Prevention Science
https://doi.org/10.1007/s11121-018-0935-0

Strengthening a Culture of Prevention in Low- and Middle-Income Countries: Balancing Scientific Expectations and Contextual Realities

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Abstract

Relevant initiatives are being implemented in low- and middle-income countries (LMICs) aimed at strengthening a culture of prevention. However, cumulative contextual factors constitute significant barriers for implementing rigorous prevention science in these contexts, as defined by guidelines from high-income countries (HICs). Specifically, disseminating a culture of prevention in LMICs can be impacted by political instability, limited health coverage, insecurity, limited rule of law, and scarcity of specialized professionals. This manuscript offers a contribution focused on strengthening a culture of prevention in LMICs. Specifically, four case studies are presented illustrating the gradual development of contrasting prevention initiatives in northern and central Mexico, Panamá, and Sub-Saharan Africa. The initiatives share the common goal of strengthening a culture of prevention in LMICs through the dissemination of efficacious parenting programs, aimed at reducing child maltreatment and improving parental and child mental health. Together, these initiatives illustrate the following: (a) the relevance of adopting a definition of culture of prevention characterized by national commitments with expected shared contributions by governments and civil society, (b) the need to carefully consider the impact of context when promoting prevention initiatives in LMICs, (c) the iterative, non-linear, and multi-faceted nature of promoting a culture of prevention in LMICs, and (d) the importance of committing to cultural competence and shared leadership with local communities for the advancement of prevention science in LMICs. Implications for expanding a culture of prevention in LMICs are discussed.

Keywords Culture of prevention · International prevention science · Low- and middle-income countries

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11121-018-0935-0) contains supplementary material, which is available to authorized users.

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Published online: 30 July 2018

Relevant initiatives aimed at strengthening a culture of prevention are being implemented in low- and middle-income countries (LMICs). However, these efforts face considerable challenges due to a multiplicity of factors such as limited budgets for prevention research, political instability, challenges to maintain a rule of law, insufficient health coverage, and scarcity of specialized professionals (World Health Organization 2013). Despite promising efforts, much remains to be done with regard to strengthening a culture of prevention in LMICs.

To illustrate this complexity, this manuscript presents four case studies aimed at disseminating efficacious parenting programs in contrasting international settings. We focus on parenting interventions for three reasons. First, the highest prevalence rates of child neglect and maltreatment continue to be documented in LMICs (UNICEF 2014). Second, efficacious parenting interventions implemented in LMICs can improve the mental health of parents and children in addition to preventing child neglect and maltreatment (Gardner et al. 2015). Finally, the initiatives illustrate that supporting local prevention leadership and integrating cultural and contextual resources constitute critical precursors for strengthening a culture of prevention in LMICs. The prevention initiatives described in this paper constitute unique case studies and were not originally designed as a collaborative research strategy. Thus, they differ according to methods of implementation and analysis. We are currently seeking to integrate an international working group with common research benchmarks to allow for more systematic case study research (Yin 2018), with the ultimate goal of supporting international efforts aimed at strengthening a culture of prevention in LMICs.

Key Considerations When Defining a Culture of Prevention in LMICs

In 2011, the Society for Prevention Research (SPR) released its *Standards of Knowledge*, which state that the primary goal of prevention science is "to improve public health by identifying malleable risk and protective factors, assessing the efficacy and effectiveness of preventive interventions and identifying optimal means for dissemination and diffusion" (Biglan et al. 2011, p. 3). These standards are in concordance with core prevention priorities recommended in 2009 by the National Research Council and the Institute of Medicine.

We propose a definition of culture of prevention that corresponds with SPR standards, with relevance to LMICs. Thus, we draw on recommendations proposed by the United Nations (UN) aimed at promoting a culture of prevention of international conflict (Hill 2001). First, the UN recommends that a culture of prevention must have national ownership at multiple levels. Further, a culture of prevention should consist of short- and long-term strategies encompassing multiple prevention goals. Finally, initiatives must facilitate the generation of relevant policies to ensure sustainability (Hill 2001).

Within the wide range of possibilities for promoting a culture of prevention in LMICs, one alternative refers to disseminating prevention interventions originally developed in high-income countries (HICs). However, critical issues must be considered if this alternative is pursued. First, it is necessary to determine whether specific efficacious interventions developed in HICs can address the needs of targeted contexts. If that is the case, the appropriateness of culturally adapting the intervention must be thoroughly evaluated (Castro et al. 2010). Meta-analytic evidence indicates the importance of culturally adapting interventions to be compatible with local culture and context (e.g., Hall et al. 2016). However, there is also evidence indicating that some parenting interventions may work well in different contexts with minimal adaptations (Leijten et al. 2016).

Once initial cultural adaptations are undertaken, interventions must be empirically tested to determine cultural acceptability, implementation feasibility, and efficacy. Traditional approaches identify a linear model in which efficacy must first be demonstrated prior to large-scale dissemination. In contrast, recent exhortations by implementation science scholars indicate the need for a parallel process of efficacy evaluation and gradual implementation and dissemination. This approach can reduce multi-year gaps between the initial demonstration of efficacy and ultimate wide-scale provision of services (Cabassa and Baumann 2013).

