LASER PULSE

Long-term Assistance and SErvices for Research (LASER)
Partners for University-Led Solutions Engine (PULSE)

FINAL PROJECT REPORT:
Catalyzing Change in Education Through a Transformative Learning Collaborative: Scaling-up of a Social-Emotional Learning Curriculum in Uganda

AUTHORS
Keng-Yen Huang, PhD, MPH, New York University School of Medicine (Project Lead)
Janet Nakigudde, PhD, Makerere University (Project Lead)
Eddie Tinka Mugisa, MA, Makerere University
Tusiime Christine, MA, Butabika National Referral Mental Hospital
Martha Kyaterekera, MHP, Makerere University
Elizabeth Nsamba Kisakye, Uganda Ministry of Education and Sports
Hafsa Sentongo, Uganda Ministry of Health
Michelle Boyd, MSW, MPH, New York University School of Medicine
Meghan Hurley, EdM, LMHC, New York University School of Medicine
Ugandan ParentCorps Research Implementation Team
ParentCorps Clinical Implementation Team

ABOUT LASER PULSE
LASER (Long-term Assistance and SErvices for Research) PULSE (Partners for University-Led Solutions Engine) is a five-year, $70M program funded through USAID's Innovation, Technology, and Research Hub, that delivers research-driven solutions to field-sourced development challenges in USAID partner countries.

A consortium led by Purdue University, with core partners Catholic Relief Services, Indiana University, Makerere University, and the University of Notre Dame, implements the LASER PULSE program through a growing network of 2,700+ researchers and development practitioners in 61 countries.

LASER PULSE collaborates with USAID missions, bureaus, and independent offices, and other local stakeholders to identify research needs for critical development challenges, and funds and strengthens the capacity of researcher-practitioner teams to co-design solutions that translate into policy and practice.

ACKNOWLEDGEMENTS

SUGGESTED CITATION
Huang et al. 2022. *Final project report: Catalyzing Change in Education Through a Transformative Learning Collaborative: Scaling-up of a Social-Emotional Learning Curriculum in Uganda*. West Lafayette, IN: Long-term Assistance and Services for Research - Partners for University-Led Solutions Engine (LASER PULSE Consortium).

EXECUTIVE SUMMARY

Purpose

This project "*Catalyzing Change in Education through a Transformative Learning Collaborative: Scaling-up of a Social Learning Curriculum in Uganda*" addresses teachers' and students' social-emotional needs by implementing an adapted version of evidence-based Social-Emotional Learning (SEL) program and studying strategies to provide the SEL program at scale. The SEL program applied in this study is the adapted version of *ParentCorps-Professional Development* called *PD-Enhance*. *ParentCorps-Professional Development* (PC-PD) is an evidence-based intervention (EBI) that trains, empowers, and supports teachers to apply evidence-based behavioral health strategies to promote child SEL, improve academic learning, and reduce behavioral problems. This project applies the *PD-Enhance* program that includes contents for promoting teachers' social emotional health to simultaneously address teachers' and students' social-emotional needs. This report can be used by the Uganda government or any relevant stakeholders from other LMICs as a guide to implementing PD-Enhance in their countries to promote SEC/SEL for students and teachers. To become a PD-Enhance site and to ensure the program is set up for success and can achieve the evidence-based outcomes, reach out to the Project Leads (see Authors) or ParentCorps Central Office for more site setup, onboarding, and collaboration process information.

This project includes three goals:
(1) to develop and test strategies to scale up and integrate the PD-Enhance into the Ugandan primary education system;
(2) to develop PD-Enhance by adapting *ParentCorps-Professional Development* (adding teacher SEL promotion curriculum/contents) and ensuring equitable benefit to male and female teachers and students' social-emotional health; and
(3) to examine the effectiveness of PD-Enhance on teachers' and students' social-emotional competence (SEC) when implemented using a scalable approach.

This project addresses the goals of the United States Agency for International Development (USAID) in improving the education system, education outcomes, gender equity practices, and SEL/SEC for both adults and students. Our project has contributed to the United Nations' Sustainable Development Goals and Uganda National Education, Gender Equity, and Mental Health Policies and practices. Results also elucidate critical knowledge and strategies to promote SEC/SEL for both boys and girls and men and women in gender equity ways; advance understanding of impacts of teachers' SEC/SEL on students SEC/SEL; and inform scalable approaches of SEL programming and research globally.

Context

Uganda is known for its cultural distinctiveness, strong traditions, and hospitality. Children in Uganda comprise 55% of the total population, making it the nation with the youngest population on the continent, with massive potential for growth. Ugandan children also face enormous developmental, health, and educational challenges. More than one-quarter of Ugandan children have behavioral and social-emotional challenges, and only 53% achieve grade-level academic competency in 6th grade. The extensive child social-emotional development and educational gaps can be attributed to high exposure to the adverse environment, poor nurturing support, and adults' lack of SEC due to generational exposure to adversity. Teachers' SEC can influence teachers' ability to develop healthy teacher-student relationships, manage a classroom, implement evidence-based SEL strategies, and support students' parents. Thus, a transformation of the current education system is needed to improve SEL programs and curriculum for both teachers and children, promote children's SEC, and reduce education gaps.

3

The PD-Enhance program is adapted from the evidence-based ParentCorps to become a SEL program for teachers and students in low-and-middle-income-country contexts and for scalability in these contexts. Both Teacher Training College (TTC) trainers and mental health professionals work together to provide the program. TTC trainers, who do not have a mental health training background, impart a 3-day training and seven hours of coaching (a total of 28 hours) to primary school teachers to promote teachers' knowledge and practices in evidence-based strategies that foster students' SEL and social emotional development. Mental health professionals impart a 1-day training and 2 hours of coaching to teachers (a total of 9 hours) to promote teachers' SEC, stress management, and mental wellness. The PD-Enhance program aims to help teachers foster child social-emotional learning, strong family-school relationships, and safe, nurturing, and predictable classroom environments, as well as foster a supportive school environment and teacher social emotional wellbeing. This new adapted PD-Enhance program also includes the four key elements that the ParentCorps theory of action specifies as essential for strengthening teacher use of evidence-based practices: building authentic relationships, honoring culture, translating the science of early childhood development, and practicing self-reflection.

Methodology
This project was conducted using a transformative learning collaborative method, which applies science of partnership research to guide the research translation from regional evidence to policy/system level (Huang et al. 2018). We engaged multi-disciplinary experts from the US and Uganda (including 10 stakeholders from Primary Teacher Training College (TTC), 2 policy stakeholders, and 10 mental health practitioners and researchers). We utilized strengths and resources that each stakeholder and agency brought to co-learn and co-design solutions and products together.

Together, we developed and tested a scalable, remote train-the-trainer model to train a team of Teacher Training College trainers and mental health professionals to take on the *PD-Enhance* implementation role. Using this new scalable implementation model, a group of 9 TTC tutors and Ugandan mental health professionals (MHPs) were trained. They then provided the PD-Enhance program to teachers from 12 schools (6 intervention schools and 6 wait-list control schools that received the intervention after completion of the intervention data collection).

Findings
A total of 98 teachers participated in the study (52 intervention and 46 control) and estimated 8,000+ students from studied primary schools have benefited from their teachers receiving training. As part of the effectiveness evaluation study, 198 families randomly selected from the study schools were interviewed. Both teachers and parents provided data collected before the intervention (Time 1) and after the intervention (Time 2). These data were used to evaluate the impacts of the program. Consistent with the expectation, we found that the intervention significantly improved teacher practices in family engagement and they used less harsh discipline. The PD-Enhanced program also improved teacher emotion regulation (i.e., ability to focus on goals when upset), reduced teachers' stress, and improved work support. The impacts on teachers also led to students' improvement in peer relationships. We also found reduced social problems for male students compared to female students.

Conclusions
This project contributes to SEL and mental health promotion in schools in several significant ways.

- The established policy-academic-practice partnership that includes teacher training colleges (TTCs), mental health professional training institutions, the Ministry of Education & Sports, and the Ministry of Health, and diverse multi-disciplinary team members from the US and Uganda can serve as a collaboration platform to continue development of a road map and strategies for scaling up and sustaining evidenced-based SEL interventions in school system.
- The program manuals and materials developed from this project can be used as a teacher SEL professional development training package and integrated into TTC training curriculum to promote students' SEL/mental health.
- The brief teacher SEL program and manual for promoting teachers' SEL and mental health can be broadly offered to teachers and especially for teachers serving in high-stress contexts.
- Through pilot testing of the train-the-trainer model, we demonstrated the feasibility of our scale-up model in strengthening the TTC system's capacity to take on the implementation role and broadly implement the PD-Enhance curriculum to school teachers.
- We have demonstrated that TTC tutors are capable of providing Enhanced ParentCorps-Professional Development training and group coaching sessions to teachers, and the program was well received by the teachers.
- We demonstrated the intervention implemented using our scale-up model and by the trained TTC tutors could result in expected impacts on teachers' practices, SEL/wellbeing, and students' SEC outcomes.
- Our gender analyses also contributed to new knowledge in understanding gender differences in SEC and mental health in Ugandan adults and children and Ugandan adults' caregiving practices toward different gender.
- The website developed from this project can serve as a platform for Ugandan and global collaboration partners to share knowledge, findings, research and translational products, and success stories (https://sites.google.com/med.nyu.edu/sel-ug/home).

Recommendations

This project accomplished three key goals. Through a collaborative multi-stakeholder partnership, the team worked together to develop a scalable and sustainable implementation model to strengthen the education system capacity to scale up a SEL program (PD-Enhance). This project demonstrated that training teachers on both child and teacher SEL promotion programs not only improves students' SEL outcomes, but also improves teachers' teaching practice, classroom behavioral management, stress management, and teacher social emotional wellbeing. Training teachers on PD-Enhance is a cost-effective method to address mental health gaps for teachers and learners in Uganda. Thus, the Ministry of Education and Sport should integrate and promote training teachers on PD-Enhance.

