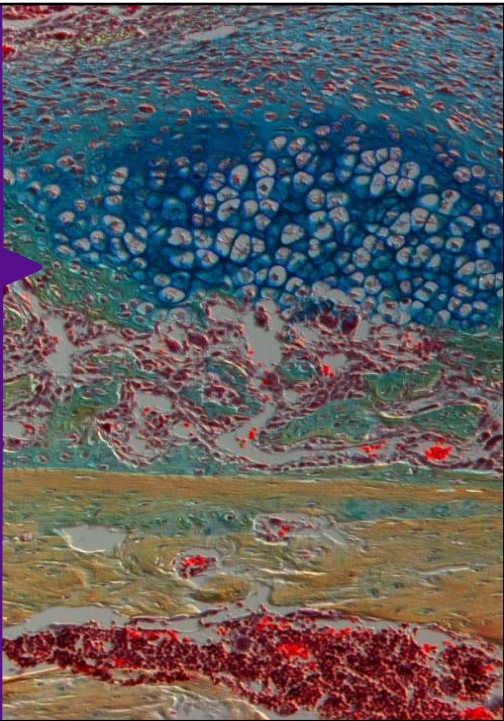
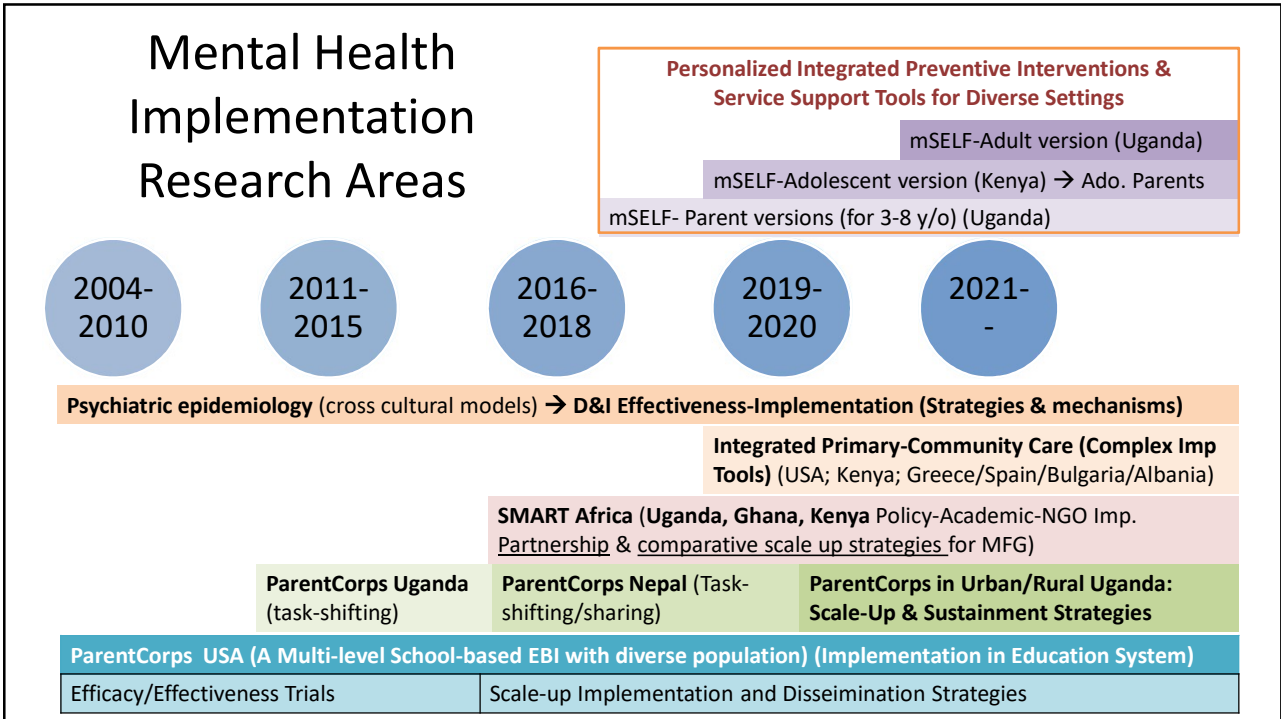


