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Introduction to the *child abuse and neglect* special issue "epidemiology, risk factors, and impacts of adverse childhood experiences in low- and middle-income countries."☆,☆☆

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1. Introduction

Adverse Childhood Experiences, or ACEs, are potentially traumatic yet preventable events that occur in childhood (0–17 years) and include exposure to neglect, abuse, and experiencing or witnessing violence (Centers for Disease Control and Prevention, 2019; Felitti et al., 2019). Also included are experiences that undermine the child's sense of safety, stability, and caregiver bonding, such as growing up with a household member who engages in substance use or has mental health problems or being separated from a parent due to death, illness, incarceration, or other circumstances (Felitti et al., 2019). These examples do not comprise an exhaustive list of childhood adversity; other traumatic experiences could impact health and wellbeing, including those that occur outside of the caregiver and household context, such as exposure to community violence (Finkelhor et al., 2015; Karatekin & Hill, 2019). ACEs often occur together, can result in toxic stress, and are associated with a wide range of adverse behavioral, health, and social outcomes, such as substance use, depression, obesity, heart disease, cancer, and lower education and earning potential (Merrick et al., 2019).

While ACEs are well-studied overall, most data have been collected in adult surveys and in high-income countries (HIC) (Gordon & Afifi, 2020; Hughes et al., 2017; Madigan et al., 2023) while youth in low-to-middle-income-countries (LMIC) remain under-studied. This is problematic because adults may have some difficulty recalling childhood experiences (whether due to memory or coping mechanisms) and it is likely that there are childhood

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adversities unique to or more prevalent in LMIC compared to HIC (Ceccarelli et al., 2022; Freyd & Deprince, 2001; Mersky et al., 2017). For example, children in LMIC may more commonly be exposed to adversities such as lacking basic needs, poverty, orphanhood, poor nutrition, food insecurity, inability to secure safe housing, an unstable home environment, unhygienic living conditions, exposure to pathogens and environmental toxins, institutionalization, multiple barriers to school attendance, harmful gender norms, child labor, child marriage, community and collective violence, forced conscription into armies, political instability, forced migration, refugee status, and complex humanitarian emergencies (Bhutta et al., 2023; Cluver et al., 2013; Finkelhor et al., 2015; Karatekin & Hill, 2019). Furthermore, the majority of the world's children reside in LMIC, making the HIC-centered generalization of ACEs research of particular concern. Some studies have suggested that youth in LMIC have a higher prevalence of ACEs than youth in HIC because of the unique and complex environments in which they grow and develop (Blum et al., 2019; Ceccarelli et al., 2022). While environmental factors in LMICs may present more risk for adversity compared to HICs, there may also be unique environmental factors that are protective against adversity in comparison to HIC. For example, strong social support systems, collectivism, intergenerational living, and religion may promote resilience and less internet penetration and the digital gap may shield youth from some forms of violence and exploitation (International Telecommunication Union, 2024; Mhaka-Mutepfa & Maundeni, 2019; Treleaven, 2023; Wu et al., 2023; Yuan et al., 2022). After 30 years since the landmark CDC-ACE Study, the field needs to understand the burden of ACEs among children and young adults across a broader range of settings, cultures, and contexts. Thus, to have a complete picture of ACEs epidemiology, impact, and possible prevention strategies, there is the need to have a more comprehensive understanding of the adversities faced by children and young adults living in LMIC.

The sustainable development goals for global health have shifted focus from child mortality, to addressing child health and development more broadly, particularly in the context of addressing and preventing ACEs (Bhutta et al., 2023). To address leading causes of adult morbidity and mortality across the globe, assessment of adversity early in life and delivery of interventions more proximal to the experience, can aid in interrupting the cascade of health risks that can occur across the lifespan (Bhutta et al., 2023). However, the 2020 WHO guidelines for the promotion of mental health among adolescents highlight the scarcity of evidence for interventions specifically designed for adolescents exposed to ACEs (World Health Organization, 2020). Furthermore, multisectoral efforts targeting structural drivers of childhood adversity will be critical, and may include policy and interventions promoting quality education, poverty alleviation, gender-equality, environmental safety, safe and secure housing, and access to healthcare and social services (Bhutta et al., 2023).

