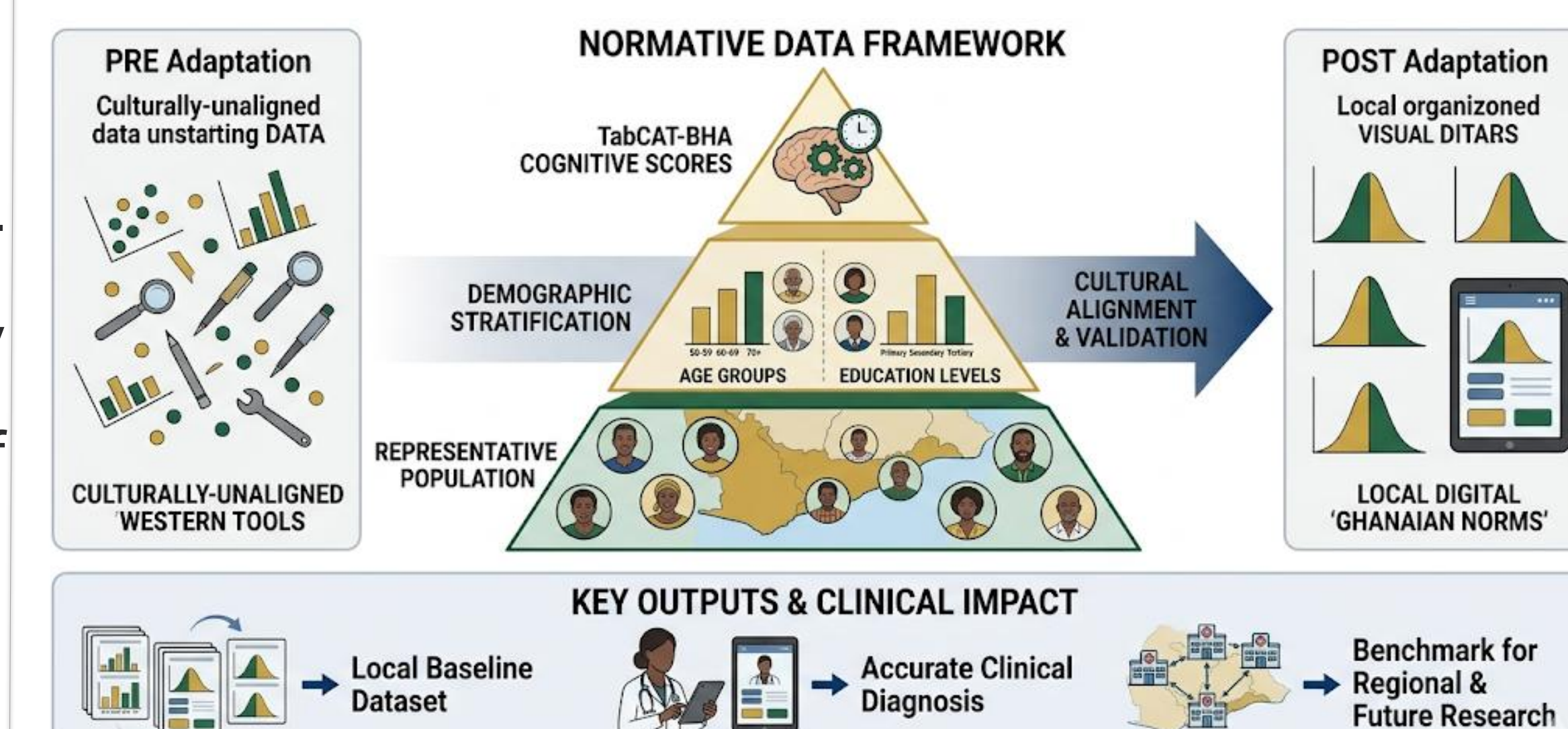


Figure 3. Establishment of local baseline (normative) data for cognitive health in Ghana

Conclusion

Successful completion of this work will establish a 10-minute, primary care-focused screening tool for cognitive impairment, complete with regional normative data and validation against clinical outcomes important to our population's high vascular risk profile. This will be a transformative addition to Ghana's healthcare infrastructure, enabling early detection and timely intervention for cognitive disorders within resource-limited clinical settings

