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Global Cost-Benefit Analysis on Mental Health and Psychosocial Support (MHPSS)Interventions in Education Settings Across the Humanitarian Development Nexus

RTI INTERNATIONAL

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Abbreviations

AFD	affected and forcibly displaced
AFND	affected but not forcibly displaced
BCR	benefit-cost ratio
CBA	cost-benefit analysis
COI	cost of inaction
HAC	Humanitarian Action for Children
IDP	internally displaced person
LMICs	low- and middle-income countries
MHPSS	mental health and psychosocial support
PTSD	post-traumatic stress disorder
SE	social and emotional
SEL	social and emotional learning
MSP	minimum service package
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Key definitions

Crisis-affected and forcibly displaced (AFD) population
Crisis-affected and forcibly displaced children and adolescents are those who are exposed to and affected by a humanitarian emergency and are forcibly displaced. This includes internally displaced people (IDPs) and externally displaced populations (refugees and asylum seekers).

Crisis-affected but not forcibly displaced population
Crisis-affected but not forcibly displaced children and adolescents are part of the local community who are affected by the humanitarian context but are not forcibly displaced.

Mental health condition
A mental health condition refers to a range of psychological, emotional, or behavioural disorders that affect a person's thoughts, feelings and daily functioning, potentially causing distress and impairing overall psychosocial wellbeing.

Mental health and psychosocial support (MHPSS) intervention
Mental health and psychosocial support interventions aim to promote mental health and wellbeing and/or prevent and respond to mental health conditions, thereby promoting learning and educational outcomes.

Cognitive behavioral therapy (CBT)
Cognitive behavioural therapy (CBT) is a psychotherapeutic approach that focuses on identifying and changing negative thought patterns and behaviours to promote healthier and more adaptive responses.

Social and emotional learning (SEL)
Social and emotional learning is the process of acquiring core competencies to recognize and manage emotions, set and achieve goals, establish and maintain positive relationships, and handle interpersonal situations constructively.

Social and emotional skills
Social and emotional skills include self awareness, emotional literacy, cognitive flexibility, improved memory, resilience, persistence, motivation, empathy, social and relationship skills, effective communication, listening skills, self esteem, self confidence, respect, and self regulation. Depending on the context, social and emotional skills are referred to as transferable skills, life skills, or soft skills. Certain social and emotional skills contribute positively to educational, economic, health and social outcomes, and to many other outcomes.

Educational outcomes
Educational outcomes often refer to the measurable results or achievements attained by learners as a result of their educational experiences, including knowledge, skills, competencies, and academic achievements. The global const-benefit analysis (CBA) uses school completion status to represent the impact of MHPSS interventions on educational outcomes.

Lifetime earnings
The global CBA estimates an individual's potential lifetime earnings based on a learner's level of school completion and social and emotional skills, as wages and employment rate differ based on school completion, SE skills, and sex, and the mediating role of mental health conditions.

Cost-benefit analysis
A cost-benefit analysis is an economic evaluation that compares the costs of an intervention with its anticipated benefits to determine its overall economic viability and inform decision-making.

Benefit-cost ratio (BCR)
A benefit-cost ratio illustrates the benefits accrued per dollar invested. The lower the implementation costs relative to the expected benefits, the higher the BCRs, and interventions with benefits larger than US$1 per US$1 invested are considered to provide good value for money.

Net benefits
Net benefits is an economic term that illustrates the difference in the economic benefits and the economic costs incurred by implementing an intervention. Whereas BCRs control for different levels of need and coverage of the interventions by dividing by cost, net benefit is a gross sum reflecting intervention scale and coverage. In this analysis, the term net benefits is used to define the total averted loss in potential lifetime earnings from implementing proposed MHPSS interventions.

Executive summary

Globally, **over 250 million children and adolescents struggle with mental health conditions**,

many of which are currently undiagnosed and untreated. **Half of all mental health conditions emerge before age 14**, and early onset in childhood or adolescence of conditions such as anxiety (generalized anxiety disorder), post-traumatic stress disorder (PTSD), and depression is associated with worse lifetime outcomes.

Children and adolescents in humanitarian settings, such as areas affected by a natural or human-mediated emergency events, are exposed to additional and significant risks and circumstances. These include exposure to violence, separation from or loss of loved ones, poor living conditions, poverty, food insecurity, loss of livelihoods and the means of survival, physical injuries and illnesses and a lack of access to services such as health care, education and social care. Emergencies can also erode protective supports such as family and community networks and can lead to sudden changes in social roles and relationships, resulting in greater mental health and psychosocial support needs than more stable settings would demand.