This special issue, epidemiology, risk factors, and impacts of adverse childhood experiences in low- and middle-income countries, was conceived to highlight some of the gaps in ACEs research with respect to the inclusion of children and youth residing in LMIC. The Special Issue sought to identify ACE studies involving children, youth, and young adults from birth to 24 years in LMIC. A breadth of ACEs research was welcome, including descriptive studies examining the prevalence and implications of ACEs; the developmental impact of ACEs; the cultural relevance of ACEs measures; buffering effects of positive childhood

experiences and resiliency factors; risk and protective factors; and associations with mental and physical health outcomes, risk-taking behaviors, and HIV.

Accepted papers are presented by region of origin including, Africa, Latin America, and Asia. The papers from the African region highlight findings from Cote D'Ivoire, Kenya, Lesotho, Mozambique, and Namibia. Many of these papers utilized pooled data from the global Violence Against Children and Youth Surveys (VACS) from Cote D'Ivoire, Kenya, Lesotho, Mozambique, and Namibia, and the pooled data allowed for some of the largest ACE studies in children and youth to ever be presented. Amene and colleagues provide a valuable ACE prevalence study, while Miedema and colleagues give us a glimpse into the patterns of ACE co-occurrence (Amene et al., 2023; Miedema et al., 2023), with both studies using data from the five VACS countries listed above. Both studies highlight sex differences, pointing to the critical need for interventions to be tailored to sex-specific risk and protective factors. Brown, Denhard, Kanagasabai, Perry and colleagues examined both mental and behavioral health outcomes including psychological distress, suicidal ideation/attempts, self-harm, substance use, service-seeking behavior, sexual risk behaviors, HIV testing, antiretroviral treatment, and antenatal care attendance (Brown et al., 2023; Denhard et al., 2023; Kanagasabai et al., 2023; Perry Mohling et al., 2024). These behaviors and health outcomes are recognized as mechanisms by which ACEs can lead to chronic disease and disability, so represent a point for early intervention before the evolution of the long-term negative outcomes. Annor and colleagues examine parental absence (outside of orphanhood) as a potential ACE, highlighting our need to examine adversities either unique to or more prevalent in LMICs (Annor et al., 2023). Gilbert and colleagues examine additional ways to conceptualize cumulative childhood adversities, beyond the traditional ACE summative score, considering the context in which the adversity occurred and the individual impact of each ACE on mental health outcomes (Gilbert et al., 2023).

Papers in this issue from Latin America included studies from Mexico, Brazil, and Colombia. Casas-Munoz and colleagues validated the WHO ACEs International Questionnaire (ACEs-IQ) among Mexican adolescents, highlighting some important differences in what was / was not considered an ACE; for example, spanking was added to the Mexican version of the ACEs-IQ, while parental separation / divorce was removed after psychometric validation (Casas-Muñoz et al., 2023a). Casa-Munoz et al. and Vahedi et al. highlight the contribution of ACEs on poor mental health outcomes, which is critical given almost 80 % of all suicides in the world occur in LMICs (Casas-Muñoz et al., 2023a, 2023b; Vahedi et al., 2023; World Health Organization, 2023). Komatsu et al. draw attention to resilience in response to ACEs which is an overlooked area of study; to date most ACEs research has focused on risk rather than protective factors (Komatsu et al., 2023). Risso et al. report on the high prevalence of ACEs among Brazilian university students, noting low socioeconomic status as a considerable risk factor for ACE exposure in this context (Risso et al., 2023).

Finally, papers from Asia included in this Special Issue include two studies from China examining mental health outcomes including complex post-traumatic stress disorder, and bedtime procrastination as a potential marker for behavior meant to increase one's sense of life control, but with potential health consequences. These papers explore outcomes in

college students that are important for shaping their well-being into adulthood (Huang et al., 2023; Shao et al., 2023). Key findings from each of the previously mentioned papers are discussed below.

