Childhood Trauma as a Public Health Issue

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Trauma involves exposure to events that pose significant danger to one's safety, witnessing such an event happening to another person, or learning about a loved one experiencing such events (American Psychiatric Association 2013). Population-based data indicate that between one-third to one-half of youths in the USA have experienced sexual or physical abuse or have witnessed violence (Copeland et al. 2007; Finkelhor et al. 2005) and nearly two-thirds of children will experience some type of traumatic event by the time they reach adulthood (McLaughlin et al. 2013). The burden of trauma among children exposed to humanitarian emergencies such as war and armed conflict in low- and middle-income countries (LAMICs) is substantial (World Health Organization 2013). According to the UNICEF, in 2014 over 15 million children were exposed to violent conflicts in the Central African Republic, South Sudan, Iraq, Palestine, Syria, and Ukraine. An estimated 230 million children currently live in countries or regions impacted by armed conflicts (UNICEF 2014). Children living in areas experiencing armed conflict are at risk of internal displacement, becoming a refugee, witnessing brutal violence and death, and being orphaned, kidnapped, tortured, raped, or recruited as child soldiers (UNICEF 2009). This pervasive exposure to trauma among children worldwide is concerning from a public health perspective given that childhood exposure to trauma is associated with a range of negative outcomes across the life course, including virtually all commonly occurring forms of mental disorder, physical health problems, low academic achievement, and poor social and interpersonal functioning.

In this chapter, we first review the public health impact of childhood trauma, including consequences related to mental health, physical health, academic and socioeconomic outcomes, and interpersonal functioning. Next, we review the public health response to childhood trauma, including efforts to prevent child trauma

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exposure and prevent the mental health consequences of trauma among children and approaches to intervention and treatment delivery in low-resource settings where mental health resources are scarce. Because interpersonal violence exposure including maltreatment (i.e., physical and sexual abuse) and other forms of violence exposure (i.e., violence occurring in the home, school, or community) are more strongly associated with downstream mental health problems than non-interpersonal forms of trauma (Breslau et al. 1998; McLaughlin et al. 2013), we focus primarily on traumatic events involving interpersonal violence.

3.1 Public Health Impact of Childhood Trauma

3.1.1 Mental Health

Epidemiological studies reveal four general patterns pertaining to childhood trauma and the distribution of mental disorders in the population. First, children exposed to trauma are at markedly elevated risk for developing a mental disorder in their lifetime compared to children without exposure, and the odds of developing a lifetime mental disorder increase as trauma exposure increases (Green et al. 2010; Kessler et al. 2010; McLaughlin et al. 2010, 2012). Second, increased vulnerability for developing a mental disorder following child trauma persists across the life course. Childhood trauma is associated with elevated odds of developing a mental disorder in childhood and adolescence (McLaughlin et al. 2012) as well as in adulthood (Green et al. 2010; Kessler et al. 2010). Third, associations of childhood trauma with commonly occurring mental disorders are largely nonspecific. Children exposed to trauma are more likely to develop mood, anxiety, substance use, and disruptive behavior disorders, and there is little variation in the strength of these associations across disorder types (Green et al. 2010; Kessler et al. 2010; McLaughlin et al. 2012). Although PTSD is a common form of psychopathology among children exposed to trauma, it represents just one of the many mental disorders that occur following child trauma. Recent findings suggest that associations of child maltreatment with lifetime mental disorders operate entirely through a latent vulnerability for internalizing and externalizing psychopathology, with no direct effects on specific mental disorders that are not explained by this latent risk (Caspi et al. 2014; Keyes et al. 2012). Fourth, child trauma exposure explains a substantial proportion of mental disorder onsets in the population, both in the USA and cross-nationally (Green et al. 2010; Kessler et al. 2010; McLaughlin et al. 2012), reflecting both the high prevalence of trauma exposure in children and the strong association of child trauma with the onset of psychopathology. Together, findings from epidemiological studies show that child trauma exposure is a powerful determinant of risk for psychopathology.