Digital Solutions for Personalized Mental Health Preventive Care: mHealth Toolkits Design and Implementation Strategies

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Global Child & Adolescent Mental Health Research



Acknowledgement- mSELF

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- **Partnering Agencies:** NYU, Makerere University, University of Nairobi, HealthRight International/Kenya, Uganda & Kenyan Ministry of Health & Ministry of Education, CBOs
- **US, Uganda & Kenya Clinical & Research Teams:** Drs. Janet Nakigudde, Antoinette Schoenthaler, Devin Mann, Manasi Kumar, Samrachana Adhikari, Rumi Chunara, Theresa Castillo, Sabrina Cheng, and research implementation teams from Makerere University, University of Nairobi, NYU School of Medicine, & HealthRights International.



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- **Uganda & Nepal Clinical & Research Teams:** Dr. Janet Nakigudde, Mr. Hari Rana, and clinical implementation teams from Makerere University & HealthRights International
- **NYU Program Developers and Clinical Research Team:** Drs. Laurie Miller Brotman, Esther Calzada, Michelle Boyd, Spring Dawson-McClure, and *ParentCorps* implementation team
- **NYU Health Economist:** Dr. Yesim Tozan



mSELF

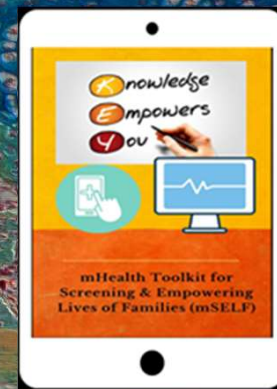
mHealth Toolkit for Screening & Empowering Lives of Families & Communities

Design Thinking

- Multiple areas of problems to be solved
- Service Functions (to integrate multiple evidence-based practice guidelines and brief interventions)
- User-Centered Design Strategies
- Sustainable Implementation Strategies

Results from the Feasibility Studies

- Parent of Young Children Version
- Adolescent Version
- Adult/Teacher Version



Global Mental Health Service Challenges

Cultural Norms

Socio-cultural contexts hinders opportunities to **engage** in screening and intervention



Communication Deficiencies

Mental health knowledge dissemination is not delivered using appropriate channels



Intervention & Service Barriers

Lack of tailored/**personalized** evidence-based interventions [EBIs]; Lack of **access** to EBIs; Lack of professionals **resources**



Public Health Consequences: Young People's Wellbeing and Quality of Home & Service

Youth & Young Adults Mental Health Needs

- 10-20% of CA have emotional and behavioral challenges
- > 50% of mental health problems develop by age 14
- Anxiety, Depression and Conduct problem contribute to 75% of the total mental health burden (or Top 5 global health burden)

(Rumi Kato Price, 2016)

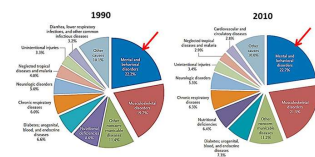
Parental Concerns and Needs

- Parents consistently report that dealing with child behavior problems is one of their biggest challenges
- Parents and caregivers do not have access to needed knowledge and information about alternative effective parenting strategies

Public Health Intervention & Service Needs

- Service gaps: Health providers or schools do not provide sufficient support to parents/families (early, middle childhood, adolescents)
- Many EBIs can address the needs, but there are problems in integrating into services

Global Burden of Mental Health Disability



Becher AE & Kleinman A. NEJM. 2013. Percentages based on Years Lived with Disability (YLD).