Purpose of the Manuscript

The purpose of this manuscript is to describe four prevention initiatives being implemented in northern and central Mexico, Panamá, and Sub-Saharan Africa. Each initiative consists of a unique approach and trajectory, highly dependent on contextual resources and challenges, political environments, and specific socio-cultural factors. Further, whereas some initiatives describe clear progress with regard to systematic adaptation, testing, and dissemination; others describe a slower process aimed at establishing a core foundation for developing a culture of prevention within intense contextual adversity. We describe each initiative according to the following areas of analysis: (a) contextual history, (b) steps towards developing a culture of prevention, (c) methodology and research findings, (d) impact, and (e) future directions. The descriptions of initiatives consist of brief summaries of contextual backgrounds and main prevention activities. Following recommendations by Yin (2018) on criteria for reporting research case studies, we have included an online supplemental material to provide relevant case study information for each initiative consisting of specific research questions, research design, methods, and cultural adaptation protocols (see Appendix A).

Prevention Initiatives in LMICs

Initiative 1: Strengthening a Prevention Initiative in Northern Mexico

Contextual History This initiative dates back to 2007, when Parra-Cardona established a collaboration with the *Instituto Regional de la Familia* (IREFAM), a leading mental health training institute in the state of Chihuahua. This northern Mexican state has been impacted by intense periods of violence as it constitutes a key route for drug trafficking into the United States (US). One of the most challenging periods in the history of Chihuahua corresponded to President Calderón's frontal battle against drug cartels. During his administration, residents of the state were exposed to frequent open confrontations between authorities and cartel groups, public executions related to rivalries among cartels, and a dramatic spike in extortions and kidnappings affecting the civilian population. It is estimated that the overall number of homicides associated with the war on drugs during the Calderón administration (years 2007–2012) reached 120,000 people (Molzahn et al. 2013).

In addition to this context of violence, the state of Chihuahua has been recently impacted by widespread corruption by state authorities. Specifically, in 2017, the governor Javier Corral inherited an insolvent state government as funds from the previous administration were systematically diverted and misused. Although scholars agree that this is a historical challenge in Mexico affecting the country as a whole, the case of Chihuahua has been notorious due to the widespread corruption. The situation was so dire in the initial days of the Corral administration that public school teachers and other state employees were furloughed for weeks. Key government functions were temporarily suspended as the state government did not have funds to cover basic operations and payroll.

This corruption scheme was particularly deleterious when considering the characteristics of prevention initiatives promoted by previous state administrations. Historically, funding for prevention initiatives characterized by evidence-based knowledge was not prioritized. Instead, prevention programs were selected according to their capacity to have a large-scale impact, regardless of their scientific foundation. Although scaling up services is a critical goal in public health, an associated premise is to ensure that disseminated interventions are grounded in empirical evidence. However, there is clear historical precedent in Latin America that prevention interventions disseminated at a large scale may have a primary objective of promoting political agendas, rather than offering science-based public health initiatives (Mejia et al. 2015).

Steps Towards Developing a Culture of Prevention Academic institutions and non-governmental organizations (NGOs) have been leaders in efforts to promote a culture of prevention in Chihuahua. Among these organizations, IREFAM is a private academic institution offering graduate degrees to mental health professionals. Recently, IREFAM became the first institute in the state of Chihuahua to offer a doctoral degree in family therapy, with a clear focus on training students on culturally adapted evidence-based mental health interventions, as well as community-based participatory research models with an emphasis on prevention.

IREFAM has led highly relevant mental health initiatives informed by a commitment to social justice. For example, between the 1990s and the early 2000s, femicide reaches alarming proportions in the border city of Ciudad Juárez. The majority of these women were poor and victims of systematic abduction, torture, and rape. IREFAM was a leading organization in the provision of mental health services to families affected by femicide. During the peak of the war on drugs, IREFAM also launched prevention programs in Ciudad Juárez. Unfortunately, IREFAM's efforts were curtailed due to funding cuts by previous state governments.

Methods and Findings IREFAM and the Steve Hicks School of Social Work (SHSSW) at the University of Texas at Austin have solidified a collaboration aimed at strengthening a culture of prevention in Chihuahua. As an initial step, IREFAM curricula for masters and doctoral programs were revised to include courses on evidence-based prevention interventions and research methods with an emphasis on context and cultural adaptation. Doctoral dissertations consisting of qualitative and ethnographic methods have focused on exploring the feasibility of implementing community-based parenting prevention programs in various contexts (e.g., low-income urban centers, rural communities).

As findings from ongoing investigations are being collected, emerging results consistently confirm a widespread community need for efficacious interventions aimed at preventing harsh parenting practices. This area of intervention fully coincides with the US-based program of prevention research led by Parra-Cardona et al. (2017). Briefly, these researchers have implemented an NIH-funded program of cultural adaptation research with low-income Latino immigrants focused on the cultural adaptation of the efficacious intervention known as GenerationPMTO®. These adapted parenting interventions have specific advocacy components to help parents cope with salient contextual challenges such as racial discrimination, immigration stress, and community violence (Parra-Cardona et al. 2016, 2017). Detailed characteristics of the adaptation process and components of these interventions are described in the online supplement (see Appendix A).