PTSD is one mental health consequence of child trauma. As shown in more detail in Chap. 2 of this volume, epidemiological studies in high-income countries indicate that between 7.6 and 8.8 % of youths exposed to trauma develop PTSD at some point in the life course (Breslau et al. 2004; McLaughlin et al. 2013) and even

more develop PTS symptoms (Copeland et al. 2007). The conditional probability for developing PTSD is higher following interpersonal violence than non-interpersonal forms of trauma (e.g., accidents, injuries, and natural disasters) (Breslau et al. 2004; Copeland et al. 2007; McLaughlin et al. 2013). There is considerable variation in estimates of PTSD prevalence in children in low- and middle-income countries (LAMICs). A meta-analysis of children affected by war reported PTSD prevalence rates ranging from 4.5 to 89.3 % across studies, with an overall pooled estimate of 47 % (Attanayake et al. 2009), suggesting that PTSD is particularly common in children exposed to war. Similarly high rates of PTSD have been found in children who are displaced and living as refugees (Almqvist and Brandell-Forsberg 1997; Thabet and Vostanis 1999). The burden of trauma is also remarkably high among child soldiers, who are forced to commit violence and often acts of torture. Studies of former child soldiers from Uganda and the Democratic Republic of Congo have found PTSD prevalence rates that range from 35 to 97 % across studies (Bayer et al. 2007; Derluyn et al. 2004). Among child soldiers, beatings, bombings, and torture are strongly associated with PTSD and other poor mental health outcomes (Benjet 2010).

PTSD risk in children increases with increasing exposure to trauma (Copeland et al. 2007; McLaughlin et al. 2013) and is higher among children experiencing other forms of stress and adversity (Khamis 2005). In children exposed to war, parental loss and family displacement pose a cumulative risk effect with the traumatic experience itself (Macksoud and Aber 1996; Wolff et al. 1995). PTSD rates are higher in female youth than males following virtually all forms of child trauma (McLaughlin et al. 2013), particularly interpersonal violence (Breslau et al. 2004). Children who have preexisting internalizing and externalizing psychopathology are also more likely to develop PTSD following trauma exposure (Copeland et al. 2007; McLaughlin et al. 2013).

PTSD following child trauma is often chronic. Mean recovery time in a US population sample was estimated at 14.8 months (McLaughlin et al. 2013), and a study in Germany reported that 48 % of adolescents and young adults with PTSD had not recovered after 34 to 50 months following initial assessment (Perkonigg et al. 2005). Children who develop PTSD experience increased risk for developing additional internalizing and externalizing disorders (Giaconia et al. 1995; Perkonigg et al. 2000).

Considerable variability exists in the presentation of PTSD symptoms and post-traumatic psychopathology among youths in different cultural contexts (Barenbaum et al. 2004). For example, in a qualitative study on mental health problems among orphaned youth in Tanzania, authors found that the three local problems most commonly associated with trauma exposure were *unyanyasaji* (mistreated/abused), *kutopendwa* (not feeling loved), and *msongo wa mawazo* (stress/overthinking) (Dorsey et al. 2015). These problems were in turn associated with a range of symptoms including behavioral problems, sadness, grief, loneliness, losing hope, and stress that are similar to Western conceptualizations of post-trauma psychopathology. Unique symptoms such as “feeling a lack of peace” and “increased feelings of hate” that are not traditionally part of the PTSD diagnosis were also observed

(Dorsey et al. 2015). Similar findings documenting common presentations of post-traumatic psychopathology that do not map onto Western conceptualizations have been observed in other cultural contexts such as coping styles characterized by suppression of one's feelings among Khmer youth in Cambodia or symptoms described in the local language as "thinking too much" or "having an unsettled mind" among HIV-infected youth in Zambia (Kleinman and Kleinman 1991; Murray et al. 2006).

