ASSESSING EFFECTIVENESS AND ACCEPTABILITY OF A COMBINED NEUROCOGNITIVE DEVELOPMENT ASSESSMENT TOOL FOR CHILDREN AGED 0 TO 6 YEARS IN MALAWI

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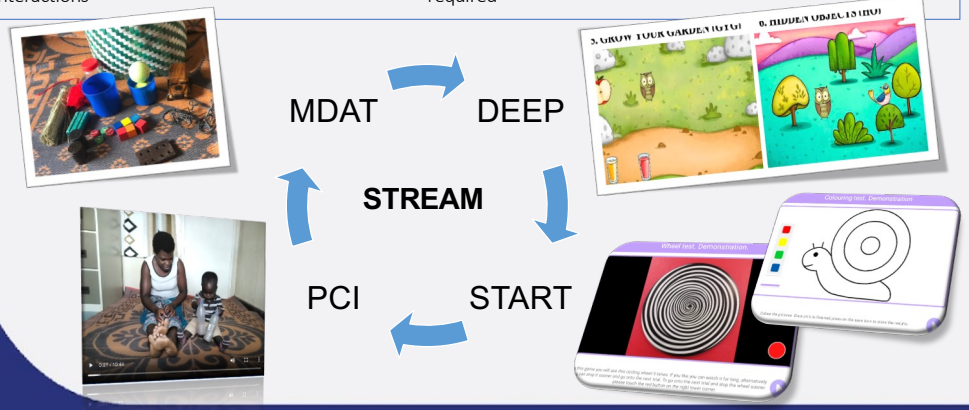
Introduction

- Studies have shown that 10 to 20% of the children and adolescents worldwide have neurodevelopmental disorders[1]
- Child development and mental health in Malawi are mainly assessed through standardized clinical tools developed in Western countries
- These tools are often culturally inappropriate, expensive and require extensive training[2,3]
- To fill this gap, the STREAM project has developed a scalable tablet-based platform, for use by non-health personnel, to assess neurocognitive development in preschool children

What's the STREAM APP?

Tool	Ages	Timing	Training?	Domain	Procedure
Malawi Developmental Assessment tool (MDAT)	0-6 years	30 to 40 minutes	Yes	Language, motor, visual-spatial	Child administration
Developmental Assessment on a E-Platform (DEEP)	2 to 6 years	20 to 30 minutes	Some training required	Cognitive/reasoning, executive functioning, visual-spatial, learning/memory	Child administration
Screening Tools for Autism Risk using Technology (START)	2 to 6 years	20 to 30 minutes	Some training required	Cognitive/reasoning, visual-spatial	Child administration
Observation of Mother-Child Interactions	0-6 years	7 minutes	Some training required	Parent-child interactions	Observation



Aim

Assess the effectiveness and acceptability of STREAM tool on children aged 0-6 years in Malawi

Methodology

Sample & Recruitment strategy

Figure 1. Flowchart of participants

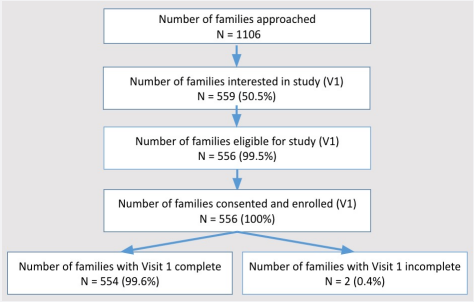
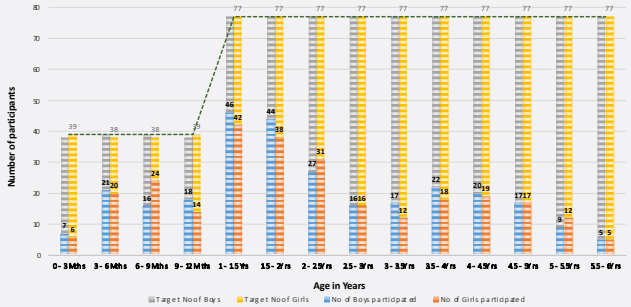
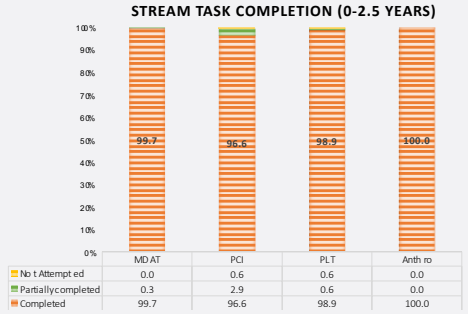