2. Overview of the Violence Against Children and Youth Surveys (VACs)

As previously mentioned, several papers in this Special Issue leveraged pooled data from the global VACS, providing large, representative samples of youth in LMICs. VACS are nationally representative, cross-sectional household surveys of persons aged 13–24 years. The objectives of the VACS are to assess the prevalence of physical, sexual, and emotional violence, as well as risk and protective factors for violence and associated health consequences, such as HIV (Chiang et al., 2016). The first VACS was implemented in Eswatini (formerly called Swaziland) in 2007. The VACS have been implemented in over 23 jurisdictions by the end of 2023 and are led by country governments with technical support from the US Centers for Disease Control and Prevention (CDC). VACS receives significant funding from the Presidents Emergency Plan for AIDS Relief (PEPFAR) as well as funding from United States Agency for International Development, and in some jurisdictions, the United Nations Children's Fund. VACS have also been supported by Together for Girls, a global partnership working to end violence against children and youth that includes national governments, United Nations entities, U.S. government agencies, the private sector, civil society (Together for Girls, 2024). The VACS uses a three-stage clustered sample selection design and sample weights are generated so that estimates from the VACS are representative of the population. Additionally, human subjects' protections are built into the study protocol, including free, direct, and accessible social welfare services available to participants who may need it (Chiang et al., 2016). These protections are aimed at protecting the safety and confidentiality of study participants and likely facilitate disclosure, even on such a sensitive topic.

The VACS provides an ideal dataset for LMICs to contribute to the ACEs literature. First, the data from the VACS are nationally representative. Second, the sound VACS methodology, including intensive training of field staff and rigorous quality control measures, ensures that the data generated from the VACS are high quality. Third, in addition to the ACEs measures, the VACS provides a unique opportunity to assess associations between ACEs and additional youth health and well-being indicators such as mental health, sexual risk behavior, HIV and HIV risk, substance use, service seeking behavior, and risk and protective factors. A limitation of VACS may be that it places a heavier emphasis on violence-related ACEs.

3. Overview of African study findings

All of the nine African studies in this Special Issue utilized VACS data. Seven utilized combined VACS data from five countries to generate pooled estimates (Amene et al., 2023; Annor et al., 2023; Brown et al., 2023; Denhard et al., 2023; Gilbert et al., 2023; Kanagasabai et al., 2023; Miedema et al., 2023), and one study combined data from four of the countries (Seya et al., 2023). The final study reported on Lesotho solely (Perry Mohling et al., 2024). The VACS from Cote D'Ivoire, Kenya, Lesotho, Mozambique, and

Namibia were selected for the combined dataset because they all have experienced persistent generalized HIV epidemics, utilized questionnaires similar enough to combine measures, and data collection years were close enough to ensure differences in pooled violence estimates were not due to overall changes in the trends of violence over time.

Studies from the African region can be grouped into three themes – prevalence and overlap of ACEs, relationship between ACEs and health and behavioral outcomes, and ACEs measures and methodology.

3.1. Prevalence and overlap of ACEs

Consistent with the prevalence reported from other regions of world, ACEs were very common among both males and females in the five Sub-Saharan African countries whose VACS data were pooled for this Special Issue. Amene et al. found that about 72 % of females and 82 % of males had experienced at least one ACE (Amene et al., 2023). The most prevalent ACEs among both females and males were witnessing and experiencing physical violence. In addition, this study found that ACEs tended to co-occur. For example, 28 % of females and almost 40 % of males had both experienced and witnessed violence (Amene et al., 2023). Miedema and colleagues took a more granular look at the patterns of ACE co-occurrence using latent class analysis. Among females, the included ACEs clustered into 6 distinct classes, whereas for males, ACEs clustered into 3 classes (Miedema et al., 2023). While both sexes clustered into a high and low adversity class, the only other male class was characterized by witnessing community violence and experiencing physical violence, while the other female classes were characterized by witnessing both community and interparental violence while also experiencing physical violence; experiencing physical violence only; witnessing community violence only; and orphanhood. While both sexes had a high prevalence of ACE exposure, patterns of ACE co-occurrence may be more diverse for females compared to males.