3.1.2 Physical Health

Childhood trauma is associated with increased risk for a wide range of chronic physical health conditions in adulthood (Felitti et al. 1998; Rich-Edwards et al. 2010). In a cross-national survey of adults from 14 countries, lifetime exposure to traumatic events was associated with elevated odds of developing heart disease, hypertension, asthma, chronic pain, and gastrointestinal problems, and these associations were not explained by co-occurring psychopathology (Scott et al. 2013). Child abuse predicts increased risk for poor physical health and chronic pain in adulthood (Davis et al. 2005; Widom et al. 2012) as well as specific chronic conditions such as heart disease and diabetes (Felitti et al. 1998; Rich-Edwards et al. 2010), and the effect sizes for these associations are comparable for those of the associations of child abuse with mental disorders (Wegman and Stetler 2009). Emerging evidence suggests that childhood trauma is also an important determinant of risk for chronic physical health conditions that emerge early in the life course, beginning in childhood and adolescence. Children who have experienced trauma related to interpersonal violence are more likely to experience symptoms of pain and changes in appetite or sleep (Bailey et al. 2005; Lamers-Winkelman et al. 2012; Stensland et al. 2014). Specifically, childhood trauma is associated with higher levels of somatic symptoms (Bailey et al. 2005; Lamers-Winkelman et al. 2012), including headaches (Bailey et al. 2005; Stensland et al. 2014) and stomachaches (Bailey et al. 2005), and with poor self-rated health (Annerbäck et al. 2012) in children. Clinically significant elevations in somatic symptoms have also been reported in adolescent refugees living at the Thai-Cambodian border (Mollica et al. 1997). Childhood trauma has been associated with risk for asthma in multiple studies (Cohen et al. 2008; Swahn and Bossarte 2006). A recent study utilizing a population-representative sample of US adolescents documented associations of child trauma with numerous chronic conditions, with particularly strong associations between child trauma and conditions involving pain (McLaughlin et al. in press).

PTSD symptoms may also independently contribute to physical health consequences, serve as a mediator underlying the association of child trauma and later physical health problems (Schnurr and Green 2004), or be unrelated to physical health problems. Understanding the contributions of PTSD and child trauma to poor physical health could enhance early identification and prevention of poor physical health. For example, determining which individuals are most susceptible to developing physical health problems (e.g., youth exposed to childhood trauma, youth with PTSD, or both) may inform the targeting of preventative interventions.

However, most studies do not examine childhood trauma or PTSD specifically when examining health outcomes. For example, a recent meta-analysis found that adults with PTSD exhibited worse general health, more general medical conditions, worse health-related quality of life, more pain, worse cardiorespiratory health, and poor gastrointestinal health compared to adults without PTSD, but the role of childhood trauma or early-onset PTSD was not examined (Pacella et al. 2013). Even fewer studies have examined the physical health consequences of early-onset PTSD in youth while accounting for childhood trauma. One study reported that, while controlling for childhood trauma, PTSD occurring prior to the age of 21 predicted a variety of chronic physical health conditions in adulthood including heart disease, asthma, osteoarthritis, neck or back pain, and headaches (Scott et al. 2011). Similarly, the association of child maltreatment and physical health problems like pain was mediated by current PTSD symptoms in adult women (Lang et al. 2006). In contrast, another study reported that after adjustment for childhood physical or sexual abuse, PTSD symptoms predicted only worse perceptions of overall health but not the number of medical problems in adult women (Cloitre et al. 2001). Similarly, adolescents exposed to childhood trauma reported worse physical health and more sick days per month than adolescents without trauma exposure; however, there were no differences between children with and without PTSD (Giaconia et al. 1995). Future research is needed to disentangle the complex relationships of child trauma, PTSD, and physical health consequences.

