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Improving mental health among ultra-poor children: Two-year outcomes of a cluster-randomized trial in Burkina Faso

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ABSTRACT

Rationale: There is limited evidence about interventions improving child mental health in francophone West Africa. Behavioral mental health interventions alone may have limited effects on children's emotional well-being in families living in abject poverty, especially in low-income countries.

Objective: This study tests the effects of economic intervention, alone and in combination with a family-focused component, on the mental health of children from ultra-poor households in rural Burkina Faso.

Methods: The three-arm cluster randomized trial included children in the age range of 10–15 years old (N = 360), from twelve villages in Nord region of Burkina Faso (ClinicalTrial.gov ID: NCT02415933). Villages were randomized (4 villages/120 households per arm) to the waitlist arm, the economic intervention utilizing the Graduation approach (Trickle Up/TU arm), or to the economic strengthening plus family coaching component (TU + arm). Intervention effects were tested using repeated-measures mixed-effects regressions that account for the clustered nature of the data.

Results: Children from the TU + arm showed a reduction in depressive symptoms at 12 months (medium effect size Cohen's $d = -0.41$, $p = .001$) and 24 months ($d = -0.39$, $p = .025$), compared to the control condition and the economic intervention alone (at 12 months $d = -0.22$, $p = .020$). Small effect size improvements in self-esteem were detected in the TU + group, compared to the control arm at 12 months ($d = 0.21$) and to the TU arm at 24 months ($d = 0.21$). Trauma symptoms significantly reduced in the TU + group at 12 months (Incidence Risk Ratio/$IRR = 0.62$, 95% $CI = 0.41, 0.92$, $p = .042$), compared to the control group.

Conclusion: Integrating psychosocial intervention involving all family members with economic empowerment strategies may be an innovative approach for improving emotional well-being among children living in extreme poverty.

1. Introduction

Almost 90% of the world's children live in low- and middle-income countries (LMICs), and the burden of disease associated with mental illnesses in these countries is rising (Kieling et al., 2011; World Bank, 2017). The U.N. Sustainable Development Goals added mental health and well-being (Target 3.4) as a global priority for the 2030 agenda (Izutsu et al., 2015). According to the National Institute of Health (NIH) Grand Challenges in Global Mental Health (Collins et al., 2011), the advancement of prevention (Goal B) is amongst the key global mental health priorities, along with addressing poverty as one of the structural factors associated with poor mental health and engaging other sectors outside of health care to develop an integrated system-wide approach to mental health prevention (Collins et al., 2013).

Living in poverty poses a risk to children's and adolescents' mental health (Patel and Kleinman, 2003). A study analyzing Demographic and Health Survey data from eleven eastern and southern African countries identified that household wealth was the single most important correlate of better children's well-being outcomes (Campbell et al., 2010). Although the causal pathways are not entirely clear, heightened

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parental stress, social exclusion and harsh or non-supportive parenting practices, often highly prevalent among families living in circumstances of chronic adversity, can further undermine children's emotional well-being and weaken children's abilities to deal with trauma (Deater-Deckard, 2005; Lund et al., 2010). This provides a strong empirical basis for the importance of addressing the household economic circumstances for improving wellbeing outcomes of vulnerable children. However, few interventions link child mental health with poverty alleviation (Ssewamala et al., 2012).

Humanitarian and development agencies in low-resource countries often use various economic approaches (e.g., microfinance, conditional and unconditional cash transfers, income-generation schemes, skills training) to improve children's wellbeing by strengthening household economies (Ellis and Chaffin, 2015; Ssewamala et al., 2010; van Rooyen et al., 2012). A systematic review of poverty alleviation programs in low-income countries (Lund et al., 2011) showed inconclusive effects on mental health, especially in regards to children's depressive or anxiety symptoms, with the exception of asset-based and some cash transfer programs (Kilburn et al., 2016; Ssewamala et al., 2012), and these effects appear to taper off soon after the program ends (Baird et al., 2013). While inconsistent results could be associated with the type of economic approach (e.g., microcredit, cash or asset-based), they also raise the question of whether economic interventions alone are sufficient for improving children's mental health functioning.