Scale of Problems in Taiwan

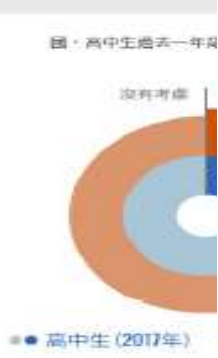


01 我的憂鬱自白



- 160,000 <30 years old is
- 800-1000 students suicid

近四分之一國中生認真考慮過自殺



資料來源：衛福部調查

Service Access Barriers

- 兒童及青少年的憂鬱症：社會和家庭的溝通、同理、以及污名化
- 爸爸媽媽不來看醫生，只好我自己來看呀！
- **求助不僅需要勇氣，更需要常識！**

Workforce challenges

- 大學預約諮商 等近一個月
- 薪水不到三萬 血汗雜務多
- 輔導之門大開 卻無人把關

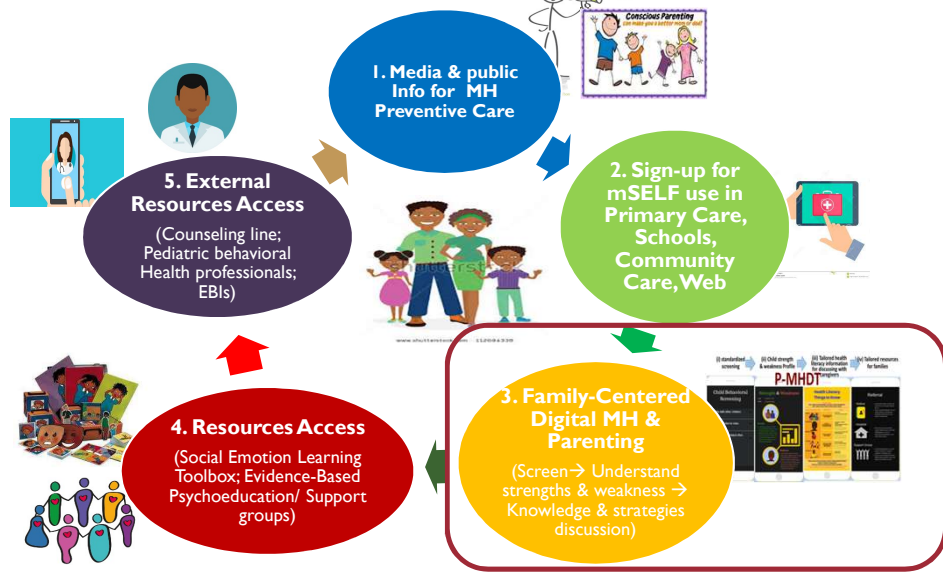
大專校院心理輔導資源如何運作？



http://newmedia.udn.com.tw/2021/teenage_depression/?utm_campaign=udnweb_BN&utm_medium=BN&utm_source=udnweb

What's Needed?

How Does an Integrated Digital Tool + Family-Centered Mental Health Care Look?



TOOLKIT DESIGN THINKING

mSELF Integrates 5 Major Steps to Behavioral Intervention

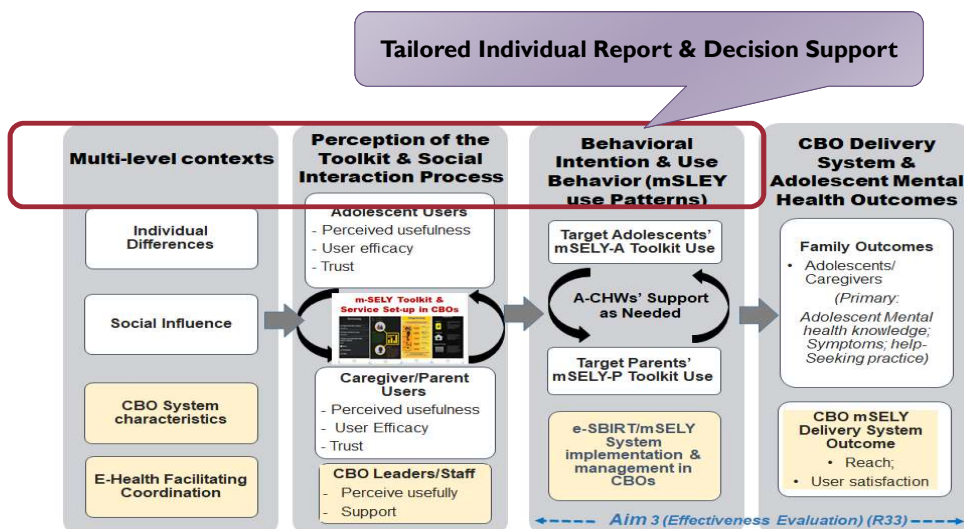


~Representing the e-SBIRT Care Model in Primary Care (Screening-Brief Intervention- Referral-Treatment)