3.1.3 Academic and Socioeconomic Outcomes

Although numerous studies have observed an association between childhood trauma and poor academic functioning, some evidence suggests that this association is explained by social factors that often co-occur with trauma exposure in children, such as poverty. In some studies, childhood maltreatment is associated with low performance on standardized academic achievement tests that assess reading and math abilities (De Bellis et al. 2013), low grades (Leiter and Johnsen 1997), high rates of grade repetition (Leiter and Johnsen 1997), high eligibility for special education (Jonson-Reid 2015), and low probability of attaining a college-level education (Lansford et al. 2002). Similarly, approximately half of Iranian children living in Sweden for several years as refugees had poor academic performance, and two-thirds had difficulties speaking Swedish (Almqvist and Broberg 1999). In contrast, other studies have observed that the associations of child trauma with poor performance on standardized academic achievement tests (Eckenrode et al. 1993), low grades (Lansford et al. 2002; Eckenrode et al. 1993), high rates of grade repetition (Eckenrode et al. 1993), and low academic attainment (Boden et al. 2007) disappear with the adjustment for demographic, socioeconomic, and familial risk factors associated with child abuse. Further research is needed to disentangle whether poor academic achievement is a consequence of childhood trauma or other aspects of the early environment. Although the relationship between childhood trauma and academic achievement is uncertain, childhood trauma is more consistently associated

with long-term socioeconomic outcomes in adulthood, including high unemployment (Macmillan and Hagan 2004; Zielinski 2009), low income and high odds of living below the poverty line (Macmillan 2000; Zielinski 2009), high Medicaid enrollment (Zielinski 2009), and elevated likelihood of receiving public assistance (Macmillan and Hagan 2004), even after adjustment for co-occurring risk factors in childhood. In contrast, one study reported that the association of childhood abuse and SES in adulthood did not survive after including covariates for familial and social risk in models (Mullen et al. 1996). At least some evidence suggests that child trauma influences patterns of academic achievement and socioeconomic outcomes later in life.

Scant research has investigated the academic and socioeconomic consequences of early-onset PTSD independent of childhood trauma. In one study, youth exposed to child maltreatment with and without PTSD exhibited similarly low performance on standardized academic achievement tests that assess reading and math abilities (De Bellis et al. 2013), suggesting that childhood maltreatment, but not PTSD, may be the common denominator contributing to poor academic achievement across the two groups. Similarly, adolescents exposed to childhood trauma with and without PTSD reported lower high school grades and more school suspensions and expulsions than control adolescents; however, there were no differences between the two trauma-exposed groups (Giaconia et al. 1995). Future research is needed to clarify contributions of multiple coexisting risk factors, including child trauma and PTSD, to poor socioeconomic and academic outcomes.

3.1.4 Social Functioning

Childhood trauma is associated with a range of negative long-term social and interpersonal consequences. There are numerous studies that consistently indicate a significant relationship between sexual abuse and interpersonal difficulties (Cole and Putnam 1992; DiLillo 2001; Rumstein-McKean and Hunsley 2001). Children exposed to sexual abuse are likely to be revictimized in adulthood, frequently by an intimate partner (DiLillo 2001; Follette et al. 1996; Rumstein-McKean and Hunsley 2001). Women with a history of childhood abuse also report difficulties with romantic partners, including less secure attachment (Feldman and Downey 1994), difficulty communicating about sexual arousal and comfort (Cole and Putnam 1992; DiLillo 2001), sexual dysfunction (Davis and Petretic-Jackson, 2000; DiLillo 2001; Rumstein-McKean and Hunsley 2001), and higher levels of marital separation and divorce (DiLillo, 2001; Rumstein-McKean and Hunsley 2001). Furthermore, survivors of childhood abuse experience problems in relationships with parents (e.g., feeling betrayed by a mother who did not protect them from the abuse) (Aspelmeier et al. 2007) and their children (e.g., having negative perceptions of parenting abilities) (Cole and Putnam 1992; DiLillo 2001). Finally, maltreated children exhibit numerous difficulties with peers, including fewer positive social interactions and greater peer rejection (Haskett and Kistner 1991; Kim and Cicchetti 2010). In former child soldiers in Sierra Leone, killing/harming others during war was

associated with reduced pro-social behaviors (e.g., sharing with others) and higher hostility (e.g., getting into fights) (Betancourt et al. 2010a, b).

Research examining the unique impact of PTSD on social functioning in youth is scant. One study reported that adolescents exposed to childhood trauma with PTSD had worse interpersonal issues (i.e. not having other people to depend on, having communication difficulties) than both adolescents exposed to child trauma without PTSD and non-trauma-exposed adolescents (Giaconia et al. 1995), suggesting that PTSD contributes to interpersonal deficits beyond those of child trauma.