TABLE OF CONTENTS

LIST OF FIGURES

ACRONYMS

EBI	Evidence-Based Intervention
LMIC	Low-and-Middle-Income Country
MOE	Ministry of Education and Sports
MOH	Ministry of Health
MHP	Mental Health Professional
PC-PD	ParentCorps-Professional Development for Teachers
PD-Enhance	ParentCorps-Professional Development – Enhance Program
SEC	Social Emotional Competence
SEL	Social Emotional Learning
TTC	Teacher Training College
USAID	United States Agency for International Development
US	United States of America

BACKGROUND

Unmet Needs of Ugandan Children and Adults

Children in Uganda comprise more than half of the total regional population (UNICEF 2022; Population Reference Bureau 2020) and face enormous behavioral and educational challenges (UNICEF 2022; Ministry of Education Uganda 2017). About half of children do not achieve grade-level achievement at 6th grade (Ministry of Education Uganda 2017). Despite the vast child social-emotional and learning challenges, the emerging literature suggests the feasibility of adapting evidence-based social-emotional learning (SEL) interventions to Ugandan schools (Baumann et al. 2015; Gardner, Montgomery, and Knerr 2015; Huang, Nakigudde, Ruhule, et al. 2017). However, scalable SEL and behavioral health promotion intervention in Ugandan are still lacking. Social-emotional learning (SEL) is the process of developing the self-awareness, self-control, and interpersonal skills that are vital for school, work, and life success. Social emotional competency (SEC) describes the processes by which individuals apply knowledge, attitudes, and skills to understand and manage emotions; set and achieve positive goals, feel, and show empathy for others; establish and maintain positive relationships; and make responsible decisions (Gouley, et al., 2007). To address Ugandan children's behavioral and educational challenges, providing SEL programs to promote children's SEC is needed.

In addition, many Ugandan adults experienced generational adversity, and have poor SEL during childhood. Therefore, many adults have poor SEC, such as poor ability to understand the feelings of others, control/regulate their own emotions and behaviors, and develop trust and get along with community members. Poor SEC in adults leads to poor stress coping and high prevalence of depression (~33%) (Huang, Abura, et al. 2017). Low adult SEC has contributed to higher harsh discipline, neglect, and prevented parents from providing nurturing home environments for their children (Huang, Abura, et al. 2017; Goodman et al. 1993). Low teacher SEC also impacts teachers' ability in developing healthy teacher-student relationships, managing classroom behaviors, implementing evidence-based SEL strategies, and supporting students' parents (Turk, Meeks, and Turk 1982; Ugwoke et al. 2017). Thus, to improve education outcomes for the country, it is critical to promote Uganda children's, teachers' and adult caregivers' SEC.

Public Health Approaches to Address Social Emotional Needs in Low-and-Middle Income Country Settings

Social-emotional problems are highly related to emotional or mental health disorders. To prevent social-emotional and mental health problems, promoting SEC and social-emotional skills (e.g., displays self-control, expressing feelings with words, positive self-image, asks for help when needed, shows affection to others, or awareness of other people feelings) are needed (Denham and Grout 2002; Dennis-Tiwary et al. 2007; Gouley et al. 2007; Rydell, Berlin, and Bohlin 2003). A large body of literature supports that a system-oriented school-based social-emotional or mental health promotion offers solutions for promoting not just social-emotional and behavioral health, but also mental health at the population level (Brotman, et al., 2016). The school approach can address a wide range of individual, family, and school system needs (Huang et al. 2012; United Nations Development Programme 2008). It has been shown to be a cost-effective approach to reduce a range of health problems in Low-and-Middle-Income Countries (LMICs) (Huang, Nakigudde, and Brotman 2015; Turk, Meeks, and Turk 1982; Ugwoke et al. 2017). Similarly, a large body of developmental research demonstrates that supporting teachers and families of young children in schools has the potential to have meaningful and life-long benefits for children's emotional wellbeing, education, and health (Shonkoff and Phillips 2000; Minkovitz et al. 2007). Although a school-based approach can be effective for SEC promotion (August 2001; Kellam et

al. 2005; Reid, Webster-Stratton, and Baydar 2004; S.R. Dawson-McClure et al. 2004), this type of intervention has not been widely applied in children and their caregivers and teachers in LMICs. In Uganda, 95% of children are enrolled in primary schools (~23% enrollment in pre-primary schools) (Ministry of Education Uganda 2017; The World Bank 2014), the majority of schools do not have SEL specialists or mental health professionals (MHPs). To provide accessible services in schools requires systems intervention and developing an embedded workforce who can implement evidence-based intervention (EBI) SEL or SEC strategies to support children and families.

ParentCorps-Professional Development (PC-PD) as a Solution for Addressing Ugandan Schools' Social Emotional Needs

The PC-PD is a school-based evidence-based intervention that trains, empowers, and supports teachers to apply EBI strategies to promote child SEL. Research found that when implemented by mental health professionals, it increases social competence and academic learning, reduces child behavioral problems, and supports parents' needs in managing child social emotion and behaviors at home (Brotman, et al., 2016; Huang, et al., 2017). The PC-PD program has been widely implemented in the US (in New York City Pre-K for All program and in other 3 States) and adapted to Ugandan and Nepal schools (40+schools). Two RCTs in the United States (US) found that *ParentCorps* (combination of PD, classroom, and family programs) resulted in a broad range of long-term benefits for low-income children, including better SEC, mental health and academic performance three years post-intervention (Brotman et al. 2011; Brotman et al. 2008; Brotman et al. 2016; S. Dawson-McClure et al. 2015). Two implementation studies (focused on the PC-PD program only) from our prior work conducted in Uganda and Nepal also demonstrated feasibility, acceptability, and efficacy of the PC-*PD* program in diverse school contexts (Huang et al. 2022).

Research in Ugandan and Nepal found that the *PC-PD* program is culturally relevant, and resulted positive impacts on multiple levels, including positive changes on students' emotional regulation, social competency, mental health, teacher-student relationship, and classroom social-emotional climate (Huang, Nakigudde, Rana, et al. 2017; Huang, Nakigudde, Ruhule, et al. 2017; Huang et al. 2022). The magnitude of impact from the PC-PD program in LMICs were comparable to other teacher-focused SEL/SEC EBI training programs (*d=.*22-.57 for child social-emotional & mental health) (Durlak et al. 2011; Korpershoek et al. 2016). Collectively, these studies support the transportability of the PC-*PD* from US to LMICs and highlight the potential of PC-*PD* alone as an effective approach to achieving population-level impact on child SEC and mental health in LMICs (Huang et al. 2022).

A Gender-Conscious Lens for SEL Interventions is Required

In our previous research in LMICs, the implementation of PC-PD relied on mental health professionals, which limited scalability of the program because of lack of mental health professional workforce in LMICs. Also, we did not employ a gender-conscious lens to systematically consider Ugandan gender differences in SEL experiences or impacts on SEC outcomes from the application of the PC-PD program. We noted that traditional gender roles and dynamics between men/boys and women/girls contributed to gender differences in Uganda, including higher prevalence of emotional disorders in female, male and female differences in maltreatment experience, SEL opportunity, and emotional socialization patterns (Ssali 2019; Cassano, Perry-Parrish, and Zeman 2007; Chaplin, Cole, and Zahn-Waxler 2005; Crooks et al. 2019). Therefore, it is critical to consider health care resource in SEL program implementation, as well as consider the influences of the social-ecological system on constructing gender role/dynamics, SEL experiences and SEC in Ugandan contexts in order to develop high quality, gender-sensitive, reliable

SEL/SEC, and scalable promotion services.

Additional Adult Specific Social Emotional Needs and Promotion Strategies Are Required
Our previous social emotional intervention did not emphasize teacher SEL/SEC needs, although the *PD* behavioral management principles/contents can generally apply to both adults and children (e.g., emotional regulation, relationship building, and stress managing skills). Teachers in Uganda and other LMICs are vulnerable to high stress and social-emotional problems (Ugwoke et al. 2018) because multiple sources of stressors have contributed to this (including teaching stress and out-of-school stress) (Turk, Meeks, and Turk 1982). The PC-*PD* coaching data from our previous study also revealed that many Ugandan teachers asked for stress/emotion management support from *PD* coaches outside of the *PD* program. Teacher social emotional challenges can result in anger, frustration, depression, exhaustion, and job ineffectiveness. Additionally, it can have negative consequences for schools, teachers, students, and importantly teachers' uptake/adoption of PC-PD strategies and long-term effectiveness of the PC-PD program (Ugandan Ministry of Education and Sports 2014; Adriaenssens, De Gucht, and Maes 2015). This project considers teacher social emotional needs and adapts the relevant SEL and strategies from the ParentCorps-Professional Development curriculum for teachers.

PROJECT GOALS
This project was conducted between July 2020 and September 2022 and included three goals.

1. To develop and test strategies to scale up and integrate the *PD-Enhance* SEL curriculum in the Ugandan primary education system
2. To develop PD-Enhance curriculum by adapting PC-PD curriculum (adding teacher SEL promotion curriculum/contents) and ensuring equitable benefit to male and female teachers and students' social-emotional health
3. To examine the effectiveness of PD-Enhance on teachers' and students' SEC when implemented using a scaled approach

The sections below describe our approaches to accomplishing the three goals.

STRATEGIES TO SCALE-UP AND INTEGRATE THE PD-ENHANCE CURRICULUM INTO UGANDAN PRIMARY EDUCATION SYSTEM
To develop strategies to scale-up and integrate the EBI into Uganda's educational system, we applied implementation strategies that have been identified as effective for providing public health interventions or school health programs at scale in low-resource settings. We also worked with local multi-disciplinary partners to further define, design, and test the scalable structure and approaches to support the EBI implementation for promoting teachers' and students' SEC. Below we described our methods, strategies, and processes to develop and test a more sustainable and scalable implementation model to implement the PD-Enhance program.