Table 2. Sample by age and gender strata



Results

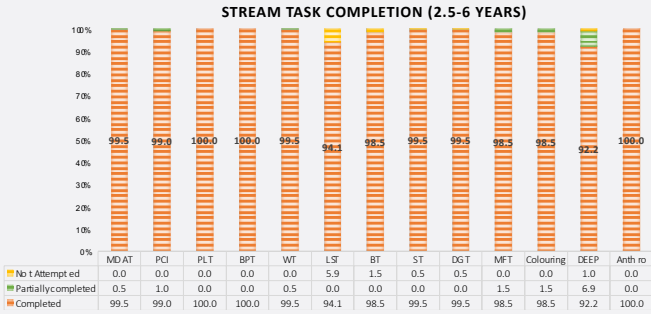
STREAM TASK COMPLETION (0-2.5 YEARS)



	MDAT	PCI	PLT	Anth ro
Not Attempted	0.0	0.6	0.6	0.0
Partially completed	0.3	2.9	0.6	0.0
Completed	99.7	96.6	98.9	100.0

MDAT = Malawi Developmental Assessment Tool, PCI = Parent-Child Interaction; PLT = Preferential Looking Task

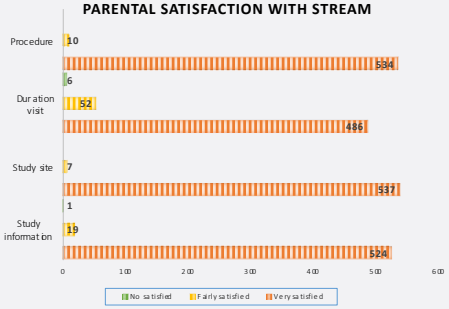
STREAM TASK COMPLETION (2.5-6 YEARS)



	MDAT	PCI	PLT	BPT	WT	LST	BT	ST	DGT	MFT	Colouring	DEEP	Anth ro
Not Attempted	0.0	0.0	0.0	0.0	0.0	5.9	1.5	0.5	0.5	0.0	0.0	1.0	0.0
Partially completed	0.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.5	1.5	6.9	0.0
Completed	99.5	99.0	100.0	100.0	99.5	94.1	98.5	99.5	99.5	98.5	98.5	92.2	100.0

MDAT = Malawi Developmental Assessment Tool, PCI = Parent-Child Interaction; PLT = Preferential Looking Task; BPT = Bubble Popping Task; WT = Wheel Task; LST = Language Sampling Task; BT = Button Task; ST = Synchrony Task; DGT = Delay Gratification Task; MFT = Motor Following Task

PARENTAL SATISFACTION WITH STREAM



Discussion

The games/ tasks included in the STREAM app were successfully completed by most children. For the older group, the Language Sampling Task and DEEP presented the lowest ratios of completeness, which was associated with equipment problems and children's fussiness. Most caregivers responded positively to the assessment session and tool. In summary, the STREAM app is proving to be a scalable and viable way to assess children's neurocognitive development in Malawi by non-health workers. By 2024 this study will provide normative data on key neurodevelopmental domains in Malawi as well as evidence of its clinical utility in the assessment of neurodevelopmental disorders.

References: 1. GBD 2016 *Lancet*, 390, 1211–1259 (2017); 2. Bhavnani, S. et al. *Global Health Action*, 12, e1548005 (2019); 3. Semrud-Clikeman, M. et al. *Child Neuropsychology*, 23(7), 761-802 (2017)

RESEARCH DISSEMINATION CONFERENCE

Sangath · Birkbeck University of London · University of Reading · Keele University · University of Cambridge · Harvard Medical School · University of Liverpool · Blantyre Malaria Project · Kamuzu University of Health Sciences

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