3.2 Public Health Response

Modern public health approaches consider risk factors operating at multiple levels, including macrosocial, individual, and biological, that increase the probability of a disease or disability with the ultimate goal of preventing disease onset. In the case of trauma-related problems, public health approaches to prevention and intervention consider the nature of trauma itself, the characteristics of children who are exposed to trauma, their families, and the variety of environmental factors that play a role in the likelihood of trauma exposure and trauma-related psychopathology (e.g., safety of neighborhoods) and societal factors, attitudes, and characteristics that influence trauma likelihood and intervention (e.g., societal norms regarding tolerance for interpersonal violence). This type of multilevel approach provides a public health framework for developing an array of strategies aimed at preventing the occurrence and sequelae of trauma.

Prevention aims to reduce the incidence, prevalence, duration and recurrence of mental health problems, related risks, and the impact on individuals, their families, and society (World Health Organization 2004). Different types of programs and approaches are associated with each level of prevention. Universal preventive interventions are targeted at the general population and are not based on the level of individual risk. Selective preventive interventions are targeted at individuals whose risk of developing a problem (e.g., child trauma or PTSD) is higher than average (e.g., children who live in a violent neighborhood or an area experiencing armed conflict). Indicated preventive interventions are targeted at high-risk individuals who have minimal but detectable signs or symptoms foreshadowing a problem or disorder. Finally, tertiary prevention includes both treatment and maintenance to prevent additional problems (see Fig. 3.1).

3.2.1 Preventing Trauma Exposure

From a public health perspective, preventing exposure to childhood trauma in the first place is likely to have the most meaningful population-level effect. Preventive interventions aimed at reducing childhood trauma exposure have largely focused on childhood maltreatment. Home-visiting programs that target new mothers with known risk factors for child maltreatment (e.g., poverty, maternal substance abuse),

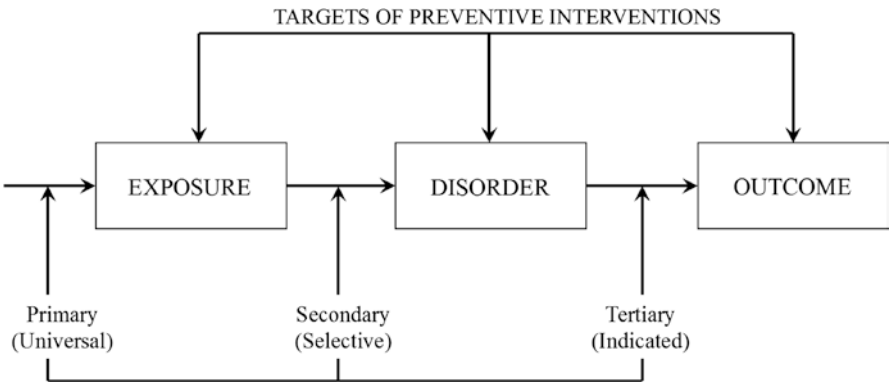

Fig. 3.1 Epidemiology explicitly includes disease *prevention* as a goal. This figure depicts the targets of the three major classes of preventive interventions in epidemiology: primary, secondary, and tertiary (Adapted from Costello and Angold (1995))

such as the Nurse-Family Partnership in the USA, have been demonstrated to be effective at preventing child maltreatment and improving a wide range of child outcomes (Eckenrode et al. 2010; Miller 2015). This approach is being combined with other preventive interventions in the Durham Family Initiative (DFI) to prevent the occurrence of child maltreatment in Durham County, North Carolina. Based on evidence that risk factors for child maltreatment operate at the level of children, parents, families, neighborhood, and community levels, the DFI has created a preventive system of care that seeks to reduce risk factors at each of these levels through universal screening, early intervention for high-risk families, neighborhood- and community-level interventions, and collaboration among government agencies to provide these services (Dodge et al. 2004). For example, families may receive crisis intervention services or parent training to reduce family conflict. At the community level, organized volunteers may work to improve access to social services in high-risk neighborhoods, provide social support and respite care, and improve coordination among social service agencies. Ultimately these types of multilevel approaches are likely to be necessary to prevent the occurrence of childhood maltreatment and other forms of child trauma.