Scale-up Implementation Strategies Applied
● *A task-shifting strategy* offers a solution to overcome workforce barriers in schools. Task-shifting involves redistributing tasks from professionally trained social emotional/mental health workers to those with less training and fewer qualifications in the specific area of expertise (PEPFAR and UNAIDS 2007; WHO 2007). With appropriate political support and training, this approach can lead to significant public health gains (Health Resources and Services Administration (HRSA) 2007; WHO

2006; Mutamba et al. 2013; Mendenhall et al. 2014). Ugandan schools, like many other schools in LMICs, have few mental health workers and social emotional specialists (Kigozi et al. 2010; International Institute for Legislative Affairs 2011; Semrau et al. 2015). Furthermore, teacher training institutions and teachers are not trained in mental health/SEC promotion. Therefore, the redistribution of responsibilities and task-shifting of SEL/SEC promotion knowledge and skills from MHPs/specialist to teacher trainers/teachers/school personnel was required. In order to successfully task-shift the intervention we: 1) trained TTC trainers/teachers/school staff to apply evidence-based SEL/SEC promotion strategies in teacher-training or educators' daily practice during interactions with children and families; and 2) engaged and provided consultation and support to personnel within the education system so that they could confidently and effectively apply EBI strategies.

● *A system-level intervention strategy* that applies an integrated, scalable implementation framework, as suggested by the WHO's *Scaling Up* (WHO 2010) can address existing policy implementation gaps (ExpandNet 2020). Since 2007, the Ugandan government has proposed a series of reforms to strengthen the country's mental health/emotional wellbeing sectors (Ssebunnya, Kigozi, and Ndyanabangi 2012; Uganda Ministry of Health 2013). However, changes in the education system have been limited (Ejuu 2012). Therefore, strengthening the existing school SEL training curriculum and mental health system and further developing a scalable implementation structure guided by recommended frameworks was necessary (WHO 2010; Iwelunmor et al. 2016). To establish a school based SEL intervention, our scalable approach had to be compatible with the local school ecological systems (such as policy and practices in the educational system) (Chambers, Glasgow, and Stange 2013). The implementation structure and workforce development needed to match available local resources (WHO 2010; Iwelunmor et al. 2016) and incorporate strategies to overcome a range of organizational- and system-level barriers (WHO 2010). Based on discussions with Ugandan MOE and MOH stakeholders, they identified TTCs as the key structure that would take on the PD implementation role. Therefore, workforce development was the structure/system identified for enhancement.

● *A partnership/deep collaboration strategy* (Huang et al. 2018) relies on participating partners' and agencies' expertise to accomplish an overall objective (Huang et al. 2018). Research suggests that a cross-disciplinary and cross-agency collaboration strategy can be used to overcome systemic barriers when existing structures do not have sufficient capacity for large-scale public health program implementation (Iwelunmor et al. 2016; Aguirre and Carrion 2013; Aupont et al. 2013). It is necessary to collaborate with partners who have expertise in child development, education, mental health, public health, prevention, and implementation science to promote both teacher and student SEL/SEC. Thus, for this project, we developed a *TTC-MOE-MHP-School-Research* partnership to inform the design of a localized scalable PD implementation structure (WHO 2010; Chambers, Glasgow, and Stange 2013; Huang et al. 2018).

Primary Teacher Training Colleges, Mental Health Professional Training Institutions, Ministry of Education & Sports, and Ministry of Health as the Key Leads for the Scale-up Implementation Effort

In Uganda, Teacher Training Colleges (TTCs) are core institutions that provide in-service training for teachers. Therefore, they serve as the key partner to offer school-based, evidence-based SEL interventions. Most TTCs (96%) are owned and funded by the government, and all TTCs are monitored and supported by the MOE (Uganda Ministry of Education and Sports 2017). Although the MOE

recommends a holistic approach to improving teacher competencies including strategies for promoting child SEC, such training is underdeveloped in the current system. The Principal Medical Officer at the MOH is in charge of social-emotional wellness/mental health services and is responsible for overseeing public education and mental health programs across the country. Most formal collaborations between governmental agencies for community health have focused on individual students and have not focused on supporting school staff in taking a more universal approach of supporting classroom SEL needs. Because of the limited number of social emotional specialists/MHPs in the country, and the lack of SEL training in TTCs, a formal collaboration among *TTCs, Mental Health Professional training institutions, MOE, and MOH* had the potential to create a sustainable structure and curriculum to prepare teachers to promote SEC in schools (WHO and Uganda MOH 2006). This project considered MOE and MOH as the policy leads and TTCs and MHP Training Institutions as the technical leads for implementing the SEL interventions.

Developing and Testing a Workforce Development Model to Support the Implementation of Social-Emotional EBI at Scale

After developing the scale-up leadership structure, the leadership team worked together to create and refine a model for building an implementation workforce that enabled the country to provide EBI SEL curriculum at scale. The long-term goal for the MOE is to integrate the evidence-based SEL interventions into the education system and allow all teachers to receive the SEL training. The scalable approach of this SEL EBI implementation model was to apply the train-the-trainer model to train a team of TTC tutors and mental health professionals for the implementation of the *PD-Enhance* curriculum. For the initial model, our policy stakeholders defined TTC tutors as the group that should be responsible for PD implementation (to provide the 3-day PD training to teachers to promote students' SEL/SEC) with MHPs accountable for *Teacher-SEL* intervention implementation (to provide the 1-day Teacher-SEC to promote teachers' SEC). Both TTC Tutors and MHPs worked together to implement the *PD-Enhance* program. The team decided to have MHPs provide Teacher-SEL since this was the first-time implementing Teacher-SEL in Uganda. Based on lessons learned, it is possible to have TTC tutors take on the Teacher-SEL implementation role in the future.

Figure 1 describes the train-the-trainer and supervision model to develop a workforce to support a larger scale-up of SEL curriculum/PD-Enhance program implementation. As shown in Figure 1, there are four steps to build system capacity to scale the SEL intervention.

1. *Ugandan MHPs receive training from ParentCorps Central Office*. An experienced clinical team with members from the *ParentCorps* Central Office in the U.S. and Ugandan PD Leadership Team (a team of Ugandan MHPs who were certified and qualified to lead PC-PD training/ supervision) provided a comprehensive five-day virtual training to newly recruited Ugandan MHPs. The Ugandan MHPs learned the contents of the PD-Enhance program as well as group facilitation and supervision strategies. These trained Ugandan MHPs form the clinical team.
2. *Ugandan TTC facilitators receive training from ParentCorps team*. The Ugandan MHP clinical team then oversaw local implementation efforts, including training, supporting, and supervising the TTC facilitators/tutors. The US- and Ugandan-based *ParentCorps* clinical leadership team provided virtual training to a team of 9 TTC Ugandan *PD* facilitators (5 days). Over the course of two months (approximately eight 3-hour meetings), TTC *PD* facilitators practiced delivering training, received feedback from the Ugandan clinical team, and refined aspects of *PD* for the local context before the first round of implementation.

3. *Trained TTC facilitators and mental health professionals (MHPs) work together to provide the PD-Enhance training (4 days) to teachers and receive supervision from ParentCorps Leadership Team*. For the first time implementation, 9 trained TTC tutors worked together to provide the 3-day child-SEL training to teachers, and 2 trained MHPs worked together to provide the 1-day teacher-SEL program to teachers. During the training days, at least 1 member from the Ugandan Clinical Leadership Team was present to monitor program implementation fidelity and provide supervision and needed support.

4. *Trained TTC facilitators and MHPs provide group coaching sessions to teachers in their assigned schools and receive supervision from ParentCorps Leadership Team.* Following the PD-Enhance training, TTC facilitators provided 7 weekly group coaching sessions to teachers (1 hour each) in their assigned schools to support teachers' practice in using child-SEL promotion strategies. MHPs also provided 3 group coaching sessions to teachers (30 minutes each) to support teachers' practices in using teacher-SEL promotion strategies. The teacher-SEL coaching sessions were integrated into 3 of the 7 weekly coaching sessions. During this coaching period (over a 2-3 month period), TTC facilitators also received 7 weekly supervision sessions from Ugandan MHPs, and MHPs received 7 weekly supervision sessions from US ParentCorps Central Office.
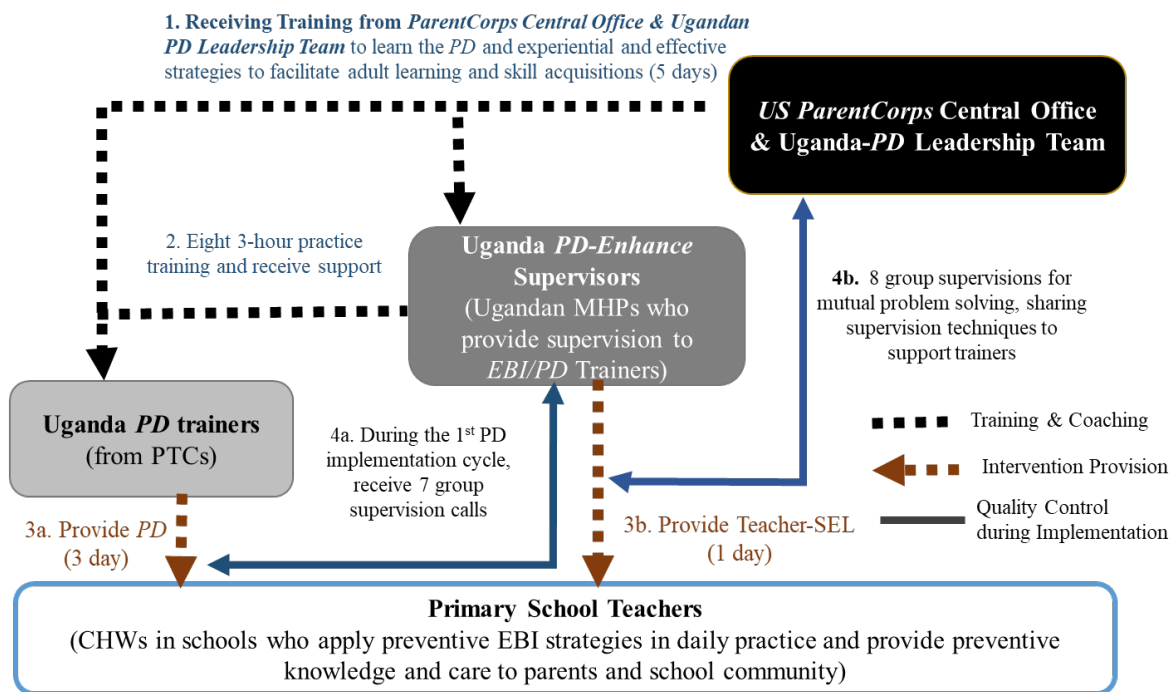
Figure 1: Train-the-Trainers and supervision model for scalable EBI implementation

ADAPTATION OF PC-PD TO AN ENHANCE VERSION TO PROMOTE BOTH TEACHERS' AND STUDENTS' SOCIAL EMOTIONAL COMPETENCY AND MENTAL HEALTH

To develop *PD-Enhance* to include the promotion of teacher and student SEL, the U.S. *ParentCorps* Central Office and Ugandan PD Leadership Team worked together throughout the planning, training, and capacity-building phases. Adaptations were made to PC-PD (for promoting students' SEL) and a

brief teacher-SEL intervention (for promoting teachers' SEL) was added to create the Enhanced PD. We describe the process and changes that were made in the sections below.