Although we initially explored the possibility of launching rigorous prevention studies in low-income communities, the preferred strategy has focused on setting a foundation for the future implementation of prevention studies by conducting small exploratory studies, as well as enhancing the research skills of IREFAM students. This decision was influenced by

the intense climate of insecurity, due to widespread activities of drug cartels, which included direct threats to local mental health professionals. This level of risk was considerably heightened due to the lack of commitment by previous state governments to offer basic protections for community-based prevention research activities.

Impact Although rigorous prevention studies remain to be implemented, critical goals have been achieved. First, IREFAM has thoroughly reviewed training curricula by including courses in evidence-based parenting practices and cultural adaptation models. Since 2007, IREFAM has graduated over 500 master's students trained in these approaches. Eighteen graduates have also received doctoral degrees with a focus on community-based participatory research models. Several of the dissertation studies conducted by doctoral students are informing the development of community-based prevention proposals to be submitted to the Corral administration. Intense networking has also been maintained with key NGOs and private sector foundations.

Future Directions Although the Corral administration has managed one of the most dramatic financial crisis in the history of the state, the lasting effects of decades of corruption and misuse of government funds are still deeply impacting the basic functioning of the state at multiple levels, including the limited dissemination of efficacious prevention interventions. However, the current administration has expressed the need to enhance public mental health services and prevention initiatives. Their commitment has been evident on several fronts. For example, IREFAM graduates are now in leadership positions in the state government and are actively promoting the implementation of prevention initiatives informed by culturally relevant evidence-based principles.

IREFAM continues to focus on the training of mental health providers and researchers as a key long-term strategy for strengthening a culture of prevention in the state. Parra-Cardona has been appointed the SHSSW Coordinator for initiatives in Mexico and Latin America, which secures continuous collaboration with a leading US research institution. Finally, IREFAM is actively working with the state government to promote legislation focused on strengthening an evidence-based informed culture of prevention. Although it is premature to claim success, the possibility of establishing a foundation for a sustainable culture of prevention is promising.

Initiative 2: GenerationPMTO in Mexico, Distrito Federal

Contextual History Mexico is categorized by the World Bank as an upper middle-income country. However, this designation can be misleading as approximately 53% of the nation's population lives below the poverty threshold (World Bank 2017). Children and youth are particularly affected as 60% of children under 18 years of age are overrepresented among the poor (UNICEF 2014). Epidemiological data also indicate that children in Mexico are at high risk for child abuse, neglect, and harsh parenting due to multiple factors, including chronic poverty, and approximately 60% of adolescents have reported lifetime prevalence of violence in the home (UNICEF 2014). Within this context, parenting practices have been identified as a focal point of intervention (Villatoro et al. 2006). The Mexican government has enacted public policies aimed at reducing violence against children and women. However, cyclical changes in federal and state administrations continue to prevent the continuity of social programs aimed at promoting large-scale dissemination of family wellness programs, including culturally relevant and efficacious parenting programs.

Steps Towards Developing a Culture of Prevention An international research team integrated by US- and Mexico-based prevention scientists has been working in Mexico City since 2006 on the cultural adaptation and dissemination of GenerationPMTO. This work has ensured sustainability and continuity because it is embedded within the structure of the National Institute of Psychiatry Ramón de la Fuente Muñiz (INPRFM). In addition to being the leading national research institute on mental health, several INPRFM researchers are affiliated with the National Autonomous University of Mexico (UNAM), a top ranking public and research-oriented university in Latin America.

GenerationPMTO was originally developed in the US (Forgatch et al. 2013) and is an efficacious parenting intervention with robust evidence-based knowledge and long-term indicators of impact (Forehand et al. 2014). The process of cultural adaptation of GenerationPMTO for Mexico City was grounded in the Cultural Adaptation Process Model (Domenech Rodríguez and Wieling 2004) and the ecological validity framework (Bernal et al. 1995). A detailed description of the adaptation process of the CAPAS intervention is described in Appendix A.

The context of the city posed unique challenges for the dissemination of CAPAS. First, the greater Mexico City population contains approximately 22 million people representing multiple ethnicities and regions of the country. As a result, the team needed to tailor the intervention to make it responsive to a wide range of family characteristics, including low socioeconomic backgrounds and contrasting family structures. Thus, CAPAS was tailored to respond to challenges faced by families such as the need to share child-rearing responsibilities with older children and extended family members (e.g., grandparents). Shared child-rearing responsibilities are common in Mexico City due to the overwhelming work demands experienced by parents.

Because Mexico City extends over 16 municipalities, the cultural tailoring of CAPAS has occurred by heavily relying on local experts, knowledgeable about their local communities. Further,

an UNAM faculty member and graphic designer led the efforts to develop a culturally relevant manual and intervention materials. This work resulted in manuals that reflected the expertise of local leaders and communities (Baumann et al. 2014).