3.2. Relationship between ACEs and health and behavioral outcomes

Numerous health outcomes were found to be associated with ACE exposure, consistent with studies from other parts of the world (Petruccelli et al., 2019). These outcomes included sexual risk behaviors, HIV testing, being on antiretroviral treatment, antenatal care attendance, psychological distress, suicidal ideation/attempt, self-harm, substance use, and service-seeking behavior.

With respect to behavioral health and HIV, Kanagasabi and colleagues found that experience of three or more ACEs was significantly associated with higher odds of engaging in sexual risk-taking behaviors, particularly transactional sex in females and early sexual debut in males (Kanagasabai et al., 2023). Similarly, using data from Lesotho, Perry and colleagues found a significant association between ACEs and cumulative HIV risk factors (Perry Mohling et al., 2024). Specifically, males who witnessed interparental violence and females who experienced physical violence had higher odds of being exposed to three or more HIV risk factors (Perry Mohling et al., 2024). These findings are important given that HIV is a leading cause of death in LMICs and there is a high HIV burden among young people in LMICs (Decker et al., 2014; United Nations International Children's Fund,

2022). Furthermore, violence has both direct (transmission via forced sex) and indirect (e.g., decreased negotiation power, worse mental health outcomes and substance abuse) relationships to HIV (Decker et al., 2014).

Looking at mental health outcomes and substance use, Brown and colleagues noted a significant and graded association between cumulative exposure to ACEs and suicidal or self-harm behaviors, moderate to severe psychological distress, and substance use in the past 30 days in both females and males (Brown et al., 2023). Finally, two studies examined not only ACEs and health outcomes, but also positive childhood experiences (PCEs). Denhard and colleagues examined violence-related service-seeking behavior among males, looking at associations with both ACEs and PCEs. Service-seeking among males who experienced physical and/or sexual violence is rare (only 8 %), but some childhood adversities (orphanhood and witnessing interparental violence) increased the odds of service-seeking. This finding may be due to additional types of services being needed or because orphanhood has been targeted through PEPFAR orphans and vulnerable children programming that may have provided orphans with greater access to high quality services focused on their unique needs (Bajaria et al., 2020). The findings for PCEs were a bit more complex, indicating that positive parenting behaviors may increase or decrease the odds of service-seeking. For example, high parental monitoring was associated with increased odds of seeking violence services, while a strong father-child relationship was associated with lower odds of service seeking. Perhaps high parental monitoring is indicative of a parent's better awareness of their child's wellbeing and the need for services, while strong father-child relationship was associated with less service seeking because support was already being received in the home (Denhard et al., 2023). Seya and colleagues found that a strong mother-child relationship was protective against suicidal or self-harm behaviors for both girls and boys and a strong father-child relationship was protective against suicidal or self-harm behaviors and substance use in males (Seya et al., 2023). Together, these studies point to protective factors that could be targeted in policy and intervention design.

3.3. ACE measures and methodology

Two studies explored ACE measures and methodology. Acknowledging that the types of adversities experienced by children in LMICs vary compared to HICs, Annor and colleagues examined parental absence (un-related to orphanhood) as an ACE, given that it may be more common for children to be separated from their parents in LMICs due to factors like job shortages and boarding school attendance (Annor et al., 2023). This study found that parental absence in childhood was associated with poor mental health and substance use beyond the variance explained by the other ACEs (including orphanhood), thus supporting the inclusion of parental absence as an ACE, particularly in the LMIC context (Annor et al., 2023).