Adaptation of the *ParentCorps PD* into the PD-Enhanced

The adapted version of PD, called the PD-Enhance, was designed to include promotion of both teachers' and students' SEL. Below we describe adaptations to the student-SEL and teacher-SEL program.

Adaptation related to the Student-SEL Program

The contents for the Student-SEL program are mainly from the original ParentCorps PD. Considering time, resources, implementers, and Ugandan teacher Professional Development guidelines, the team considered four key areas in adapting ParentCorps PD to the Uganda context.

- *Length of the Program*: Considering teachers' time and MOE resources for teacher professional development, we adapted the PC-PD intervention from a 5-day training with 8-coaching sessions into a 3-day training with 7-coaching session model.
- *Gender Equity Relevance*: To support gender equity goal, the adaptation also considered gender equity in SEL practices. The team intentionally re-examined training examples and adapted behavioral management examples to include a culturally relevant gender-equity lens to promote self-awareness and more equitable teaching practices in supporting boys' and girls' SEL (i.e., promote awareness of cultural practices in discouraging boys/males negative emotion expression).
- *Training Manual Adaptations to fit non-MHP Trainers' Needs*: Considering implementation tasks were shifted from MHPs to TTC tutors who do not have mental health training backgrounds, we adapted the training manuals and notes to make them more accessible to a broader audience.
- *Coaching Material Adaptations:* Knowing that PD-Enhance coaching sessions would be conducted by non-mental health professionals, we modified the Coaching Manual to reflect a more guided standardized structure and included easy to use notes and instructions for TTC tutors/trainers. In addition, we developed a Teacher Workbook for teachers to use during the coaching sessions to better support TTC trainers and teachers in knowledge-practice translation processes. [The Workbook](#) provided a space for teachers to document their learning goals and processes in using evidence-based strategies (for the *Teacher Workbook,* use link or see the translational product document "Scaling up Adapted Version of ParentCorps Teacher Professional Development Program to Promote Children and Teachers' Social Emotional Wellbeing in Uganda: Intervention Overview and Translational Product to Promote Best Practices").

In general, the Student-SEL program in the PD-Enhance program maintains the key content from the original ParentCorps PD*,* which aims to help teachers foster child social-emotional learning, strong family-school relationships, and safe, nurturing, and predictable classroom environments. The new adapted version also includes the four key elements that the *ParentCorps* theory of action specifies as essential for strengthening teacher use of evidence-based practices: building authentic relationships, honoring culture, translating the science of early childhood development, and practicing self-reflection. These essential elements are measurable aspects of the quality of facilitation that complement measures of fidelity to the manuals in explaining the extent to which the program targets change. Specifically, high-quality, high-fidelity facilitation is hypothesized to support teachers in developing increased capacity as defined by (1) knowledge of evidence-based strategies; (2) awareness of self and child; (3) intentional and responsive interactions; and (4) problem-solving and support-seeking as needed.

Adaptation related to the Teacher-SEL Program

The *Teacher-SEL* program was co-developed by the U.S. and Ugandan MHP clinical leadership team to add on to the three-day training. We adapted evidence-supported strategies for teacher social emotion management (Czabała, Charzyńska, and Mroziak 2011; Kangas-Dick and O'Shaughnessy 2020) based on our review of over 60 teacher wellness and social-emotional interventions published in the past 10 years, as well as our own work in mental health promotion with educators during the COVID-19 pandemic in New York City. Together, we developed a brief Teacher-SEL intervention that includes mindfulness-based and common social emotional promotion strategies (i.e., self-awareness, empathy for self and others, community support, and emotional regulation strategies). Teachers received this brief teacher intervention as a one-day add-on workshop immediately following the three-day *PD* training. Three group-support sessions (30 minutes each) were integrated into the *PD* coaching sessions (sessions 2, 4, and 6) as extensions of the one day-workshop.

The Brief Teacher-SEL intervention was implemented by Ugandan MHPs because this was the first time to implement a psychoeducation and support program for teachers in Uganda. Our long-term goal is also to have TTC tutors and non-mental health professionals conduct the Teacher-SEL intervention. The lessons learned from this study can be applied to support future task-shifting approaches for Teacher-SEL implementation. For this project, Ugandan MHPs were trained to facilitate the workshop and support sessions for teachers. For implementation quality assurance, MHPs received supervision from the *PD Leadership Team* after each group-support session provided to teachers.

EVALUATING THE IMPACTS OF PD-ENHANCE ON UGANDAN TEACHERS AND STUDENTS

We conducted an effectiveness-implementation study to evaluate the impact of the scalable implementation model of the PD-Enhance implemented by Ugandan TTC tutors/trainers and MHPs. We *hypothesized* that the PD-Enhance program*,* implemented using a scalable model, would show positive impacts on teachers and students SEC (regardless of gender) as well as yield positive mental health outcomes, increased emotional regulation skills, and improved teacher-student relationships. We hypothesized that the effects of the PD-Enhance program on students' SEC would be mediated through the improvement of teachers' SEC.

Evaluation Study Design

We applied a Hybrid I implementation effectiveness design (Curran et al. 2012; Glasgow, Lictenstein, and Marcus 2003) and carried out a 2-arm cluster randomized control trial (cRCT) in Uganda between Oct 2021 and May 2022. The evaluation study was conducted in the Nakaseke region based on MOE recommendations. Public primary schools in the targeted district were identified from governmental school lists. To ensure approximately similar characteristics across the two conditions, a match-pair randomization procedure was applied (Broglio 2018). A statistician unfamiliar with study schools first matched schools based on school size (teacher/student numbers) and school quality/performance (based on MOE data) within regions to ensure similar characteristics in both study arms. A total of 12 schools (6 pairs) were identified for the effectiveness study. Within each pair, the teachers at one school were randomly assigned to receive the PD-Enhance program, and the other to wait-list-control. Schools were asked to remain actively involved for one year.

Evaluation Study Sample

The principals of the selected public schools were contacted and were provided with details of study requirements and intervention implementation procedures. During recruitment, principals and teachers were given an opportunity to ask questions. Only schools that agreed to have teachers' voluntary participation and commitment, were willing to facilitate data collection, and had the ability to allocate staff time to participate in the study were eligible to participate. All the schools that were contacted agreed to participate in the study.

Teacher Sample. All primary grade teachers were eligible to participate. We included multiple grades because teachers in Uganda teach a wider age range of classes. 98 teachers from 12 schools were recruited (53 intervention and 45 control). About 20% of the participating teachers were male, 80% were female, 82% had teaching diplomas/certificates, and 13% of teachers had tertiary/college, bachelor, or higher degrees. The sample is representative and similar to the national average. During the COVID-19 pandemic (when schools were closed), 55% of teachers experienced income loss and 36% could not make ends meet. For teacher mental health, at baseline, about 26% of teachers screened positive for at-risk mental disorders. There was no difference between intervention and control on these demographic characteristics.

Family Sample. To evaluate child outcomes, we recruited parents to provide child outcome data. Students attending the targeted primary schools and their families were eligible for the study. Given the large numbers of students in schools (average 600s-700s students in schools or 60 students per teacher), research staff randomly selected 5-6% of students and families from each school (based on student lists provided by teachers who participated in the study). Teachers were asked to introduce the study staff to the selected parents or primary caregivers. Targeted parents were invited to consent to interviews. Although we only evaluated a subset of the sample, an estimated 8,000+ students/families across 12 schools were anticipated to benefit from this intervention implementation study. A total of 198 families from 12 schools participated in the study (100 intervention and 98 control, with a range of 12-20 families/per school).

The characteristics of the families were as follows:
● 80% female caregivers (61% mothers, 19% grandmother or others)
● The average age of caregivers was 39.64 years old (SD=11.10)
● 68% were married or lived with a partner
● 50% had secondary or higher education (50% had primary school or less education)
● 91% spoke Luganda
● about 31% of caregivers were at-risk for mental health disorder

The characteristics of the children were as follows:
● an average 8.14 years old (SD=1.77)
● 52% were girls
● 21% were enrolled in the pre-primary class, 33% in Grade 1, 21% in Grade 2, 14% in Grade 3, and 12% in Grade 4
● 19% were experiencing behavioral challenges (measured by PROMIS anger, anxiety, or depression)
● 36% were at-risk for mental health problems (measured by SDQ symptoms)

Evaluation Outcome Measures

Evaluation measures were selected and guided by the implementation outcome framework (Proctor et al. 2011). Participating Head Teachers/School Principals were asked to complete a questionnaire on school demographics.