**5 A's from AHRQ: <https://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/5steps.html>



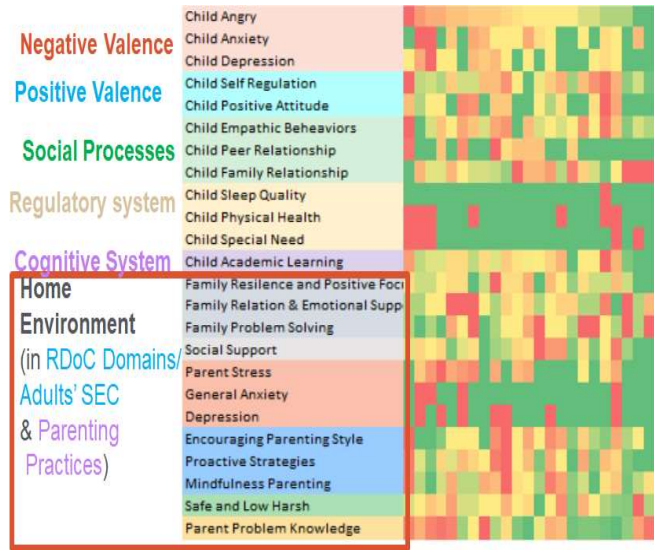
User-Centered Design Principles/Strategies



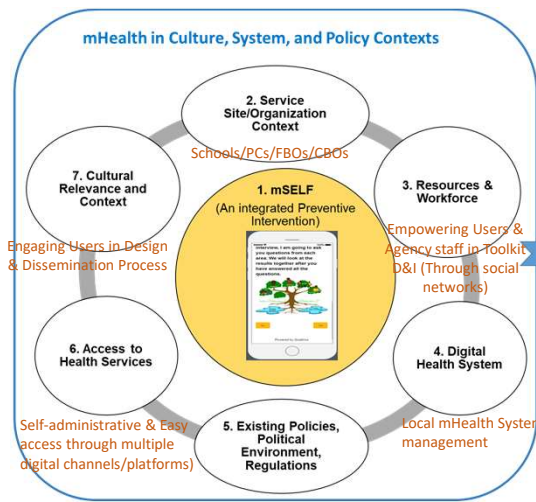
User-Centered Design Framework integrates the mHealth Technology Acceptance Model (TAM), Social Action Theory, and Implementation outcome frameworks

Tailored Decision Support

- ▶ Use personal data & goals to inform brief service /intervention decisions
- ▶ Current mSELF decision-support function is based on expert decision
- ▶ Moving toward big-data analytic/machine learning approach of decision-support (Collaboration with Drs. Samrachana Adhikari & Rumi Chunara)
- ▶ Using RDoC & SDH data for better understanding psychopathology & service development decision



Sustainable Implementation Strategies



Examples: Adolescent & Young Adult Self- Management Version

I. E-Assessment



Personal wellness and relationship health are influenced by many factors. In the figure below, we list a key influential factors. Be aware of our own strengths and weaknesses in these 5 areas may help us take actions to better managing our relationship and wellness.

The Toolkit will ask you questions related to your **wellness and relationship health** first, and then ask you questions related to your **views and experience in 5 listed influential areas**.

After answering ALL the questions, the Digital Toolkit will generate a report card and share the results with you right away. To ensure the results and suggestions represented to your situation and needs, we ask you to answer the questions as true to yourself as possible.