Despite the recognition of child trauma as a global phenomenon, there are strikingly few rigorous prevention studies in LAMICs. A review of child maltreatment prevention interventions revealed that 0.6 % of the studies were conducted in middle-income countries and none were conducted in low-income countries (Mikton and Butchart 2009).

3.2.2 Preventing PTSD and Trauma-Related Psychopathology

A second public health approach to childhood trauma is to prevent the onset of PTSD and other forms of trauma-related psychopathology among children exposed to trauma. Effective interventions have been developed to prevent the onset of PTSD in trauma-exposed youths in the USA that draw on techniques used in

evidence-based treatments for child PTSD (e.g., trauma-focused cognitive behavior therapy). Specifically, a brief 4-session intervention that provided behavioral skills training to children who had recently experienced traumatic violence, and their parents, prevented the onset of post-traumatic stress disorder and anxiety 3 months later (Berkowitz et al. 2011). The intervention enhanced parent support by increasing communication between the child and their caregiver and provided behavioral skills to cope with post-trauma symptoms, such as deep breathing. A number of universal school-based prevention programs have been developed for trauma-exposed youth living in contexts where armed conflict and violence are common (Ager et al. 2011; Gelkopf and Berger 2009). The content of these programs vary, including techniques such as psychoeducation, skills training, resiliency strategies, and mobilization of social support. School-based interventions have resulted in improvement in PTS symptoms, anxiety, and functional impairment among children in Israel faced with ongoing terrorism (Berger et al. 2007).

A number of selective or indicated school-based interventions have been examined for youth PTSD, and the results on initial and sustained effects of the interventions have been mixed (Constandinides et al. 2011; Hasanovic et al. 2009). Other prevention efforts exist (e.g., psychological first aid—aimed at addressing mental health symptoms in the immediate aftermath of disasters, family-focused interventions that focus on keeping families together, and youth clubs that engage youth in recreational and group processing activities); however, many of these have limited evidence to support their effectiveness or have elements that have been shown to be iatrogenic with adults (e.g., psychological debriefing) (Aulagnier et al. 2004). These limitations in the child trauma prevention literature underscore the necessity for increased investment in prevention efforts and additional rigorous studies on interventions designed to prevent or decrease the impact of trauma exposure on mental health and functional outcomes among children and adolescents.

3.2.3 Trauma Treatment and the Global Mental Health Treatment Gap

Evidence-based treatments (EBTs) have been developed for children exposed to trauma, and these treatments are effective at reducing PTS symptoms and other internalizing and externalizing problems (for a review, see Dorsey et al. in press). However, most children in need of trauma treatment globally do not have access to these interventions. In LAMICs, four out of five people in need of mental health services do not receive them (World Health Organization 2010), and poor access to mental health services is especially prominent among children and adolescents (Saxena et al. 2007). Barriers to accessing and implementing EBTs in LAMICs include lack of government funds, centralization of mental health services in large cities, stigma, and the scarcity of mental health professionals (Kieling et al. 2011; Patel et al. 2011). Shortages in mental health workers significantly reduce access to mental health services, particularly for children who often comprise a large portion of the population in LAMICs.

Acceptability of EBTs across cultures is another barrier to accessing services for children in LAMICs (Patel et al. 2011). Only 10 % of randomized controlled mental health trials come from LAMICs (Kieling et al. 2011). The extent to which Western treatments for child trauma are acceptable in LAMICs is unknown. A number of culturally specific syndromes associated with child trauma have been identified in low-resource settings (e.g., Betancourt et al. 2009). Though descriptions of local syndromes are similar to Western mood, anxiety, and conduct disorders, they also consist of culturally specific symptoms that may not be addressed in Western EBTs. Moreover, contextual differences also pose a threat to acceptability and effectiveness of treatments. For instance, many EBTs for youth are designed to involve caregivers. The availability of caregivers and child-caregiver relationships may differ by culture (Murray et al. 2013), and these differences may not be reflected in Western EBTs. Other contextual factors that may impact acceptability include literacy rates among clients, language differences, religious beliefs, therapist gender, and the use of culturally specific metaphors (Kaysen et al. 2013; Patel et al. 2011).