The training of interventionists followed the original GenerationPMTO training model consisting of 18 workshop days across five distinct training components. Because the training is time intensive and expensive, the collaborative team developed a strategy to reduce costs through local grants and funding support from the treatment developer and participating institutions. A local expert co-led the training workshops with two experienced GenerationPMTO trainers and with additional coaching and support from the treatment developers. A treatment developer provided live coaching for one workshop, complemented by coaching through video conferencing. This approach was highly productive as therapists received coaching involving live observation, video supervision, and distant videoconferencing. The choice of therapists to be trained was also strategic. One local expert and co-investigator and 13 therapists were selected based on their clinical backgrounds and enrollment in graduate programs.

Whereas the INPRFM is protected against government cycles, the institute relies on grants for many of its operations. Thus, limited resources consistently present considerable challenges for ensuring fidelity of implementation. Further, due to a multiplicity of contextual challenges, it is difficult to balance the tension between reach versus quality of implementation and effectiveness (Baumann et al. 2014).

Methodology and Research Findings The first randomized controlled trial (RCT) to test the CAPAS-Mexico intervention targeted families with children ages 5–12 years. A second trial is currently being implemented and consists of two intervention conditions: (a) CAPAS-Mexico intervention for parents and (b) CAPAS-Mexico for parents plus a child-focused component known as *Dejando Huellitas en tu Vida* (Leaving footprints in your life). *Huellitas* is a universal intervention for children that promotes social skills and drug refusal techniques. This trial is ongoing and data are being collected.

The initial RCT targeted 60 families in Mexico City. Families were randomized into treatment condition or control. Inclusion criteria consisted of families with children ages 5 to 12, presenting significant externalizing problems according to clinical ratings of the Child Behavior Checklist (Achenbach and Rescorla 2001). Initial efficacy findings indicate the positive impact of the intervention (Amador et al. 2013). Specifically, parental post-test self-reports indicate significant improvement of parenting practices for caregivers in the intervention condition compared to control ($p < 0.001$; $d = 0.16$ to 1.53). Caregivers in the intervention condition also reported a significant decrease in parental depressive symptomatology and parenting stress compared to control ($p < 0.001$, $d = -0.42$ to -2.92). Caregivers allocated to the intervention also reported significant reductions in child externalizing behaviors compared to control ($p < 0.05$, $d = -2.17$).

Future Directions The core team remains engaged in supporting the dissemination of CAPAS-Mexico while engaged in projects and adaptations of the intervention to address contextual challenges and needs. Specifically, a pilot project was implemented to examine the feasibility of a blended learning approach consisting of web-based and live training, which would maximize training resources. A new version of GenerationPMTO, *Padres Preparados*, was also tested in a pilot study with preschool families with promising findings. Finally, the INPRFM recently implemented a pilot study of a culturally adapted version of GenerationPMTO for families with adolescents, which represents an extension of a NIDA-funded investigation led by Parra-Cardona in the US with Latino/a families. Based on the success of the pilot investigation, we are currently seeking international funding to conduct a study focused on empirically testing the implementation feasibility and initial efficacy of this adapted intervention.

Initiative 3: Reducing Violence in Panamá by Strengthening Family Systems and Promoting the Implementation of an Evidence-Based Program

Contextual History Panamá is located in Central America, one of the most violent regions in the world. Levels of interpersonal violence in Panamá are rising, with a homicide rate of 28.5 per 100,000 inhabitants (World Health Organization 2014). Young people are disproportionally affected, with males younger than 29 years of age being involved in 82% of all homicides (Inter-American Development Bank 2015). Although family-focused interventions have been identified as a key strategy to protect children and adolescents from violence, there are no locally implemented evidence-based family interventions.

Panamá is an upper middle-income country with the highest level of economic growth in the Latin American region. However, although local resources for prevention seem to be available, most programs being implemented lack empirical evidence of efficacy. An example is the *School for Parents* program, which is implemented in most public schools and aimed at improving parenting skills, increasing parental monitoring, and preventing substance use and gang involvement. Enrolling in *School for Parents* is one of the compulsory requirements families have to fulfill in order to receive an annual cash transfer, which has resulted in high attendance rates. In spite of significant government investments on this locally developed program, its efficacy remains unknown. Further, the content of the program is not theoretically grounded and lacks a clear logic model.

Given this context, the need to implement evidence-based family interventions in Panamá and invest in effectiveness research became apparent to international organizations such

as the United Nations Office on Drugs and Crime (UNODC). UNODC considered Panamá to be an ideal setting for developing a culture of prevention using family interventions and a strategic starting point for the Central American region given its steady economic growth that can facilitate the long-term sustainability of prevention interventions.