Child effectiveness outcomes. The primary outcome measurement was child mental health (externalizing and internalizing problems), and the secondary outcome measurement was social-emotional competency and peer relationship. Child mental health outcome was assessed using parent-rated Strength and Difficulties Questionnaire (SDQ) (Nakigudde et al. 2016) (including Conduct Problem 5 items and Emotion Symptoms 5 items). Child social competence was assessed using Social Emotional Competency scale (Gouley et al. 2007) and SDQ-Peer problem (Nakigudde et al. 2016; PROMIS 2017b, 2017a, 2018), Parents of study students were interviewed by trained research staff (using English or Luganda, lasting 30-45 minutes).

Teacher effectiveness outcomes. Primary teacher outcome measurements were: (i) EBI strategy use, based on teacher reports using teacher-reported EBI Strategies Practice Questionnaire (EBI strategies/appropriate behavioral management strategies 11 items (Huang, Nakigudde, Ruhule, et al. 2017), school-home connection, and teacher-family relationship; (ii) teacher perceived stress and stress management (teacher reported) using Perceive Stress Questionnaire (9 items) (Bernard 2016), Social Support (4 items) (Nakigudde et al. 2009) and Difficulties in Emotion Regulation Scale (DERS-18) (Total emotion regulation difficulties 18 items) (Victor 2016).

Gender equity outcomes. We examined gender differences of children and adults' social emotional competency, and gender differences in the ways that parents and teachers supported boys and girls. We used baseline data (collected before intervention) for these analyses. Our analyses would inform better understanding in gender equity practices and gender differences on mental health/SEL needs.

Gender Differences on Social Emotional Competency and Caregiving Practices

Gender differences on social emotional wellbeing among children, caregivers, and teachers. As expected, we found significant gender differences in children in relation to conduct problems and anxiety. Boys have more behavioral problems and anxiety problems than girls. No gender difference was found in emotional, depression problems, and peer problems. For parents, we found higher risk for mental health problems in female caregivers than male caregivers. For Teachers, we found similar risk of mental health problems for male and female teachers (see Figure 2, behaviors with significant gender differences are indicated with * *p <.05* or ** *p<.01*).

Gender Differences on % At-Risk for Social-Emotional & Mental Health Problems

	Conduct problem**	Emotional Problem	Anxiety**	Depression	Peer problem	K10 Mental Health Problem* Caregivers/Parents SEC	K10 Mental Health Problem Teachers SEC
Male	45.40	25.80	21.60	8.30	44.80	17.10	25.00
Female	26.70	22.80	7.00	4.00	39.60	35.30	26.00

(Children SEC covers Conduct problem, Emotional Problem, Anxiety, Depression, Peer problem)
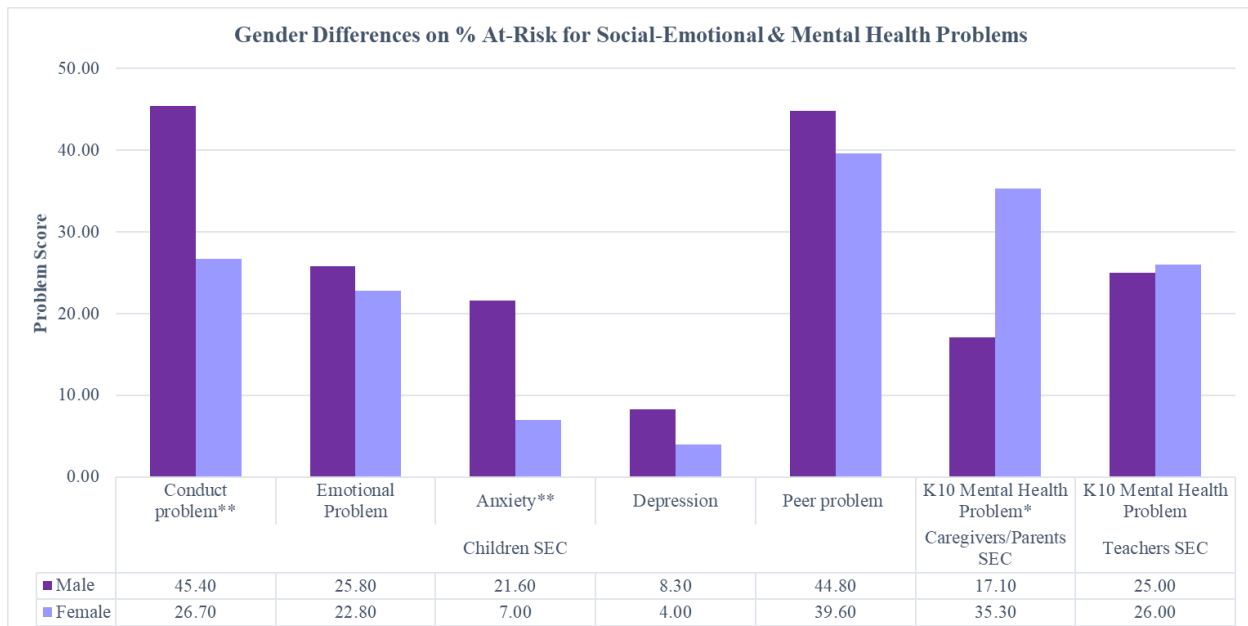
Figure 2: Gender differences in social emotional competency and mental health

Gender difference on caregiving/SEL-support practices. In examining parents and teachers in support for children (i.e., nurturing, emotional socialization, harsh discipline, involvement in education), overall, we found parents and teachers did not treat/support boys and girls differently, with one exception. We found parents were more likely to encourage negative emotional expression for girls than for boys (e.g., comforted girls sad/mad/anger emotion, helped girls deal with the issue that made her sad or angry) (see Figure 3, parenting behaviors with significant gender differences are indicated with **).

Parents' & Teachers' Practices Toward Boys and Girls (Mean difference in Practices)

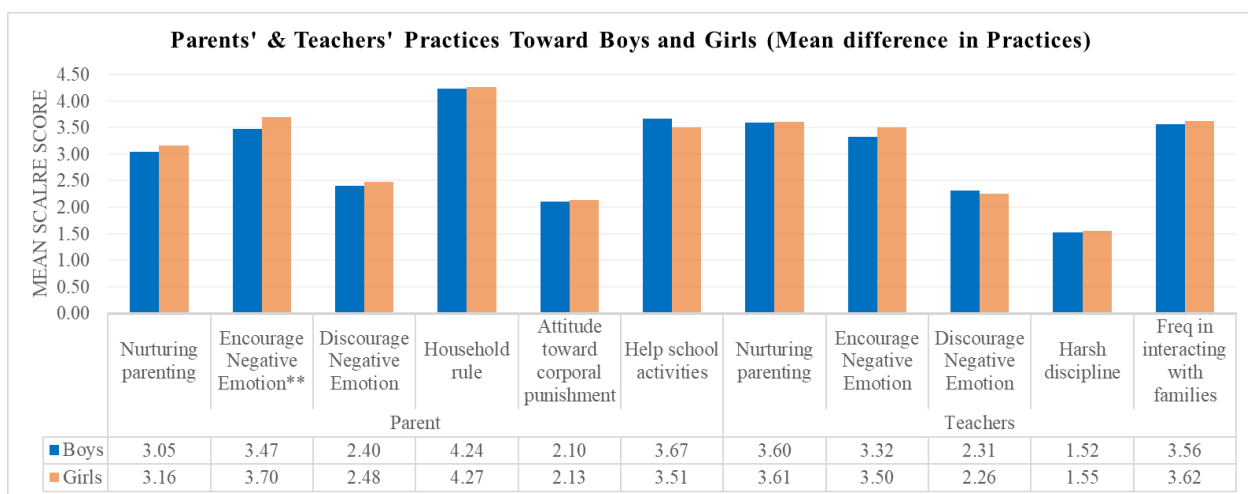|	Nurturing parenting	Encourage Negative Emotion**	Discourage Negative Emotion	Household rule	Attitude toward corporal punishment	Help school activities	Nurturing parenting	Encourage Negative Emotion	Discourage Negative Emotion	Harsh discipline	Freq in interacting with families
Boys	3.05	3.47	2.40	4.24	2.10	3.67	3.60	3.32	2.31	1.52	3.56
Girls	3.16	3.70	2.48	4.27	2.13	3.51	3.61	3.50	2.26	1.55	3.62

(Parent; Teachers)