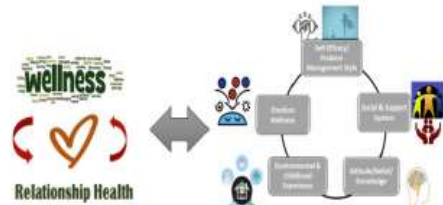
In order to receive a personal report card and support information, you **MUST** complete all questions. This entire self-assessment portion will take about 30 minutes.

<< Previous Page

Next Page >>

Save & Return Later

Research evidence has shown that an individual who has good social and emotion competency, sense of self-efficacy, stress management/coping strategies, is surrounded by a healthy environment that shapes healthy attitude, and is supported by a good support system is more likely to have healthy relationship and high wellness. Let's start by reviewing your level of wellness and relationship health. We will review your other strengths and weakness areas after. We will use the results to understand and explore ways to promote and maintain your wellness and relationship health! **This Part II will take about 5 minutes. You have the option to receive a copy of the results for the Part II.** We will provide more information at the end of the Part II.



<< Previous Page

Next Page >>

Save & Return Later

My Results (Strengths and Areas to Improve or Get Support)

My Wellness Results

Green means you are doing well in the area. It is your strength.
Red means room for improvement. It is your weakness area.

My Mental Health (Strength)

My PTSD Signs (Strength)

My Alcohol Use (Room for Improvement)

[<< Previous Page](#) [Next Page >>](#)

My Relationship Health Results

Green means you are doing well in the area. It is your strength.
Red means room for improvement. It is your weak-side area.

Relationship Tension - Area for Improvement

Disrespectful Relationship/Partner Aggression Toward You - Area for Improvement

Disrespectful Relationship/Aggression Toward Your Partner - Strength (low risk)

Relationship Management - Constructive Conflict Resolution (i.e., Reflection, Communicative)- Strength

Relationship Management - Tendency using Aggressive Verbal & Emotion Regulation Strategies - Area for Improvement

[<< Previous Page](#) [Next Page >>](#)

My Strengths and Weaknesses in 5 Relevant Areas

Green means you are doing well in the area. It is your strength.
Red means room for improvement. It is your weakness area.

My Self-Efficacy & Problem Management Style Results

Self-Efficacy (Control, Sense of Adequacy in Managing Life) - Area for Improvement

Self-Efficacy - Strength

Control, Taking Action to Solve Problems - Area for Improvement

Control, Acceptance to the Problem - Strength

Control, Positive Thinking - Area for Improvement

My Emotional Wellbeing

Emotion Competency - Awareness of Feeling - Area for Improvement

Emotion Competency - Clarity/Have Ideas about How Self Feel - Area for Improvement

Emotion Competency - Ability to Relax when Upset - Strength

Emotion Competency - Control Behavior When Upset - Strength

Perspective about My Results

Relationship health will impact wellness and vice-versa. Also, several personal and environmental factors will influence wellness and relationship health.

Now you have reviewed your wellness and relationship health results. Do you find the results relevant and reflect your wellness status?

No, not reflect my situation

Yes, relevant and reflect my situation

I am not sure

Areas that I Would Like to Learn More or Work On

Based on your wellness & relationship health results, do you think there are areas that you'd like to work on or improve?

Please check all relevant boxes for the areas that you would like to work on or improve.

My Wellness

My Physical Health

My Mental Health

My PTSD Signs

My Alcohol Use

My Relationship Health

My Relationship Experience

My Relationship Tension

Disrespectful Relationship (Partner Aggression toward you, Aggression toward Partner)

Relationship Management (Constructive Conflict Resolution, Using Aggressive Resolution Strategies)

[<< Previous Page](#) [Next Page >>](#)

Self-Appraisal

Areas that I Think Might be related to My Wellness, Relationship Health, and Who I am Today

We have chosen 10 unique strengths and weaknesses in 5 relevant areas. Factors listed in these 5 areas may have positive or negative influences on each person, and some factors may be more influential than the others. From your perspective, what are the important factors that you think might have contributed to your wellness, relationship health, and who you are today (either in positive or negative ways)?