In addition to these general treatment barriers, treating trauma-exposed youth in LAMICs comes with unique complexities. For example, displaced children living in refugee camps struggle with basic needs of food, water, and clothing, making mental health a lower priority for families. In addition, uncertainty in the child's legal status and political instability make it challenging for consistent provision of and access to mental health services. Children unaccompanied by adults are most difficult to reach as they are often victims of exploitation, abuse, forced prostitution, or child labor (Reed et al. 2012).

3.2.4 Efforts to Address Global Mental Health Barriers

To address the mass shortage of mental health professionals, many have adopted a task-sharing approach in LAMICs (Kakuma et al. 2011). Task-sharing involves the use of nonspecialists, such as lay personnel, nurses, and community health workers, in the delivery of EBTs (Patel et al. 2011). Numerous studies have demonstrated the effectiveness and feasibility of task-sharing for mental health problems such as anxiety, depression, and trauma and physical health interventions such as antiretroviral treatment and obstetric care (Dawson et al., 2013; Kakuma et al. 2011; Shumbusho et al. 2009). Though this approach has been used less frequently to treat trauma-exposed youth, studies have demonstrated that lay counselors can effectively implement child trauma treatments (Ertl et al. 2011; Murray et al. 2013).

Numerous approaches have been adopted to address the acceptability of EBTs in LAMICs such as the Design, Implementation, Monitoring, and Evaluation (DIME) process (AMHRG 2013). DIME was specifically designed for researchers and organizations implementing treatments for trauma-affected populations. The process involves (1) a qualitative assessment to identify local mental health priorities; (2) a development/adaptation and validation of culturally appropriate measures; (3) a population-based assessment to gauge the problem prevalence; (4) an intervention design of the intervention to address the problem; (5) a selection, adaptation, and implementation of

interventions; and (6) an assessment of intervention impact. The DIME process has been used to develop locally relevant measures (Bolton et al. 2014), identify locally relevant mental health issues (e.g., depression-like syndrome), understand local descriptions of symptoms and causes (Murray et al. 2006), and select and adapt treatments that fit the locally identified psychosocial problems (Murray et al. 2011). Psychosocial issues that have been addressed using the DIME process include violence, HIV, and parental loss (Bolton et al. 2014; Murray et al. 2006; Murray et al. 2015). .

3.2.5 Global Intervention Efforts

Although research on the feasibility and effectiveness of child trauma treatments in LAMICs lags behind that of high-income countries, the past two decades have witnessed an increase in global efforts to study the treatment of child trauma. Child trauma treatment studies have been conducted in multiple regions in Africa (e.g., McMullen et al. 2013; Murray et al. 2015; O'Donnell et al. 2014), Asia (e.g., Zeng & Silverstein 2011), and Europe (e.g., Layne et al. 2008). Most studies have focused on children who have been impacted by war (Ertl et al. 2011; McMullen et al. 2013) and to a lesser extent orphans (Murray et al. 2013; O'Donnell et al. 2014) and refugees (Schauer et al. 2004). Despite this increase in treatment efforts, many of these studies have lacked rigorous research methods (e.g., non-randomized and pre-post designs, Jordans et al. 2009), and fewer than a dozen RCTs have been conducted on a variety of child trauma treatments in LAMICs. However, feasibility studies and RCTs have contributed to a growing literature on a number of culturally adapted treatments for childhood trauma, many of which have incorporated culturally acceptable methods in the identification of culturally relevant psychosocial problems, development of locally validated measures, and adaptation to treatments and delivery methods (Murray et al. 2015).