Figure 3: Parents and Teachers Practices toward Boys and Girls

19

Effectiveness Results

Teacher outcomes. Figure 4 summarizes teacher impact outcomes from the PD-Enhance program. Consistent with the expectation, we found that a non-mental health professional implemented intervention can have a meaningful impact on teachers. Specifically, we found the PD-Enhance intervention significantly improved teacher practices in family engagement and using less harsh discipline. The PD-Enhance intervention had a large impact (effect size >.70) in reducing teacher's harsh discipline practice and had a moderate impact on reducing discouraging students' negative emotion expression and increasing teacher-student home connection. For teachers' social emotional wellbeing, we found the PD-Enhance intervention had larger effects in increasing work support, reducing school staff stress, and had moderate effect in improving teachers' emotional regulation (i.e., more able to focus on goal and redirect negative thinking to positive thinking when upset) and reducing family stress. Surprisingly, intervention had no impact on reducing teacher burnout.
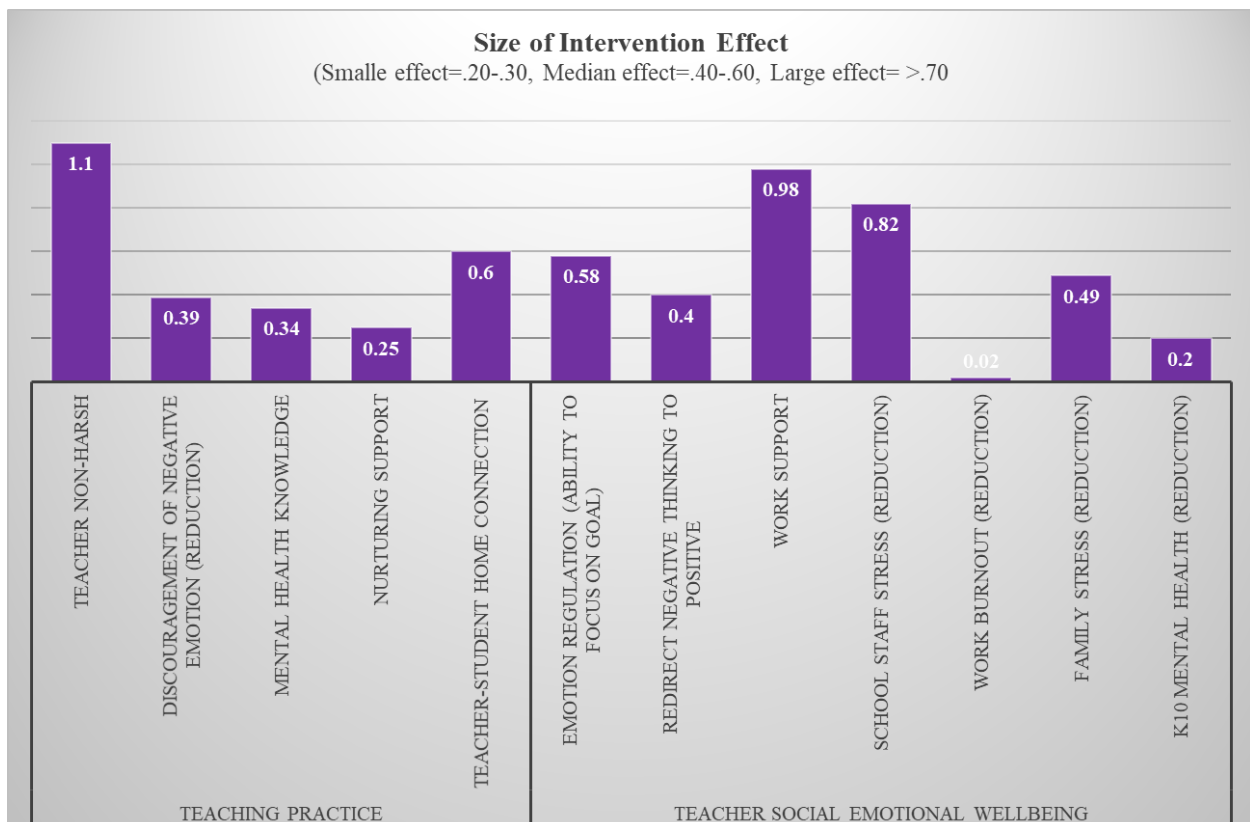

Figure 4: Intervention Effect from the PD-Enhance program on Teacher Practice and Teacher Social Emotional Wellbeing
(Cohen d Size of Intervention effect: 0.2=small effect, 0.5=moderate effect, and 0.8=large effect)

20

Child Outcomes. For children's social emotional and mental health outcomes, we found the PD-Enhance intervention significantly improved children's social behaviors. Children who were taught by teachers who participated in the PD-Enhance program, called the intervention group, showed significant reduction in their peer problems, while children in the control group showed stable problems (see Figure 5). This impact is higher for boys than for girls (effect size .62 vs .25). Surprisingly, we did not find intervention and control group differences on mental health (e.g., conduct problem).
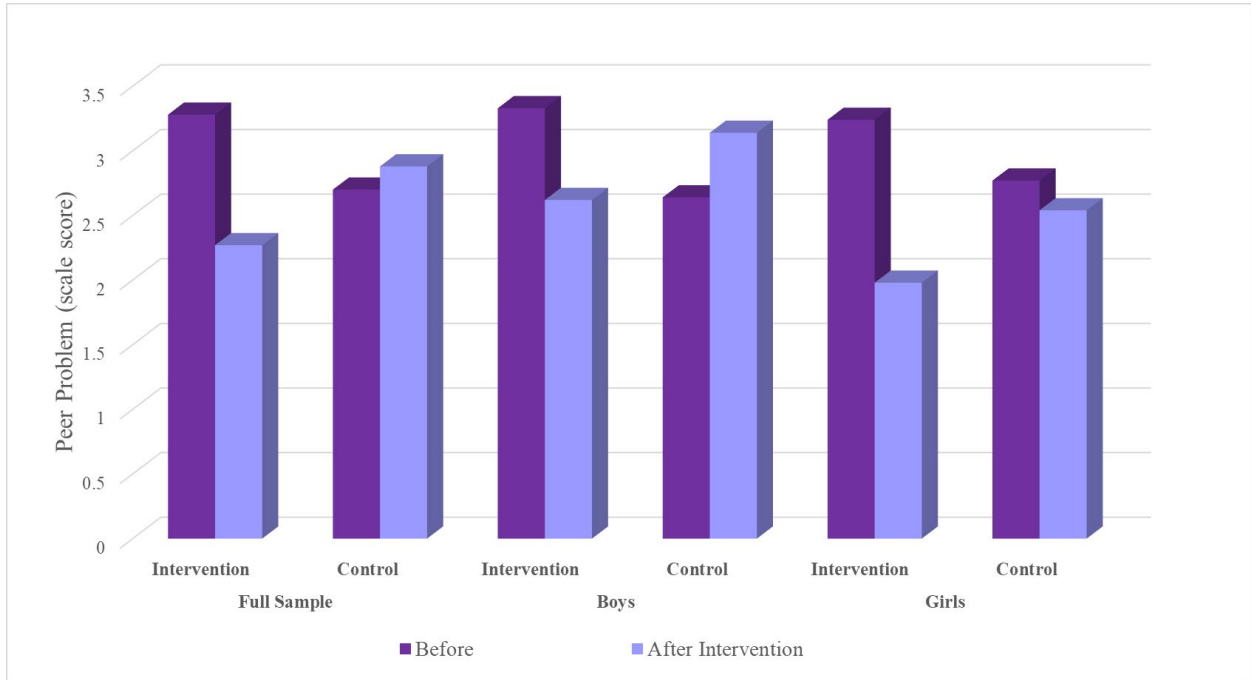

Figure 5: Intervention Effect from the PD-Enhanced program on Child Peer Relationship

CONCLUSIONS

This project accomplished three key goals. First, through a collaborative multi-stakeholder partnership, the team worked together to develop a scalable and sustainable implementation model to strengthen the education system capacity to scale up an evidence-based SEL intervention (ParentCorps-PD). Guided by the scalable model, the US and Ugandan clinical team carried out a new train-the-trainer model and trained a group of TTC tutors (non-mental health professionals) to take on the PC-PD implementation role. The training was conducted in 2021 using a hybrid approach (including in-person meetings and zoom conference training) because of the COVID-19 pandemic lockdown. Following the TTC tutor training, the team worked together to further adapt the PC-PD program and added the teacher SEL program to develop a PD-Enhance program to promote both children's and teachers' social-emotional competency and mental health. An RCT study was conducted to evaluate whether the Enhance version of PD implemented could result in impacts on teachers and students SEC when it's implemented by TTC tutors (non-mental health professionals).

This project contributes to SEL and mental health promotion in schools in several significant ways.
- The established policy-academic-practice partnership that includes teacher training colleges (TTCs), mental health professional training institutions, the Ministry of Education & Sports, and the Ministry of Health, and diverse multi-disciplinary team members from the US and Uganda can serve as a collaboration platform to continue develop a road map and strategies for scaling up and sustaining evidenced-based SEL interventions in school system.
- The program manuals and materials developed from this project can be used as a teacher SEL professional development training package and integrated into TTC training curriculum to promote students' SEL/mental health.
- The brief teacher SEL program and manual for promoting teachers' SEL and mental health can be broadly offered to teachers especially for teachers serving in high-stress contexts.
- Through pilot testing of the train-the-trainer model, we demonstrated the feasibility of our scale-up model in strengthening the TTC system's capacity to take on the implementation role and broadly implement the PD-Enhance curriculum to school teachers.
- We have demonstrated that TTC tutors are capable of providing Enhanced ParentCorps-Professional Development training and group coaching sessions to teachers, and the program was well received by the teachers.
- We demonstrated the intervention implemented using our scale-up model and by the trained TTC tutors could result in expected impacts on teachers' practices, SEL/wellbeing, and students' SEC outcomes.
- Our gender analyses also contributed to new knowledge in understanding gender differences in SEC and mental health in Ugandan adults and children and Ugandan adults' caregiving practices toward different gender.
- The website developed from this project can serve as a platform for Ugandan and global collaboration partners to share knowledge, findings, research and translational products, and success stories (https://sites.google.com/med.nyu.edu/sel-ug/home).

RECOMMENDATIONS

The PD-Enhance program is an evidence-based intervention for promoting teachers' and childrens' social emotional learning and wellbeing with support evidence from one LMIC—Uganda. The intervention is relevant to other LMICs with similar school system contexts. Our evidence indicates that training teachers on the PD-Enhance program not only improves learners' SEL outcomes, but also improves teachers' teaching practice, classroom behavioral management, stress management, and teacher social emotional wellbeing. Therefore, training teachers on this program can be a cost-effective method to address social emotional wellbeing and mental health gaps for teachers and learners. We recommend that the Ugandan Ministry of Education and Sport (MOE) should integrate and promote training teachers on the PD-Enhance program. Ugandan MOE can apply a similar academic-mental health-policy-TTC partnership strategy at the regional or national level and build capacity for all TTCs to provide the PD-Enhance to teachers in high need communities and regions. Similarly, we recommend that relevant stakeholders from other LMICs can apply a similar scalable implementation model to implement PD-Enhance in their countries. Educators should also pay attention to gender differences on mental health needs and provide gender sensitive support to reduce gender disparities in mental health.

LASER PULSE

Delivering Practical, Research-Driven Solutions to Global Development Challenges

REFERENCES

Adriaenssens, J., V. De Gucht, and S. Maes. 2015. "Causes and consequences of occupational stress in emergency nurses, a longitudinal study." *J Nurs Manag* 23 (3): 346-58. https://doi.org/10.1111/jonm.12138. https://www.ncbi.nlm.nih.gov/pubmed/24330154.