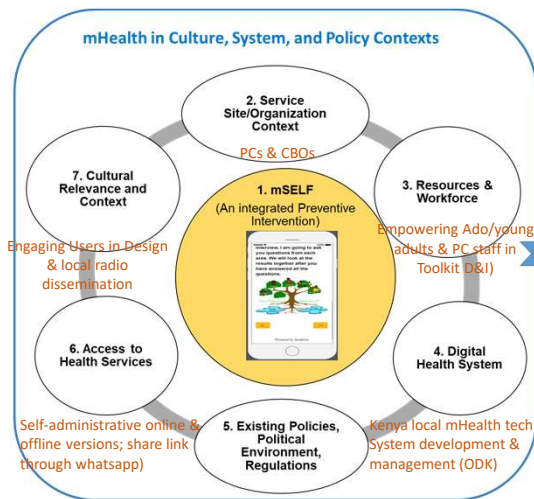
Please check all relevant boxes that you think are important to your Wellness and Relationship.

My Self-Efficacy & Problem Management Style	My Social and Support System
<input type="checkbox"/> Sense of Adequacy in Managing Life	<input type="checkbox"/> Friendship
<input type="checkbox"/> Self-Efficacy	<input type="checkbox"/> Low Social Disrespect/Partner Rejection
<input type="checkbox"/> Take Action to Solve Problems	<input type="checkbox"/> Satisfaction with Social Roles & Activities
<input type="checkbox"/> Acceptance to the Problem	<input type="checkbox"/> Have Social-Emotional Support
<input type="checkbox"/> Positive Thinking	<input type="checkbox"/> Problem Solve with Family
<input type="checkbox"/> Have Family Emotional Support	<input type="checkbox"/> Have Family Emotional Support
My Emotional Wellbeing	
Environmental & Childhood Influence	
<input type="checkbox"/> Awareness of Feeling	<input type="checkbox"/> Childhood: Harsh/Abuse
<input type="checkbox"/> Clarity/Have Ideas about How Self Feel	<input type="checkbox"/> Childhood: Neglect
<input type="checkbox"/> Ability to Relax when Upset	<input type="checkbox"/> Childhood: Adult IPV or Abuse
<input type="checkbox"/> Ability to Control Behavior when Upset	<input type="checkbox"/> Childhood: Psychological Distress of Family Members
<input type="checkbox"/> Acceptance of Negative emotion	<input type="checkbox"/> Childhood: Sexual Violence/Abuse/ Victim
<input type="checkbox"/> Ability to self-regulate & Overcome Negative Emotion	<input type="checkbox"/> Peer Abuse for IPV
My Attitudes, Beliefs, and Knowledge	

Adult Version Example



Implementation Strategies for the Adolescent Version



Feasibility for the Parent Version (for 4-8 years old) (NIMH R21)



- n=120 parents of 4-8 years from 6 churches in Uganda
- **Implementation Outcomes:**
 - High acceptability, appropriateness, and usefulness in promoting parenting literacy from both parents' and implementers'/CHWs' perspectives (all means were >4 on a 1-5 Likert-scale)
- **Preliminary Impacts:** Anticipated effects on parents' resource/service seeking behaviors & family outcomes after service use (toolkit + group)
 - 71% **used parenting group service** provided by CBOs after the toolkit session
 - Parenting (i.e., decrease **parent-child conflict** d=.76; increase **mindfulness parenting**, d=.42; perceive **social support** for parenting d=.33; **structure predictable environment** d=.62)
 - Improved **child emotion-regulation outcomes** (d=.49)