In particular, trauma-focused cognitive behavioral therapy (TF-CBT)—an established EBT for treatment child trauma (Cohen et al. 2006)—has been shown to be effective at reducing mental health problems with a range trauma-exposed populations including orphans (Murray et al. 2015; O'Donnell et al. 2014), former child soldiers (McMullen et al. 2013), and war-affected, sexually exploited girls (O'Callaghan et al. 2013). Notably, all of these studies included adaptations to the treatment and delivery method to fit the local context, using the DIME approach outlined above, and in some cases TF-CBT was implemented by lay counselors with local supervisors (Murray et al. 2015). While the core components of TF-CBT were maintained, major themes of adaptation included the engagement of the larger family system, incorporation of culturally appropriate stories and analogies, use of local language, and incorporation of core cultural values into treatment components. Narrative exposure therapy (NET), a short-term trauma-focused treatment developed for use in low-resource settings (Schauer et al. 2004), has also been shown to be effective in LAMICs including former child soldiers (Ertl et al. 2011), refugee children affected by the Tsunami in Sri Lanka (Catani et al. 2009), and Rwandan genocide orphans (Schaal et al. 2009). Taken together, this emerging

literature points to promising new public health directions; combining approaches such as task-sharing and DIME can increase the feasibility, effectiveness, and scalability of treatments and ultimately help address the mental health treatment gap for trauma-exposed children in low-resource settings.

3.3 Conclusion and Future Directions

Findings from epidemiological studies show that the prevalence of childhood trauma worldwide is remarkably high. Childhood trauma exposure increases risk for the onset of virtually all commonly occurring forms of mental disorders and for a wide range of chronic physical health conditions across the lifespan. Childhood trauma is also consistently associated with poor long-term socioeconomic as well as social and relationship outcomes. The relationship between childhood trauma and academic achievement is uncertain, and future research is needed to disentangle whether poor academic achievement is a consequence of child trauma or social factors that often co-occur with trauma exposure in children. Furthermore, PTSD is a common mental health consequence of childhood trauma that tends to be chronic. It is unclear whether PTSD contributes to physical health, academic, socioeconomic, and interpersonal outcomes independent of childhood trauma since most studies do not account for child trauma exposure. Overall, child trauma exposure is a powerful determinant of the distribution of mental health and other poor life outcomes globally.

Developing widely applicable interventions that target these consequences is therefore of critical public health importance. Dissemination and implementation of multilevel interventions to prevent and treat childhood trauma exposure and trauma-related psychopathology and implementation adaptations to effective interventions in settings with limited access to mental health resources are critical components of a public health response to child trauma. Despite increased efforts to study the prevention and treatment of childhood trauma exposure and its sequelae, we identify several gaps in the current literature and offer recommendations for future directions. First, rigorous examinations of interventions that aim to prevent childhood trauma exposure and the onset of PTSD, which are likely to have the most widespread public health impact, are largely absent in LAMICs. Specifically, the few existing child trauma primary prevention efficacy studies, which aim to reduce the occurrence of childhood trauma, measure indirect outcomes, such as parent-child relationships, parenting skills, and conflict resolution (Khowaja et al. 2016; Oveisi et al. 2010), instead of childhood trauma exposure itself, limiting the implications of the findings. Similarly, PTSD prevention studies in low-resource settings frequently lack rigorous designs (e.g., pre-post experimental designs). Future research on childhood trauma and PTSD prevention should aim to use more rigorous experimental design, including culturally validated measurement of child trauma or mental health outcomes and the inclusion of a control group. Second, research on the efficacy and effectiveness of prevention and treatment of childhood trauma in low-resource settings still lags behind that of high-income settings. Future research should include randomized controlled trials that address a variety of common childhood traumas and measure relevant child outcomes.

Third, while evidence for the effectiveness and feasibility of child trauma treatments in low-resource settings is growing, this research has largely focused on war-affected and orphaned youth, restricting our understanding of their efficacy to specific forms of trauma. Moreover, future research is needed to develop strategies that increase accessibility and sustainability of these treatments in low-resource settings, such as the use of lay health providers in the delivery of treatment and the integration of mental health treatment into existing school and health systems. Together, these approaches will contribute to reducing the public health burden of child trauma exposure.

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