Steps Towards Developing a Culture of Prevention In 2009, UNODC launched a project advocating for the adoption of a family skills training program across Panamá—The Strengthening Families Program 10-14 (SFP 10-14). UNODC required the leadership of local policymakers to design a plan for promoting evidence-based interventions, including active participation of local researchers and practitioners to culturally adapt and pilot test SFP 10-14. SFP 10-14 was developed in the US with underpinnings in theories of bio-psychosocial vulnerability and resiliency. It is a seven-session universal package targeting the transition from late childhood into early adolescence (10 to 14 years old). Its main aim is to address risk and protective factors at the individual and family level. The Blueprints for Healthy Youth Development group ranks it as a preventive package with "evidence of benefits-minus-costs" and "promising impact" (Mihalic and Elliott 2015). This ranking is associated with the clear logic model of the intervention, the empirical base of evaluation findings, its significant positive effects on intended outcomes, and its readiness for dissemination.

The SFP 10-14 program was originally translated and adapted to the Latin American context by the Pan American Health Organization (PAHO) in close collaboration with its developers. The culturally adapted version of SFP 10-14 was named *Familias Fuertes*. Recommendations of this team were discussed with the developers of SFP 10-14 to ensure adherence to the theories upon which the program was designed. Proposed changes were minor in nature (e.g., language), not affecting the structure, content, or order of the sessions.

Methodology and Research Findings The intervention *Familias Fuertes* was first delivered by UNODC to approximately 120 families in Panamá from 2010 to 2012. Nine local facilitators, based in a non-governmental organization dedicated to the prevention of drug use, undertook this task. This research design consisted of a non-randomized prevention feasibility study. The facilitators were psychologists and completed a week-long formal training to learn the intervention. *Familias Fuertes* was delivered in low-resource communities using existing networks with local schools, health centers, and churches. The research team was particularly interested in examining the appropriateness of the intervention content with local needs. To that end, the team conducted in-depth qualitative interviews with 30 families (Mejia et al. 2016). Data from interviews were analyzed using thematic analysis. Qualitative results suggested that parents who participated in the intervention were primarily concerned with the dangerous environment in which they were raising their children and the impact that poverty had on their parenting practices. *Familias Fuertes* appears to address these concerns by building trust in parents as caregivers by strengthening their child-rearing skills and creating a buffer against a dangerous environment. Parents also identified their newly acquired communication strategies as useful skills to protect their children against risky behaviors. Further, participants reported children's increased obedience, as well as enhanced parenting skills such as praising, setting limits and rules, and spending time with their children. In sum, the program was deemed culturally appropriate and relevant by parents (Gardner et al. 2015).

A follow-up study is ongoing with the primary objective of determining the effectiveness of the intervention. Specifically, in partnership with the Ministries of Health and of Education in Panamá, a cluster randomized controlled trial is being implemented and funded by the UK Medical Research Council. The 28 townships with the highest rates of violence in Panamá were randomly assigned to full implementation of *Familias Fuertes* ($n = 14$) or treatment-as-usual ($n = 14$). The intervention is being implemented in clinics or schools within participating townships. It is estimated that 840 families will participate in the trial. Follow-up measurements will occur at 6 and 12 months after baseline.

Impact With regard to long-term sustainability, this prevention program has been designed so that full-time staff affiliated with clinics and schools will be trained in *Familias Fuertes*. At least one staff member per site will be certified as a trainer. This training approach is likely to ensure local capacity building and sustainability of the program. A process evaluation is embedded in the project to explore implementation issues, cost-effectiveness, and sustainability.

Future Directions The current initiative illustrates a program of research aimed at strengthening a culture of prevention in low resource communities in Panamá. Fundamental to this process are the networks of collaborations that include international funding organizations (UNODC and PAHO), developers of the efficacious intervention, independent researchers, and governmental institutions in Panamá. Whereas the support from UNODC and PAHO has been essential to strengthen a culture of prevention in this context, the team also considers that success is associated with commitments at multiple levels, including establishing alliances with key governmental partners, working with families to ensure the relevance of the program and cultural fit, and working with researchers and program leaders to test the effectiveness of the intervention through a large-scale cluster randomized controlled trial. The large-scale implementation has been designed to increase likelihood of sustainability and replication of efforts across the region by building local capacity, grounded in the local expertise of community members.

Initiative 4: Promoting a Prevention Initiative in Post-Apartheid South Africa

Contextual History The legacy of Apartheid in South Africa has played a major role in shaping family dynamics and in the development and evaluation of parenting programs to reduce violence against children. During the Apartheid era from 1948 to 1994, the White-minority government enacted comprehensive legislation that resulted in the systematic disenfranchisement marginalization, and impoverishment of the majority of the population: those who were classified, under the Apartheid legislation, as Black African, Colored,[1] and Indian South African. Laws such as the Group Areas Act (No. 41 of 1950) divided the country into racially segregated areas, restricting the majority of South Africans from living in the developed parts of the country because they were not classified as White. Those who were permitted to live close to the cities and towns to provide labor had to live in high-density, low-income suburbs known as townships. Parents seeking employment in urban areas were also often forced to leave their children in designated Native areas with alternative caregivers. Although the Group Areas Act was repealed in 1991, this migratory labor system continues to impact family dynamics today as many children are cared for by extended family members and shift between geographical locations during the course of their childhoods. Post-Apartheid South Africa is also characterized by high levels of community and interpersonal violence. Corporal punishment in schools was prohibited by the South African Schools Act no. 84 of 1996. However, it is still experienced by at least 50% of South African schoolchildren. Further, many low-income children currently experience high levels of community and gender-based violence. In recent years, the HIV and AIDS pandemic has further disrupted family dynamics due to AIDS-related parental illness, absence, and death.