Finally, Gilbert and colleagues explored different approaches to measuring cumulative childhood adversity within VACS data, operationalizing cumulative adversity using ACE impact and ACEs exposure context, in addition to the traditional ACE score approach (Gilbert et al., 2023). Each ACE's impact on mental distress was estimated using ordinary least square regressions, and categorized into low or no significant impact, medium impact,

and high impact by sex based on the relative severity of the standardized regression coefficients. ACE context was classified based on perpetrator category or setting in which the ACE occurred: household, peer, intimate partner, or community. The study found that ACE context was the best fitting model for the pooled VACS data, but consistent with other studies, each approach demonstrated a significant association between ACEs and the mental health outcomes examined in the study (Gilbert et al., 2023). Given ACE context was the best fitting model for these data, the erosion of relationships through violence may be of particular importance to youth mental health.

4. Overview of Latin American study fundings

This Special Issue includes five studies conducted among youth and young adults in Latin American countries, including Brazil, Colombia, and Mexico. Risso et al. utilized the ACE-IQ to assess 10 adversities among 546 university students in Brazil with a mean age of 21 years (Risso et al., 2023). Although a convenience sample was used, they reported that close to three-quarters (74 %) of students reported at least one ACE, and 13 % reported four or more. As a point of comparison, 72 % of females and 82 % of males were exposed to at least one ACE based on VACS data from sub-Saharan Africa (Amene et al., 2023). The Risso et al. study findings also highlight that socioeconomic status, such as family income, was strongly associated with reporting 4 or more ACEs, suggesting a potential need to focus prevention efforts on students from low-income families (Risso et al., 2023). These findings in South America replicate previous findings in HICs (Halfon et al., 2017).

Vahedi and colleagues utilized the Colombian VACS, which surveyed 2705 youth aged 13–24 years. A highlight of their study was the strong associations between emotional violence and suicidal thoughts, self-harm, and psychological distress among female youth and suicidal and psychological distress, but not self-harm, among male youth (Vahedi et al., 2023). These findings are similar to what was found in VACS from other LMICs that are published in this Special Issue (Brown et al., 2023; Gilbert et al., 2023).

Two studies originated from Mexico. Casas-Muñoz et al. (2023a) validated the ACE-IQ extended version and assessed the prevalence of ACEs among adolescents in school from 20 Mexican states (Casas-Muñoz et al., 2023a). A total of 5835 adolescents (11–19 years) with a mean age of 16 years completed the survey. After establishing validity and reliability of the ACE-IQ, they reported that 90 % of the adolescents reported at least one ACE. In this sample population, close to three-quarters (73 %) of adolescents reported neglect, making it the most common ACE exposure. The same research team also conducted a second study focused on the contribution of ACEs to mental health problems and suicidality among Mexican adolescents (Casas-Muñoz et al., 2023b). In this online sample of youth aged 11 to 19 from 20 states in Mexico, 87 % of the adolescents reported at least one ACE. Again, their findings support prior studies and studies in this Special Issue demonstrating that ACEs are pervasive and associated with mental health problems known to be risk factors for suicidality.

Findings across this Special Issue highlight that reduction in stigma towards mental health problems in LMICs is essential to addressing the long-term outcomes associated with ACEs

(Brown et al., 2023; Casas-Muñoz et al., 2023b; Gilbert et al., 2023; Huang et al., 2023; Miedema et al., 2023; Shao et al., 2023; Vahedi et al., 2023). Addressing stigma requires concerted education and advocacy to promote better understanding and acceptance that mental health problems are a condition that can be prevented and effectively treated.

Finally, Komatsu et al. (2023) conducted a study among 1229 boys and girls aged 14 to 17 years from public schools located in two Brazilian cities with high social vulnerability (Komatsu et al., 2023). The purpose of their study was to examine protective factors such as youth empathy towards others and to assess if empathy mitigates and/or moderates the negative impact of ACEs. This study used a novel approach to ACE assessment by separating ACEs into three categories and analyzing those categories. The categories examined were: ACEs that occurred in the context of close relationships (e.g., death of a family member, parental separation or divorce, family member imprisonment or serious illness, family or peer aggression, sexual violence, etc.); exposure to domestic violence and psychological abuse; and exposure to community violence. They found differences in experiences of ACEs as defined by these events across gender, whereby, girls experienced more ACEs in the context of close relationships and had more exposure to domestic violence and psychological abuse, while there was no difference between sexes in relation to ACEs experienced in the community context (Komatsu et al., 2023). This finding is similar to the examination of ACE context by Gilbert and colleagues which found that females experienced more ACEs in the household and intimate partner context (Gilbert et al., 2023). Findings by Komatsu et al. suggest that youth empathy towards others moderates the relationship between ACEs and psychological adjustment: however, the directionality depends on the context of ACEs (Komatsu et al., 2023).