Aguirre, J., and V. G. Carrion. 2013. "Integrated behavioral health services: a collaborative care model for pediatric patients in a low-income setting." *Clin Pediatr (Phila)* 52 (12): 1178-80. https://doi.org/10.1177/0009922812470744. http://www.ncbi.nlm.nih.gov/pubmed/23299835.

August, G. J., Realmuto, G. M., Hektner, J. M., & Bloomquist, M. L. 2001. "An integrated components preventive intervention for aggressive elementary school children: The Early Risers Program." *Journal of Consulting and Clinical Psychology* 69: 614-626.

Aupont, O., L. Doerfler, D. F. Connor, C. Stille, M. Tisminetzky, and T. J. McLaughlin. 2013. "A collaborative care model to improve access to pediatric mental health services." *Adm Policy Ment Health* 40 (4): 264-73. https://doi.org/10.1007/s10488-012-0413-0. http://www.ncbi.nlm.nih.gov/pubmed/22527709.

Baumann, A.A., B.J. Powell, P.L. Kohl, R.G. Tabak, V. Penalba, E.K. Proctor, M. Domenech-Rodriguez, and L.J. Cabassa. 2015. "Cultural adaptation and implementation of evidence-based parent-training: a systematic review and critique of guiding evidence." *Children and Youth Services Review* 53: 113-120.

Bernard, M.E. . 2016. "Teacher beliefs and stress." *J Rat-Emo Cognitive-Behav Ther* 34: 209-24.

Broglio, K. 2018. "Randomization in Clinical Trials: Permuted Blocks and Stratification." *JAMA* 319: 2223-2224.

Brotman, L.M., E. Calzada, K-Y. Huang, S Kingston, S. Dawson-McClure, D. Kamboukos, A. Rosenfelt, A. Schwab, and E. Petkova. 2011. "Promoting effective parenting practices and preventing conduct problems among ethnic minority families from low-income, urban communities." *Child Development* 82: 258-276.

Brotman, L.M., S. Dawson-McClure, D. Kamboukos, K-Y. Huang, E. Calzada, K. Goldfeld, and E. Petkova. 2016. "Effects of ParentCorps in pre-kindergarten on child mental health and academic performance: follow-up of a randomized clinical trial through 8 years of age." *JAMA Pediatrics* 170: 1-7.

Brotman, L.M., S. Kingston, Y. Bat-Chava, B.M. Caldwell, and E. Calzada. 2008. "Training school personnel to facilitate a family intervention to prevent conduct problems." *Early Education & Development* 19 (4): 622-642.

Cassano, Michael, Carisa Perry-Parrish, and Janice Zeman. 2007. "Influence of Gender on Parental Socialization of Children's Sadness Regulation." *Social Development* 16 (2): 210-231. https://doi.org/10.1111/j.1467-9507.2007.00381.x. http://dx.doi.org/10.1111/j.1467-9507.2007.00381.x.

Chambers, D.A., R.E. Glasgow, and K.C. Stange. 2013. "The dynamic sustainability framework: Addressing the paradox of sustainment amid ongoing change." *Implementation Science* 8. http://www.implementationscience.com/content/8/1/117.

Chaplin, T.M., P.M. Cole, and C. Zahn-Waxler. 2005. "Parental socialization of emotion expression: gender differences and relations to child adjustment." *Emotion; Emotion* 5 (1): 80.

Crooks, C. V., P. Jaffe, C. Dunlop, A. Kerry, and D. Exner-Cortens. 2019. "Preventing Gender-Based Violence Among Adolescents and Young Adults: Lessons From 25 Years of Program Development and Evaluation." *Violence Against Women* 25 (1): 29-55. https://doi.org/10.1177/1077801218815778.

Curran, G.M., M. Bauer, B. Mittman, J.M. Pyne, and C. Stetler. 2012. "Effectiveness implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact." *Med Care* 50 (217-226).

Czabała, C., K. Charzyńska, and B. Mroziak. 2011. "Psychosocial interventions in workplace mental health promotion: an overview." *Health Promot Int* 26 Suppl 1: i70-84.

Dawson-McClure, S., E. Calzada, K-Y. Huang, D. Kamboukos, D. Rhule, O. Kolawole, E. Petkova, and L.M Brotman. 2015. "A population-level approach to promoting healthy child development and school success in low-income, urban neighborhoods: impact on parenting and child conduct problems." *Prevention Science* 16: 279-290. https://doi.org/10.1007/s11121-014-0473-3.

Dawson-McClure, S. R., I. N. Sandler, S. A. Wolchik, and R. (2004). Millsap. 2004. "Risk as a moderator of the effects of prevention programs for children of divorce: A six-year longitudinal study." *Journal of Abnormal Child Psychology* 32: 175-190.

Denham, S.A., and L. Grout. 2002. "Socialization of emotion: pathway to preschoolers' emotional and social competence." *Journal of Nonverbal Behavior* 17 (3): 205-227.

Dennis-Tiwary, T., L.M. Brotman, K.Y. Huang, and K.K. Gouley. 2007. "Effortful Control, Adjustment Problems, and Social Competence in Children at Elevated Risk for Conduct Problems." *Journal of Clinical Child Psychology (In Press).* 36 (3): 1-13.

Durlak, J. A., R. P. Weissberg, A. B. Dymnicki, R. D. Taylor, and K. B. Schellinger. 2011. "The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions." *Child Dev* 82 (1): 405-32. https://doi.org/10.1111/j.1467-8624.2010.01564.x. https://www.ncbi.nlm.nih.gov/pubmed/21291449.

Ejuu, G. 2012. The status of implementation of the education sector early childhood development policy in Uganda. Accessed Sep 2014.

ExpandNet. 2020. "ExpandNet- Advancing the Science and Practice of Scale Up ". ExpandNet/WHO. Accessed May. http://www.expandnet.net/.

Gardner, F., P. Montgomery, and W. Knerr. 2015. "Transporting evidence-based parenting programs for child problem behavior (age 3–10) between countries: systematic review and meta-analysis." *Journal of Clinical Child & Adolescent Psychology* 18: 1-14. http://www.ncbi.nlm.nih.gov/pubmed/25785902.

Glasgow, R.E., E. Lictenstein, and A.C. Marcus. 2003. " Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition." *Am J Public Health* 93: 1261-1267.

Goodman, S.H., D. Brogan, M.E. Lynch, and B. Fielding. 1993. "Social and emotional competence in children of depressed mothers." *Child Development* 64 (2): 516-531.

Gouley, K. K., L.M. Brotman, K.Y. Huang, and P. Shrout. 2007. "Construct validation of the social competence scale in preschool-age children." *Social Development* 17: 380-398.

Health Resources and Services Administration (HRSA). 2007. Community Health Worker National Workforce Study.

Huang, K.Y., J. Nakigudde, and L. Brotman. 2015. "Use of task-shifting to scale-up child mental health services in low-resource Ugandan schools: Role of contextual factors on program implementation." *Implementation Science* 10 (Suppl 1). https://doi.org/10.1186/1748-5908-10-S1-A23. http://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-10-S1-A23.

Huang, K. Y., J. Nakigudde, E. N. Kisakye, H. Sentongo, T. A. Dennis-Tiwary, Y. Tozan, H. Park, and L. M. Brotman. 2022. "Advancing scalability and impacts of a teacher training program for promoting child mental health in Ugandan primary schools: protocol for a hybrid-type II effectiveness-

implementation cluster randomized trial." *Int J Ment Health Syst* 16 (1): 28.
https://doi.org/10.1186/s13033-022-00538-7.
https://www.ncbi.nlm.nih.gov/pubmed/35718782.

Huang, K.Y., G. Abura, R. Theise, and J. Nakigudde. 2017. "Parental depression and associations with parenting and children's physical and mental health in Sub-Saharan African settings." *Child Psychiatry and Human Development* 48: 517-527. https://doi.org/10.1007/s10578-016-0679-7

Huang, K.Y., E. Calzada, S. Cheng, and L. M. Brotman. 2012. "Physical and mental health disparities among young children of Asian immigrants." *Journal of Pediatrics* 160: 331-336.

Huang, K.Y., S. C. Kwon, S. Cheng, D. Kamboukos, D. Shelley, L. M. Brotman, S. A. Kaplan, O. Olugbenga, and K. Hoagwood. 2018. "Unpacking Partnership, Engagement, and Collaboration Research to Inform Implementation Strategies Development: Theoretical Frameworks and Emerging Methodologies." *Front Public Health* 6: 190. https://doi.org/10.3389/fpubh.2018.00190.
http://www.ncbi.nlm.nih.gov/pubmed/30050895.

Huang, K.Y., J. Nakigudde, H. Rana, and T. Castillo. 2017. "Implementing an Early Childhood School-Based Mental Health Preventive Intervention in Low-Resource Schools in Nepal and Uganda " NIMH/Grand Challenges Canada: Transformative Opportunities for Solving the Grand Challenges in Global Mental Health, Bethesta.

Huang, K.Y., J. Nakigudde, D. Rhule, Joy. L. Gumikiriza-Onoria, G. Abura, B. Kolawole, S. Ndyanabangi, S. Kim, E. Seidman, G. Ogedegbe, and L. M. Brotman. 2017. "Transportability of an Evidence-Based Early Childhood Intervention in a Low-Income African Country: Results of a Cluster Randomized Controlled Study." *Prevention Science*. https://doi.org/10.1007/s11121-017-0822-0.
https://doi.org/10.1007/s11121-017-0822-0.

Huang, K.Y., J. Nakigudde, D. Ruhule, J.L. Gumikiriza, G. Abura, B. Kolawole, S. Ndyanabangi, S. Kim, E. Seidman, G. Ogedegbe, and L. M. Brotman. 2017. "Transportability of an Evidence-based Early Childhood Intervention in a Low-Income African Country: Results of a Cluster Randomized Controlled Implementation Study." *Prevention Science* 18: 964-975.