Steps Towards Developing a Culture of Prevention The Department of Social Development issued a call in 2012 to implement parenting programs on a national level for vulnerable families. Nevertheless, there remains a substantial gap between government policy and the capacity to implement these policies. In addition, few of the current parenting programs in South Africa are based on theoretical frameworks common to evidence-based interventions and none had been rigorously tested in empirical studies (Wessels and Ward 2015).

In response to the lack of low-cost, freely available evidence-based parenting programs in South Africa and other LMICs, the Parenting for Lifelong Health (PLH) initiative was founded by researchers and policymakers from UNICEF, World Health Organization, and the Universities of Bangor, Cape Town, Oxford, Reading, and Stellenbosch (Cluver et al. 2016; Ward et al. 2014). This initiative is focused on developing, testing, and disseminating parenting programs that can be integrated within existing service delivery systems. PLH has developed and tested four prototype programs for use across the child developmental spectrum: PLH for Infants (prenatal to 6 months), PLH for Toddlers (6–24 months), PLH for Young Children (2–9 years), and PLH for Parents and Teens (10–17 years).

Both PLH 2-9 and PLH 10-17, locally known as the *Sinovuyo Caring Families Programme for Young Children* and *for Parents and Teens*, were developed in South Africa using community-based participatory approaches. Developers conducted extensive formative research with South African practitioners and parents to assess local contextual and cultural issues that might influence the engagement with and effectiveness of parenting programs. In the case of PLH 10-17, researchers also engaged adolescents through a Teen Advisory Group to inform both program development and subsequent evaluation studies. Thus, PLH programs were developed by integrating findings from the extensive formative research evaluation, evidence-based principles and approaches drawn from existing efficacious parenting interventions, and participatory research principles derived from the work conducted by Parra-Cardona et al in adapting parenting programs for low-income Mexican families (Parra-Cardona et al. 2016, 2017). The readers are referred to the original sources for additional details on the development of these programs (Cluver et al. 2017; Lachman et al. 2016a).

The programs are grounded in social learning theory and an empirical base supporting the promotion of positive parenting skills, setting limits, and non-violent discipline (Ward et al. 2014). In addition, the developers included locally relevant content to address elevated levels of stress, community violence, and sexual risk behavior, as well as framing of the interventions according to the cultural context of shared responsibility, respect, and reciprocity. To increase cultural acceptability, content was framed using culturally relevant metaphors, stories, and songs, as well as participatory approaches such as Forum Theatre (i.e., Theatre of the Oppressed).

Methodology and Research Findings The initial feasibility and preliminary efficacy of PLH 2-9 were tested in a small-scale randomized controlled trial with low-income, Black African families with children with clinical levels of behavioral problems in Cape Town, South Africa ($n = 68$). In comparison to a wait-list control group, post-intervention results indicated medium effect sizes for both parent-reported ($d = 0.63$, 95% CI [0.14, 1.12]) and observed ($d = 0.57$, 95% CI [0.09, 1.06]) positive parenting outcomes. Results from observational assessments also found moderate negative treatment effects for less frequent positive child behavior ($d = -0.56$ 95% CI [−1.05, −0.08]), suggesting the necessity to strengthen core

[1] In South Africa, the term "colored" is used to describe people of mixed-race descent as a distinct ethnic population group.

components prior to further testing (Lachman et al. 2017a). Feasibility results indicated that the program also had a high level of enrollment (83.8%), attendance (71.5%), engagement in assigned home activities (87.9%), and acceptability of adapted content (94.1%; Lachman et al. 2017a).

Based on these results, additional program revisions were undertaken before testing the program in a randomized controlled trial in Cape Town ($n = 296$). Revisions included expanding the content on non-violent discipline, providing additional content to strengthen skills acquisition, and additional training to strengthen the competency of facilitators (Lachman et al. 2016b). Initial reports indicate immediate post-intervention effects on reducing parent report of harsh parenting, child behavior problems, and parental depression, while improving observed positive parenting and parent-reported limit setting. Results at 1-year follow-up indicate reduced observed negative parenting and increased observed positive parenting, as well as increased positive child behavior in comparison to controls (Ward et al. 2016).