While reducing family-level poverty is a necessary condition for addressing mental health among populations in very low resource settings, that alone may not be sufficient to produce long-lasting effects on child mental health, especially without targeting parents (Knerr et al., 2013; Trani and Bakhshi, 2017). Currently, few evidence-based and culturally-tailored interventions are available for the prevention of mental health problems among ultra-poor children and adolescents in low-income countries, especially in Francophone Africa (Patel et al., 2007). A systematic review of global mental health promotion and prevention interventions demonstrated that most interventions took place in middle-income or English speaking low-income countries. The review included interventions delivered at schools (leaving limited options for non-school going children), and only half of the interventions demonstrated positive effects (Barry et al., 2013). Existing evidence-based mental health programs from high-income countries often require highly skilled clinicians, and are not adapted to the context of developing countries struggling with limited financial and human mental health resources (Patel et al., 2008; Saxena et al., 2007). Global children's mental health programs emphasizing the importance of developing multi-component or multilayered interventions that simultaneously target structural (e.g., poverty), family, and cultural factors as standalone psychological or parenting interventions have been found to have limited power to impact child's wellbeing under the circumstances of complex and cumulative stressors (Barry et al., 2013; Fazel et al., 2014; Knerr et al., 2013; Stark et al., 2018).

To address this gap, using a sample of children from ultra-poor families in rural Burkina Faso, this study aims to test (1) the effects of economic strengthening intervention alone on child mental health outcomes (depression, self-esteem and trauma symptoms), and (2) the effects of combined economic strengthening and family-focused interventions on child mental health outcomes.

First, we hypothesize that the stabilization and strengthening of household economy would improve children's emotional well-being. The assumptions underlying Hypothesis #1 are guided by Asset theory (Sherraden, 1991), positing that productive assets (e.g., savings, economic opportunities in the form of income generating activities or microenterprises) have important long-term psychological and social benefits for individuals and families with limited financial resources that go beyond economic gains (e.g., investing in child's education, protecting children from risk situations such as child labor and exploitation).

Hypothesis #2 is guided by Asset theory and the Family Resilience framework (Walsh, 2002), and proposes that building on parental strengths and providing access to supportive adult family members, along with economic assets, can balance the effect of life adversities and improve mental health outcomes of children living in conditions of persistent crises. The concept of family resilience goes beyond personality traits essential for coping and adaptation, and emphasizes a shift from deficits and dysfunctions within families affected by multiple stressors to family strengths that help families rebound and withstand risks in the context of prolonged adversity (Walsh, 2002). The concept of family resilience is culturally congruent for low-resource settings in sub-Saharan Africa as it treats distressed families with respect and compassion for their persistent challenges and helps them refocus from analyzing causes of their problems to what can be done about them (Bhana and Bachoo, 2011).

This approach emphasizes the importance of utilizing more collaborative and empowering methods to help families identify and amplify existing competencies and resources. The intervention strategies should target three main domains of family functioning: *family belief systems* (e.g., positive outlook, larger values and aspirations for children), *organizational patterns* (e.g., connectedness and mutual support, mobilization of kin and community networks), and *communication processes* (e.g., shared decision making and collaborative problem solving) (Walsh, 2015). By impacting the entire family unit and creating a more supportive climate, this approach aims to improve wellbeing for its most vulnerable members, including children. Based on the two aforementioned theories, we hypothesize that children will demonstrate improved emotional well-being under reduced financial stress and improved family functioning.

In this context, our study aims to inform the global mental health policy on preventive initiatives for children living in ultra-level poverty and chronic adversity in low-resource settings. This evaluation study has two main components: 1) an economic strengthening intervention for women and 2) family coaching for household members.

1.1. Economic strengthening for women

The economic strengthening intervention is based on the Graduation model designed for 'ultrapoor' populations, the poorest among the poor (defined in Methods), who are generally not reached by from dominant approaches like micro-finance, and if they are, insufficiently benefit from these approaches (Hashemi and Umaira, 2011). Extreme or ultra-poverty is substantially different from other forms of poverty due to the degree, duration, and breadth of deprivation (e.g., chronic hunger, illiteracy) (Matin et al., 2008). Evaluation of the Graduation approach in six countries has demonstrated significant outcomes for a range of economic indicators, including income, savings and food consumption (Banerjee et al., 2015). The economic intervention under investigation in Burkina Faso also demonstrated significant impacts on family economic status, food security and expenditures on children (Karimli et al., under review). The intervention targeted specifically female caregivers and included the following package of four economic and livelihood strategies:

1.1.1. Savings group formation and training

The Village Savings and Loan Association (VSLA) model was used, in which women form groups and elect a leadership committee. During weekly meetings, women save the value of between one and five "shares" (the value of each share having been already agreed by the group), and make a small contribution to a group "solidarity fund" used to support members in serious need (e.g., a death in the household). Members are also trained on how to access loans from the group savings funds and on how to calculate interest payments. These activities are supported by field agents until groups have mastered the procedures. At the end of each 12-month cycle savings and accumulated interest are dispersed and a new cycle commences. In the process, the savings groups also become an important forum for social integration and mutual support.