5. Overview of Asian study findings

The Special Issue includes two studies from China. Shao, Jin, and Lu utilized a convenience sample of 453 college students, aged 16 to 24 years, to examine the relationship between childhood environmental harshness and unpredictability (characterized by low socioeconomic status, parental divorce, household moves, and parental employment change frequency) and bedtime procrastination (Shao et al., 2023). Their study highlights a positive association between harsh and unpredictable environments in childhood and bedtime procrastination. Findings suggest individuals who grew up in adverse environments may lack healthy coping mechanisms for stress management. Shao and colleagues also highlighted a sense of control as a mediator in the relationship between harsh and unpredictable environments in childhood and bedtime procrastination, which can have a short and long-term negative impact on sleep quality, physical and mental health, and loss of productivity.

In the second paper, Huang et al. explore ACEs in the context of Complex Post-Traumatic Stress Disorder (CPTSD), a mental and behavioral health disorder associated with the experience of trauma (Huang et al., 2023). They conducted a latent class growth analysis using three waves of longitudinal data collected from 294 college students who self-reported ACEs to explore developmental trajectories of CPTSD symptoms. They also examined self-compassion as a potential protective factor. Emotional abuse and peer isolation were

the two most commonly reported ACEs. Their study classified CPTSD into 3 levels (low, moderate, and high), with most of the study population in the low-symptoms subgroup. They found self-compassion to be protective against CPTSD symptoms, perhaps because of individuals being kinder to and less judgmental of themselves. Both studies highlight the importance of building the body of evidence around resilience and other protective factors in the ACEs literature which has primarily focused on risk factors associated with ACEs.

6. Conclusion

The papers included in this Special Issue provide valuable insight into the prevalence and consequences of ACEs in children and youth residing in LMICs, as well as some exploration of the role of resilience and positive childhood experiences. Some cross-cutting themes are evident.

First, the prevalence of ACEs in youth from LMIC is unacceptably high; between 70 and 90 % of youth in five sub-Saharan African nations, Mexico, and Brazil reported experiencing one or more ACEs (Amene et al., 2023; Casas-Muñoz et al., 2023a; Risso et al., 2023). Similarly, cumulative ACE exposure was also alarming with over 20 % of youth in five sub-Saharan African nations experiencing three or more ACEs; 13 % in a Brazilian sample reporting four or more ACEs, and over 30 % of the Mexican student sample reporting 6 or more ACEs (Amene et al., 2023; Casas-Muñoz et al., 2023a; Risso et al., 2023). As documented in the adult literature, exposure to any one ACE increases the likelihood of exposure to others and they tend to cluster in unique patterns for males and females (Amene et al., 2023; Dong et al., 2004; Miedema et al., 2023). Further exploration into the gendered patterns of adversity, as well as shared risk and protective factors, can help better tailor prevention programming to the unique needs of children and youth residing in LMICs.