The evaluation of PLH 10-17 ("Sinovuyo Teen") has taken a similar iterative trajectory with three consecutive studies in highly deprived, rural, and peri-urban communities in the Eastern Cape province of South Africa. A pilot pre-post study of a 10-session version of the program ($n = 30$ caregiver-adolescent dyads) indicated medium to large effects on reducing child abuse and adolescent problem behavior, as well as large effects on improving positive parenting (Cluver et al. 2017). Based on qualitative data from participating families, the program was expanded into a 12-session version with additional content on non-violent conflict resolution. This version improved parenting practices and reduced parent and adolescent mental health problems in a pre-post study ($n = 115$ caregiver-adolescent dyads). Based on needs reported by participants struggling with economic hardship, the program was expanded to 14 sessions with content on family budgeting. This version of the program was subsequently tested in a cluster randomized controlled trial in the Eastern Cape province ($n = 40$ clusters, 552 caregiver-adolescent dyads). Results at 5–9 months post-intervention showed treatment effects for lower abuse (caregiver report: IRR = 0.55, 95% CI [0.40, 0.75] and corporal punishment (caregiver report: IRR = 0.55, 95% CI [0.37, 0.83]), as well as improved positive parenting (caregiver report: $d = 0.25$, 95% CI [0.03, 0.47]), involved parenting (caregiver report: $d = 0.86$, 95% CI [0.64, 1.08]; adolescent report: $d = 0.28$, 95% CI [0.08, 0.48]), and less poor supervision (caregiver report: $d = -0.50$, 95% CI [−0.70, −0.29]; adolescent report: $d = -0.34$, 95% CI [−0.55, −0.12]) in comparison to controls. No differences were found for neglect, inconsistent discipline, or adolescent report of abuse and corporal punishment. Secondary outcomes showed reductions in caregiver corporal punishment endorsement, mental health problems, parenting stress, substance use, and increased social support (all caregiver report). Intervention adolescents reported no differences in mental health, behavior, or community violence, but reported lower substance use. Intervention families also had improved economic welfare, financial management, and more violence avoidance planning. No adverse effects were detected (Cluver et al. 2018).

Impact PLH 10-17 has been included as a core component for many of the USAID-funded DREAMS Projects aimed at reducing HIV incidence for adolescent girls in Sub-Saharan Africa and the Caribbean, as well as wider programming by UNICEF and NGOs. This presented a dilemma: ideally, the developers would have wanted stronger evidence of effect before any wide-scale roll out. However, agencies providing services for children and families had to use initial randomized trial results because the long-term results were delayed by pre-election political violence. The response to the ethical dilemma was twofold: to emphasize that these are prototype programs with limited evidence, and to ask our implementing partners to work with the research team to collect at least monitoring data, and at best to carry out randomized controlled trials in the new contexts. Thus, PLH partners have provided technical support to multinational NGOs on the scale up of PLH 10-17 in Lesotho, Kenya, Tanzania, Uganda, and Zimbabwe (target populations 20,000 to 40,500 families), as well as in South Africa, South Sudan, and the Democratic Republic of Congo. Dissemination has presented challenges in relation to the maintenance of implementation fidelity, monitoring impact, integrating process and outcome data, and adapting for new contexts. Program developers are collaborating with UNICEF on concurrent research initiatives focused on the systematic adaptation, optimization, and evaluation of the PLH 2-9 program in East Asia and Southeastern Europe.

Future Directions PLH has utilized the unanticipated rapid expansion of the programs as an opportunity to promote a culture of prevention research. Throughout the development, evaluation, and dissemination process, developers have engaged local academic institutions (e.g., Ateneo de Manila University in the Philippines), government departments (e.g., South African Department of Social Development), and non-governmental agencies (e.g., Catholic Relief Services, UNICEF country offices). PLH has also mentored early career researchers from Israel, Kenya, Macedonia, Moldova, the Philippines, Romania, South Africa, Thailand, and Zimbabwe in order to build local capacities. The participation of local institutions and researchers also has enabled a more independent evaluation of the effectiveness of the programs as the original developers become less involved in the research. For example, in collaboration with Clowns Without Borders South Africa, PLH has sought to embed a culture of prevention within current implementing partners. This includes development of outcome and process evaluation tools and building agency capacity to conduct monitoring and evaluation (M&E) and analyses of impact. These data will contribute to a multi-country pooling data study to understand the impact of the program across multiple contexts.

Discussion

This manuscript is informed by a definition of a culture of prevention that integrates objectives stated in the SPR *Standards of Knowledge*, as well as UN recommendations aimed at disseminating a culture of prevention at an international level. We offer a closing summary analysis based on the elements of this definition and the main characteristics of the previously described initiatives.

The Need to Promote a Culture of Prevention Grounded in Shared Ownership

Each of the four initiatives highlight the importance of integrating resources and commitments from multiple levels of government, civil society, and in the case of two initiatives, substantial international funding. The limited integration of resources constitutes a significant barrier to disseminate evidence-based informed prevention initiatives as illustrated in the case of Chihuahua, characterized by inconsistent state government leadership from past state government administrations. In contrast, the PLH initiative in South Africa has been supported by local governments and civil society in multiple countries, with the aim of embedding the programs within local communities.

Further, there is a need to define shared ownership as multifaceted contributions aimed at strengthening a culture of prevention. For example, the process of developing ownership should integrate the expertise of local communities to determine the most relevant prevention approaches for specific contexts, as well as the optimal timing for implementation of prevention activities (Patel et al. 2011). Thus, shared ownership must involve actively incorporating the expertise and stated priorities of local communities.

