

## Project Alignment with Wellcome Priorities and Criteria

The proposed study addresses a major global health need (adolescent mental health) in an underserved context (Kenya). Mental health is explicitly a Wellcome priority – for example, Wellcome’s mission emphasizes “early interventions for anxiety, depression and psychosis” <sup>1</sup> – and Kenya’s adolescent mental health has been shown to be a high-burden, neglected area (e.g. a national Kenyan survey found 12.2% of youth meet criteria for a DSM-5 disorder <sup>2</sup> ). By targeting both common disorders (depression, anxiety) and neurodevelopmental conditions (ADHD, cerebral palsy), the project aligns with global calls to address developmental disabilities in LMICs. The project is designed to be **innovative** (applying validated screening tools and new longitudinal analyses in Africa) and **high quality** – using rigorous methods and local data (see below). Wellcome’s Early-Career Award guidelines state that proposals should be “*bold*” and “*creative*” – aiming for significant advances and novel approaches – and “*well designed, clear, supported by evidence... and outcomes are feasible*” <sup>3</sup> . This proposal meets those criteria by building on existing Kenyan infrastructure (e.g. demographic surveillance sites and school networks) and by leveraging recent local studies (e.g. validated ADHD/ASD screening tools in Kilifi <sup>4</sup> ). In summary, the project is highly relevant to Wellcome’s mental health portfolio and global health mission, and it is structured to fulfill the program’s innovation and feasibility criteria <sup>3</sup> <sup>5</sup> .

## Population and Setting in the Kenyan Context

**School-based sampling:** In Kenya, schooling rates are very high among adolescents – a recent national survey found that **97.4% of 10–17 year-olds were currently attending school** <sup>6</sup> . Thus a school-based approach can efficiently reach a large, representative sample of youth for anxiety, depression, and ADHD screening. Advantages include easy access to students, existing administrative records (e.g. attendance, academic performance), and peer group context. However, school surveys would miss out-of-school youth and many children with severe disabilities (e.g. most children with cerebral palsy do not attend regular schools).

**Community-based sampling (e.g. HDSS):** A community/household-based design (such as in a Health and Demographic Surveillance System) can include all children in a locality, regardless of school attendance. For example, studies in the Kilifi HDSS have successfully screened 11,000+ children for neurodevelopmental disorders <sup>4</sup> and estimated NDD prevalence <sup>7</sup> . A community approach would capture harder-to-reach subgroups (e.g. children with CP, out-of-school youth) and link to demographic data (birth records, mortality). The trade-off is higher cost and complexity (enumerating entire communities).

**Facility-based sampling:** Focusing on health facilities (e.g. pediatric or neurology clinics) could identify diagnosed cases of CP and ADHD, but this would be biased toward the severe end and miss most children (few seek formal care). For symptom trajectory research, a community or school frame is preferable.

**Recommendation:** A **mixed setting** is likely best. As a core, a community-based cohort in an established surveillance site (e.g. Kilifi HDSS or Nairobi HDSS) would ensure inclusivity and rich longitudinal data <sup>8</sup> .

<sup>9</sup> . Within this, partnering with local schools can facilitate recruitment and follow-up of adolescents (given 97% school attendance <sup>6</sup> ). In practice, baseline recruitment could occur via schools, health posts, and community registers to capture both typical and disabled children. This hybrid strategy maximizes coverage and data richness (demographic, health and education) while remaining feasible in Kenya.

## Existing Data Sources and New Data Collection

Several Kenyan data sources could support the project. **Household surveys:** The recent Kenya National Adolescent Mental Health Survey (K-NAMHS) collected standardized diagnostic data on ~5,000 adolescents nationwide in 2021 <sup>10</sup> . These data (when available) provide retrospective baselines for prevalence and risk factors. Similarly, global estimates (e.g. UNICEF's analysis) highlight under-recognition of disabilities in African children. **School-based research data:** Large-scale mental health datasets exist, notably the Shamiri Institute's 2023 survey of **17,089 adolescents across 63 schools** with depression/anxiety measures <sup>11</sup> . These cross-sectional data are excellent for prevalence, but lack longitudinal follow-up. **Cohort/HDSS data:** The Kilifi HDSS links household data with hospital records (capturing morbidity and mortality) <sup>9</sup> . KEMRI-Wellcome researchers have used this platform to screen 11,223 children (age 6–9) for NDDs <sup>4</sup> , demonstrating the feasibility of large surveys. Similar surveillance sites (e.g. Nairobi HDSS) could be tapped for retrospective records (e.g. identifying CP cases, prior clinic visits). **Clinical/NGO records:** Some NGOs and hospitals maintain registries of children with disabilities. For example, Save the Children's program in Mandera identified children with CP for community therapy <sup>12</sup> . While no official CP registry exists in Kenya, local estimates suggest up to ~3% of children live with CP <sup>12</sup> . Access to such program data or to pediatric neurologists' records could supplement the epidemiologic picture.