Second, ACEs have a major impact on health risk behaviors and mental health, both of which likely kickstart youth on a downward trajectory towards poor adult health outcomes, disability, and mortality so frequently cited in the ACEs literature (Bhutta et al., 2023; Felitti et al., 2019; Hughes et al., 2017; Merrick et al., 2019; Petruccelli et al., 2019). Through this Special Issue we saw associations with ACEs and sexual/HIV risk behaviors, substance use (although to a lesser degree), and service-seeking behavior (Annor et al., 2023; Brown et al., 2023; Denhard et al., 2023; Komatsu et al., 2023; Shao et al., 2023; Perry Mohling et al., 2024), all of which negatively impact the promotion of adult health and wellbeing. Even more striking, the studies included in this Special Issue found that ACEs were strongly associated with suicidal behaviors in youth (Annor et al., 2023; Brown et al., 2023; Casas-Muñoz et al., 2023b; Gilbert et al., 2023; Vahedi et al., 2023). These findings are particularly important given that almost 80 % of suicides in the world occur in LMICs, and suicide is the fourth leading cause of death globally in youth aged 15–29 (World Health Organization, 2023). Interrupting the pathways between childhood adversity and mental health difficulties in youth and young adults could potentially be lifesaving.

Third, this special issue highlighted the unique impact of particular ACEs and suggested the need for inclusion of new ACEs, particularly in LMICs. Emotional violence (EV), particularly in the form of insults or ridicule by parents, caregivers, or other adult relatives,

emerged as an important ACE with respect to the health outcomes included in this special issue (Gilbert et al., 2023; Vahedi et al., 2023). Vahedi and colleagues found both males and females who experienced EV had over four times the odds of ever reporting suicidal thoughts compared to youth who had not experienced EV. Similarly, parental EV was found to be one of the highest impact ACEs for both males and females with respect to mental distress (Gilbert et al., 2023). These findings corroborate the findings of a recent systematic review of childhood verbal abuse that concluded that more attention to this form of violence is needed (Dube et al., 2023).

The high prevalence of community violence exposure among youth noted in multiple Special Issue studies is especially important because this is not always assessed in traditional ACE questionnaires that tend to focus more on familial and household adversity. Witnessing physical violence in the community was the most prevalent ACE in the five sub-Saharan nations with pooled VACS data, and it was the second most prevalent ACE among Mexican youth, with over half being exposed to community violence (Amene et al., 2023; Casas-Muñoz et al., 2023a). Just as the Special Issue studies made a strong case for including community violence in ACE questionnaires, a study by Annor and colleagues suggested parental absence for greater than 6 months (outside the context of orphanhood) should also be considered as an additional ACE, especially given that it may be more common in LMICs (Annor et al., 2023).

Despite the wealth of information presented in these studies, there are still gaps in ACEs research in LMIC worth noting. First, there are an array of childhood adversities unique to or more prevalent in LMICs that are not commonly included in most ACE instruments, but which likely contribute to toxic levels of stress that negatively impact health and wellbeing; armed conflict, forced migration, and systemic deprivation or violation of rights are several examples (Annor et al., 2023; Komatsu et al., 2023; Vahedi et al., 2023). More objective measures of ACEs (i.e., what constitutes an adversity with respect to the disruption of biological systems), would help better characterize ACE impact. Moreover, measures of cumulative childhood adversity that also factor in frequency and severity are needed (Gilbert et al., 2023). Second, many of the most vulnerable children are missed by studies such as those included in this Special Issue as samples are often drawn from households, schools/universities, and the internet. Youth and young adults who are homeless, reside in institutions, those with significant mental or physical disabilities that make them unable to participate in surveys, and those incarcerated or in captivity may have been excluded yet have likely experienced a high burden of adversity. Finally, while the studies in this Special Issue highlight the high prevalence and strong health impacts of ACEs, we know far less about what works, both from a resilience and intervention perspective, to prevent and respond to adversity and mitigate the disruption to healthy child development, especially in the context of low resource settings. Implementation and evaluation of evidence-based interventions in low resource settings, including those summarized in The INSPIRE technical package (World Health Organization, 2016), could help prevent ACEs in LMICs, and provide information about what preventions efforts are effective in LMICs.

Inclusion of youth residing in LMICs is one step towards expanding our understanding of ACEs and their impact, but much work is yet to be done in establishing, disseminating, and

making universally accessible evidence-based practices that primarily prevent or reduce the harm of ACEs at the earliest point possible in a child's developmental trajectory.

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