Defining Short- and Long-term Goals According to Context

Strengthening a culture of prevention in LMICs consists of iterative, non-linear, and multi-faceted processes. Thus, the selection of short- and long-term goals should be carefully guided by salient contextual factors and existing resources. For example, implementing RCTs constitutes a gold standard in HICs. However, this may not be a strategic short-term goal in some LMICs as illustrated in the Chihuahua initiative. In contrast, the other initiatives described how RCTs were instrumental to secure substantial funding aimed at scaling up services and achieving large-scale dissemination.

The Need to Understand Differential Impact

Within countries and contexts, families vary substantially from each other in how much they benefit from parenting interventions (e.g., Leijten et al. 2018). Thus, although a central focus refers to evaluating how effective parenting interventions are in general across LMICs, a key component of strengthening a culture of prevention in LMICs should also consist of understanding differential benefits for families. This requires research on factors that explore why some families benefit more than others and the extent to which these findings generalize to contrasting contexts across LMICs (Leijten et al. 2018).

Embracing Cultural Competence: Balancing Contrasting Pressures

All of the initiatives highlighted the need to thoroughly strengthen a culture of prevention that is contextually and culturally relevant. This form of cultural competence should also be characterized by researchers' accountability for the power and privilege that they represent. For example, researchers across all initiatives were tasked with accommodating to local contexts by understanding and validating historical and cultural backgrounds, as well as advocating for the benefit of culturally relevant evidence-based parenting interventions. Key to this process was the incorporation of views and needs of targeted communities through methodologies including qualitative studies, community consultations, and advisory groups (Castro et al. 2010).

The Key Role of Implementation Science for Promoting a Culture of Prevention in LMICs

Implementation science has rapidly evolved as a discipline in an effort to close the wide gap between the development of efficacious interventions and effective uptake by communities. Although several efficacious prevention interventions exist, it can take as long as 20 years for their uptake in usual care (Proctor et al. 2009). Addressing this issue is of critical importance when considering alternatives for strengthening a culture of prevention in LMICs. For example, recent implementation science models propose the implementation of studies consisting of a parallel process of efficacy evaluation through RCTs and gradual implementation and dissemination (Cabassa and Baumann 2013).

With regard to large-scale impact, the PLH case study clearly demonstrates the relevance of offering efficacious interventions grounded in community support and characterized by cost-effectiveness and prohibition of commercial and profit interests (Cluver et al. 2018). The impact of this approach is clearly demonstrated by the widespread dissemination of PLH in Southern and Eastern Africa and most recently, in Southeastern Europe and East Asia (Lachman et al. 2017b). These initiatives have received substantial international funding and institutional support from the World Health Organization, UNICEF, the European Research Council, the European Commission, the US Agency for International Development, and participating governments. This widespread support builds

on the fact that the initiatives draw on evidence-based parenting principles are designed for low-literacy populations, can be implemented by non-professional staff, and are freely accessible under Creative Commons licensing.

Conclusion

The initiatives discussed in this paper show that strengthening a culture of prevention in LMICs constitutes a non-linear and multi-faceted process. Above all, success stories indicate that researchers, professionals, and communities were fully committed to embracing a bi-directional process of collaborative learning, engagement, and leadership. For example, intervention developers introduced evidence-based prevention interventions by highlighting the importance of adhering to the core components and principles that account for the efficacy of the interventions. Likewise, representatives from LIMCs were engaged in a collaborative learning process by communicating contextual realities, challenges and opportunities, existing resources, and cultural values and traditions of local communities. It is critical to highlight that such a bi-directional learning and collaborative process may lead to natural tensions and phases of accommodation. However, lessons learned from the studies discussed in this paper also indicate that embracing a commitment to long-term engagement, bi-directional communication, and shared leadership constitutes an effective strategy to strengthen initiatives aimed at promoting a culture of prevention in LMICs.

Funding This work was supported by grants to the following principal investigators: *Lucie Cluver*: European Research Council [FP7/2007-2013], the John Fell Fund [103/757], the Leverhulme Trust [PLP-2014-095], the University of Oxford's Economic and Social Research Council Impact Acceleration Account (1311-KEA-004 and 1602-KEA-189), UNICEF Innocenti Office of Research, the South African National Department of Social Development, and the Ilifa Labantwana Fund [*Cluver co-PI*, Ward, co-PI; T141/79]. *Jamie Lachman*: the South African National Lottery [43137], UNICEF South Africa, and the Canadian International Development Agency. *Jose Ruben Parra-Cardona*: NIMH [R34MH087678], NIDA [K01DA036747]. *Nancy Amador Buenabad*: CONACYT [115150]. *Bradley Evanoff*: NCTAS [UL1 TR000448]. *Enola Proctor* NIMH [R25MH08091607]. *Anilena Mejia & Rachel Calam*: Medical Research Council UK [MR/P010849/1].

Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The PLH 2-9 and PLH 10-17 programs were developed by Lachman, Cluver, Ward, Hutchings, Tsoanyane, Doubt, and Gardner. Intellectual property for the interventions is held under a Creative Commons Attribution-No Derivatives and Noncommercial 4.0 International Public License. Jamie M. Lachman is the Executive Director of Clowns Without Borders South Africa, the not-for-profit partner organization responsible for implementation of the programs during in this study.

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