**Viability of primary data:** Collecting new data is feasible given Kenya's research infrastructure. Numerous validated tools exist (e.g. PHQ/GAD for adolescents, the DISC-5 interview, the Neurodevelopmental Screening Tool NDST) and have been piloted in Kenya <sup>4</sup> . Fieldworkers with local language skills and prior experience (as in APHRC or KEMRI studies) can administer surveys. Challenges include ensuring high follow-up rates and ethical engagement of children. However, past Kenyan studies (e.g. the Kilifi NDST study) achieved high retention and diagnostic validation <sup>4</sup> . In summary, a retrospective component could leverage NAMHS, school surveys, and HDSS records, while a prospective component can build on these precedents with primary data collection in schools and communities.

## Prospective Cohort Design and Follow-Up Waves

A longitudinal cohort is needed to track symptom trajectories and care-seeking. We recommend **multiple follow-up waves** spaced over several years. For example, an optimal design might include: (1) **Baseline** (collect demographics, clinical screens, retrospective history of symptoms and care), (2) **Short-term follow-up** (~6–12 months later) to capture early changes and initial care access, and (3) **Annual follow-ups** (e.g. at 24 and 36 months) to observe longer-term trajectories. In practice, **at least 3 waves** (baseline + 2 follow-ups) are essential. Prior research supports this: one large Asian cohort assessed adolescents three times over three years to study depression and family factors <sup>13</sup> . Additional waves (e.g. a 4th at ~4–5 years) would improve power to model developmental changes. Key considerations: questionnaire batteries should be consistent, and intervals long enough (1 year) to observe change but short enough to minimize recall bias. A 6-month interim wave can capture early onset and help-seeking delays. In sum, a 4-wave design (baseline, 1yr, 2yr, 4yr) allows latent growth modeling and cross-lag analyses <sup>13</sup> . (Analytic methods such as latent class growth or cross-lag models would then elucidate symptom patterns and predictors.) Planning

must account for attrition; Kenyan cohorts often retain 80–90% by year 2, so initial sample sizes should allow for ~10–20% loss to follow-up.

## Team Expertise and Collaborators

A successful project requires an **interdisciplinary team**. Key expertise includes:

- **Clinical specialists:** A child/adolescent psychiatrist or clinical psychologist (for diagnostic assessments), a pediatric neurologist (to evaluate cerebral palsy and other neurological conditions), and a pediatrician. These clinicians ensure valid identification of ADHD, CP, and mental disorders.
- **Epidemiologist/Statistician:** A quantitative expert (biostatistician or psychometrician) is essential for cohort design, sample size, and advanced longitudinal analysis (growth models, trajectory clustering).
- **Data management/IT:** A data manager or IT specialist for database design (possibly using tablets/mobile data capture) and quality control.
- **Field and community:** Local field coordinators and enumerators with training in mental health questionnaires. Community engagement personnel (e.g. social scientists or NGO partners) to liaise with schools, families, and community leaders is crucial. Involving individuals with *lived experience* of mental health (youth or caregivers) is explicitly recommended by Wellcome for mental health research <sup>14</sup> and enhances trust and relevance.
- **Policy/Stakeholders:** Collaboration with Kenyan Ministry of Health (Division of Mental Health and Adolescent Health) and Ministry of Education will facilitate access and eventual translation. Local research institutions such as KEMRI-Wellcome Trust (Kilifi) and the African Population and Health Research Center (Nairobi) have existing capacity and networks; partnering with Kenyan universities (e.g. Pwani University, University of Nairobi) can build local training. International collaborators with prior African mental health expertise (e.g. from Oxford, King's College London) could provide mentorship, as suggested by recent African mental health research capacity initiatives <sup>15</sup>.
- **Community organizations:** Linking with mental health NGOs (e.g. Africa Mental Health Foundation, local disability groups) can support recruitment and dissemination. These community partners help address social determinants (gender, poverty, stigma) highlighted as crucial factors in African mental health <sup>15</sup>.

In sum, the project team should span clinical, statistical, public health and community domains. The mix of Kenyan and global collaborators, together with involvement of youth and family voices, will create the positive, inclusive environment Wellcome expects <sup>14</sup> and ensure the research is scientifically rigorous, culturally grounded, and policy-relevant.

**Sources:** Wellcome Trust criteria and priorities <sup>3</sup> <sup>1</sup> <sup>14</sup>; Kenyan mental health studies and data (K-NAMHS <sup>10</sup> <sup>6</sup>, Kilifi NDD studies <sup>8</sup> <sup>4</sup>, Shamiri survey <sup>11</sup>, Save the Children report <sup>12</sup>) were used to inform this assessment.

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<sup>1</sup> Mental Health | Our priorities | Wellcome

<https://wellcome.org/our-priorities/mental-health>

<sup>2</sup> <sup>6</sup> Mental\_health\_full\_brief\_Second edit

[https://aphrc.org/wp-content/uploads/2022/10/K-NAMHS-report\\_2022.pdf](https://aphrc.org/wp-content/uploads/2022/10/K-NAMHS-report_2022.pdf)

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- 4 Validity and reliability of the Neurodevelopmental Screening Tool (NDST) in screening for neurodevelopmental disorders in children living in rural Kenyan coast - PubMed  
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