International Institute for Legislative Affairs. 2011. "Mental Health in Kenya: Unpacking the Issues." Legislative Digest. ILA. Accessed April.
http://www.unicef.org/about/annualreport/files/Uganda_COAR_2010.pdf.

Iwelunmor, J., S. Blackstone, D. Veira, U. Nwaozuru, C. Airhihenbuwa, D. Munodawafa, E. Kalipeni, A. Jutal, D. Shelley, and G. Ogedegebe. 2016. "Toward the sustainability of health interventions implemented in sub-Saharan Africa: a systematic review and conceptual framework." *Implement Sci* 11: 43. https://doi.org/10.1186/s13012-016-0392-8.
http://www.ncbi.nlm.nih.gov/pubmed/27005280.

Kangas-Dick, Kayleigh, and Emily O'Shaughnessy. 2020. "Interventions That Promote Resilience among Teachers: A Systematic Review of the Literature." *International Journal of School & Educational Psychology* 8 (2): 131-146.
https://www.tandfonline.com/doi/full/10.1080/21683603.2020.1734125.

Kellam, Sheppard G., Jeanne M. Poduska, H. Brown, A Windham, and N. Ialongo. 2005. "Effects of two universal interventions directed at first grade classroom behavior and achievement on the prevention of tobacco, alcohol and illicit drug use." 13th Annual Meeting of the Society for Prevention Research, Washington, D.C.

Kigozi, F., J. Ssebunnya, D. Kizza, Cooper, S., S. Ndyanabangi, and the Mental Health and Poverty Project. 2010. "An overview of Uganda's mental health care system: results from an assessment using the world health organization's assessment instrument for mental health system (WHO-AIMS)."

International Journal of Mental Health System 4 (1): 1-9.
http://www.ijmhs.com/content/pdf/1752-4458-4-1.pdf.

Korpershoek, Hanke, Truus Harms, Hester de Boer, Mechteld van Kuijk, and Simone Doolaard. 2016. "A Meta-Analysis of the Effects of Classroom Management Strategies and Classroom Management Programs on Students' Academic, Behavioral, Emotional, and Motivational Outcomes." *Review of Educational Research* 86 (3): 643-680. https://doi.org/10.3102/0034654315626799.

Mendenhall, E., M.J. De Silva, C. Hanlon, I. Petersen, R. Shidhaye, M. Jordans, N. Luitel, J. Ssebunnya, A. Fekadu, V. Patel, M. Tominson, and C. Lund. 2014. "Acceptability and feasibility of using non-specialist health workers to deliver mental health care: Stakeholder perceptions from the PRIME district sites in Ethiopia, India, Nepal, South Africa, and Uganda." *Social science & medicine* 118: 33-42.

Ministry of Education Uganda. 2017. "The Education and Sports Sector Annual Performance Report (Financial Year 2015/2016)." Ministry of Education and Sports. https://www.education.go.ug/wp-content/uploads/2019/08/ESSAPR-FY-2015-16.pdf.

Minkovitz, C. S., D. Strobino, K.B. Mistry, D.O. Scharfstein, H. Grason, W. Hou, N. Lalongo, and B. Guyer. 2007. "Healthy Steps for Young Children: Sustained Results at 5.5 years." *Pediatrics* 120 (3): e658-e668.

Mutamba, B.B., N. van Ginneken, L.S. Paintain, S. Wandiembe, and D. Schellengerg. 2013. "Roles and effectiveness of lay community health workers in the prevention of mental, neurological and substance use disorders in low and middle income countries: a systematic review." *BMC Health Serv Res* 13: 412. https://doi.org/10.1186/1472-6963-13-412.

Nakigudde, J., B. Bauta, S. Wolf, and K.Y. Huang. 2016. "Screening Child Social Emotional and Behavioral Functioning in Low-Income Country Contexts." *Jacobs Journal of Psychiatry and Behavioral Science* 2: 016. http://psychiatry.jacobspublishers.com/images/Psychiatry/J_J_Psych_Behav_Sci_2_2_016.pdf.

Nakigudde, J., S. Musisi, A. Ehnvall, E. Airaksinen, and H. Agren. 2009. "Adaptation of the multidimensional scale of perceived social support in a Ugandan setting." *Afr Health Sci* 9 Suppl 1 (Suppl 1): S35-41.

PEPFAR, and UNAIDS. 2007. "Task shifting-Global Recommendation and Guidelines." WHO. Last Modified August 2012. http://data.unaids.org/pub/Manual/2007/ttr_taskshifting_en.pdf.

Population Reference Bureau. 2020. "2020 World Population Date Sheet." Population Reference Bureau. https://www.prb.org/wp-content/uploads/2020/07/letter-booklet-2020-world-population.pdf.

Proctor, E., H. Silmere, R. Raghavan, et al. 2011. "Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda." *Administration and policy in mental health* 38: 65-76.

PROMIS. 2017a. PROMIS Pediatric Item Bank v2.0 – Anxiety/Fear – Short Form 8a.

---. 2017b. PROMIS Pediatric Short Form v2.0– Anger 5a.

---. 2018. PROMIS Pediatric Item Bank v2.0 – Depressive Symptoms – Short Form

Reid, M. Jamila, Carolyn Webster-Stratton, and Nazli Baydar. 2004. "Halting the development of conduct problems in head start children: the effects of parent training." *Journal of Clinical Child & Adolescent Psychology* 33 (2): 279-91.

Rydell, Ann-Margret, Lisa Berlin, and Gunilla Bohlin. 2003. "Emotionality, emotion regulation, and adaption among 5- to 8-year-old children." *Emotion* 3 (1): 30-47.

Semrau, M., S. Evans-Lacko, A. Alem, J. L. Ayuso-Mateos, D. Chisholm, O. Gureje, C. Hanlon, M. Jordans, F. Kigozi, H. Lempp, C. Lund, I. Petersen, R. Shidhaye, and G. Thornicroft. 2015. "Strengthening mental health systems in low- and middle-income countries: the Emerald programme." *BMC*

Med 13: 79. https://doi.org/10.1186/s12916-015-0309-4.
https://www.ncbi.nlm.nih.gov/pubmed/25879831.

Shonkoff, J., and D.A Phillips. 2000. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, D.C.: National Research Council and Institute of Medicine: National Academy Press.

Ssali, S. 2019. A matrix and analysis of gender equality laws and policies in Uganda.

Ssebunnya, J., F. Kigozi, and S. Ndyanabangi. 2012. "Developing a national mental health policy: a case study from Uganda." *PLoS Med* 9: e1001319.

The World Bank. 2014. "School Enrollment, Primary (% net)." The World Bank. Accessed April. http://data.worldbank.org/indicator/SE.PRM.NENR.

Turk, D.C., S. Meeks, and L.M. Turk. 1982. " Factors contributing to teacher stress: implications for research, prevention, and remediation." *Behav Couns Q* 2: 3-25.

Uganda Ministry of Education and Sports. 2017. "Teacher Education." Uganda, MOE. Accessed May. http://www.education.go.ug/data/smenu/14/Teacher%20Education.html.

Uganda Ministry of Health. 2013. *Child and Adolescent Mental Health Guideline* Ministry of Health (Uganda).

Ugandan Ministry of Education and Sports. 2014. "Teacher Issues in Uganda: a shared vision for an effective teachers policy." UNESCO. Accessed May. http://unesdoc.unesco.org/images/0022/002297/229777e.pdf.

Ugwoke, S. C., C. Eseadi, C. C. Igbokwe, G. T. U. Chiaha, O. O. Nwaubani, C. T. Orji, L. T. Ugwuanyi, I. S. Chukwuma, E. C. Edikpa, V. N. Ogakwu, E. A. Onu, P. Agu, U. A. Nwobi, F. Omeke, F. C. Okeke, R. N. Ezema, and L. I. Abugu. 2017. "Effects of a rational-emotive health education intervention on stress management and irrational beliefs among technical college teachers in Southeast Nigeria." *Medicine (Baltimore)* 96 (31): e7658. https://doi.org/10.1097/MD.0000000000007658. https://www.ncbi.nlm.nih.gov/pubmed/28767584.

Ugwoke, S. C., C. Eseadi, L. N. Onuigbo, E. N. Aye, I. N. Akaneme, A. I. Oboegbulem, I. O. Ezenwaji, A. U. Nwobi, O. O. Nwaubani, B. N. Ezegbe, M. O. Ede, C. T. Orji, J. C. Onuoha, E. A. Onu, F. Okeke, P. Agu, J. C. Omeje, F. Omeke, R. Ugwu, F. Arumede, and A. Eneh. 2018. "A rational-emotive stress management intervention for reducing job burnout and dysfunctional distress among special education teachers: An effect study." *Medicine (Baltimore)* 97 (17): e0475. https://doi.org/10.1097/MD.0000000000010475. https://www.ncbi.nlm.nih.gov/pubmed/29703004.

UNICEF. 2022. "Uganda Statistics." Accessed Aug 2022. https://data.unicef.org/country/uga/.

United Nations Development Programme. 2008. "MDGs in Uganda." UNDP. http://www.undp.or.ug/mdgs/25#.

Victor, S. E., & Klonsky, E. D. (2016). . 2016. "Validation of a brief version of the Difficulties in Emotion Regulation Scale (DERS-18) in five samples." *Journal of Psychopathology and Behavioral Assessment* 38: 582-589.

WHO. 2006. *Treat, train, retain. The AIDS and health workforce plan. Report on the consultation on AIDS and human resources for health*. Geneva: WHO. http://www.who.int/hiv/pub/meetingreports/TTRmeetingreport2.pdf (accessed 2013).

---. 2007. "Task shifting to tackle health worker shortages." World Health Organization. http://www.who.int/healthsystems/task_shifting_booklet.pdf.

---. 2010. Nine steps for developing a scaling-up strategy.

WHO, and Uganda MOH. 2006. WHO-AIMS report on mental health system in Uganda.