Feasibility for the Adolescent Version

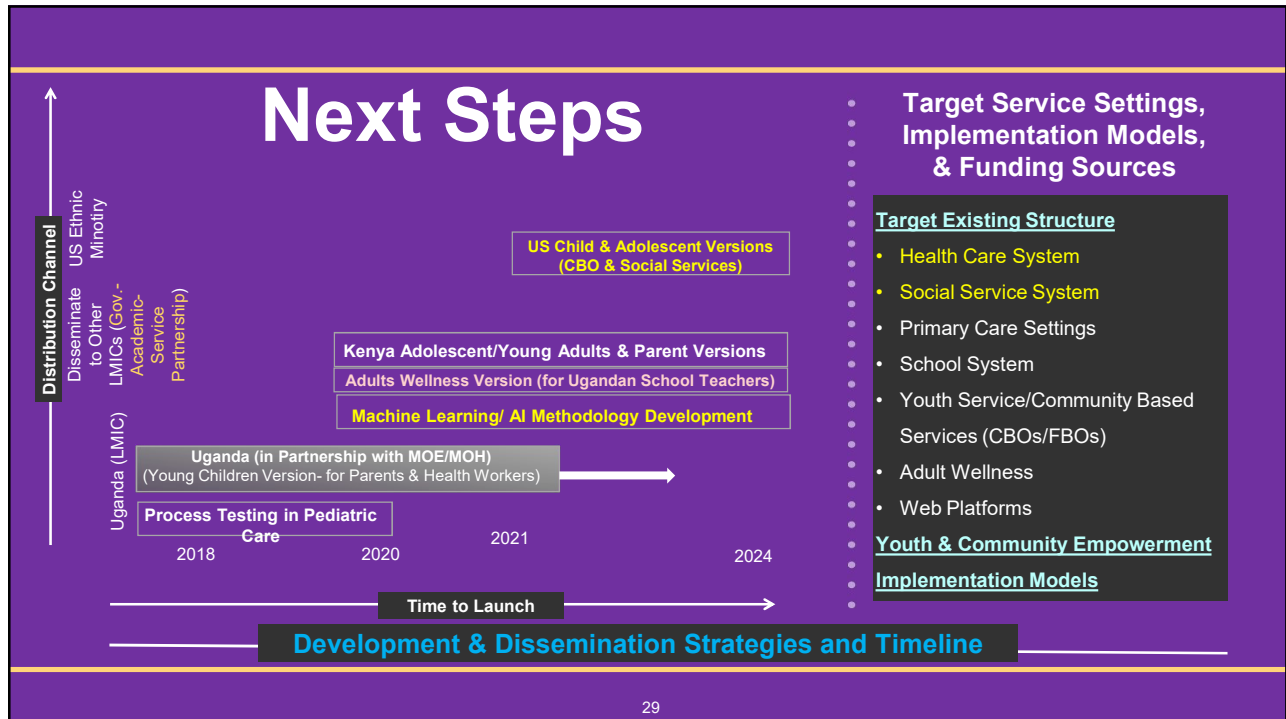


- N=~300 adolescents and parents in Bungoma Kenya
- High **'fit', 'acceptability', 'usefulness', and 'feasibility':**
 - **Acceptability** (93-100% report mSELF meet expectation or appealing), **appropriateness** (89-90% report mSELF fit needs of young people); **usefulness/satisfaction** (86-96% report as a good way to check, understand, and improve knowledge and awareness); 94% would **recommend other** to sign up to use the Toolkit session; 85% plan to share results with others
 - **Health literacy** (97% reported clear understanding about how relationship, family, and wellness are inter-related after reviewing the report; 83% know how to use the findings and materials to help self; 79% know where to find support resources)
 - **Perceive safety & trust** (86% trusted that answers are confidential and securely be stored)
 - **Tech Literacy:** 95% were comfortable in using a smart phone or a table (68% had smart phone)

Feasibility for the Adult/Teacher Version (NIMH R01)



- n=40 primary school teachers from 4 schools in Uganda
- **Feasibility of Implementation:**
 - 92% agree or strongly agree that mSELF is a good way to check self wellness
 - 96% thought the strength and weakness profile relevant and reflect their self characteristics and experience
 - 92% thought report card are clear to them
 - 92% agree or strongly agree Toolkit is helpful to understand self stress and way may manage it
 - 100% would recommended the Wellness Toolkit to other teachers



Qs & As

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