The burden of mental health conditions and poor psychosocial wellbeing among children and adolescents is associated with significant lifetime costs, as mental health conditions is associated with learning lower educational attainment and impeding the development of socioemotional skills which translates into reduced earning potential and labor productivity in later life. The humanitarian emergencies further exacerbate these impacts. A critical point, however, is that these costs to individuals, communities and countries can be mitigated through mental health and psychosocial support (MHPSS) interventions that aim to promote mental health and wellbeing and/or prevent and respond to mental health conditions, thereby promoting learning and educational outcomes.

Mental health conditions are more prevalent among children and adolescents exposed to emergency events. Interventions to address these critical unmet needs should be incorporated as part of emergency relief and recovery efforts. Yet, prioritization and investment in mental health and psychosocial support interventions by governments and international donors are impeded by an important gap in the evidence regarding which interventions are cost-effective in countries within the 'Humanitarian Development Nexus' (countries that require humanitarian support alongside long-term development assistance).

This global cost-benefit analysis (global CBA) firstly estimates the global economic costs of mental health conditions through the effect on school completion, and poor social and emotional wellbeing among children and adolescents aged 10–17 years affected by humanitarian emergencies. It then models the economic benefits of addressing the mental health needs of children and adolescents through mental health and psychosocial support interventions.

The global CBA included 76 low- and middle-income countries (LMICs) categorized as medium, high, and very high risk for emergency events by the INFORM Risk Index. Across this geographic scope, the global CBA examined the economic burden of mental health conditions and psychosocial wellbeing in childhood and adolescence in terms of their effect on two measures of human capital: school completion; and social and emotional (SE) skills. The global CBA modelled a status quo scenario – without a policy response – and then estimated the economic returns from implementing MHPSS interventions to improve specified human capital metrics among a cohort of children and adolescents.

The global CBA illustrates the economic benefits of implementing school and community-based mental health and psychosocial support (MHPSS) interventions for children and adolescents affected by humanitarian emergencies. It estimates the anticipated lifetime benefits of improved mental health, educational attainment and SE skills among a cohort of internally displaced children and adolescents aged 10–17.

The global CBA then evaluates the following three MHPSS interventions that focus on school-aged children who are affected by humanitarian emergencies. These interventions are complementary as they each address various stages of the mental health continuum, representing mental health promotion, prevention, and care (treatment). These were identified through a comprehensive review of peer-reviewed literature and were included in the global CBA if they focused on school-aged children and adolescents (ages 5–18), described costs per person, and the effect sizes were known. Interventions implemented in education settings were prioritized. The interventions that matched these inclusion criteria focused on children and adolescents between the ages of 10–17 as there was limited evidence on the impact of interventions between ages 5–10.

Table 1: Illustrative MHPSS interventions for the global CBA

MHPSS Intervention	Health Continuum	Facilitator	Original Country of Implementation
School-based group CBT for children and adolescents with symptoms of depression	Prevention	Teachers, school personnel (counsellors and nurses), or medical staff	Global (Meta-Analysis)
School-based social and emotional learning (SEL) skills education	Promotion	Teachers	India
Community-based group therapy for out-of-school adolescents	Treatment	Community Health Worker	Sierra Leone

The global CBA found that the impact of failing to address the mental health and psychosocial support needs of 10–17-year-old children and adolescents affected by humanitarian emergencies in 66 countries would result in the equivalent of a US$203 billion loss globally of potential lifetime earnings (in US$ 2022) caused by elevated school dropout rates and poor SE skills, resulting in lifetime earning loss. Lifetime losses were highest in Sub-Saharan Africa (US$111.5 billion) and among very-high risk countries (US$105.6 billion).

To compare the economic costs and benefits of investing in MHPSS interventions, the global CBA uses benefit-cost ratios (BCR). A BCR illustrates the benefits accrued per dollar invested. The lower the implementation costs relative to the expected benefits, the higher the BCRs, and interventions with benefits larger than US$1 per US$1 invested are considered to provide good value for money. The three evaluated interventions – two school-based, and one community-based – are good investments as evidenced by their high benefit-cost ratios (BCRs), and indicate that their expected economic benefits outweigh the implementation costs of proposed interventions globally, for each of the 52 countries included, and in each world region.

Table 2: Costs and benefits of implementing MHPSS interventions for children and adolescents affected by humanitarian emergencies

MHPSS Intervention	Averted Lifetime Earning Loss (US$ 2022)	MHPSS Implementation Costs (US$ 2022)	Global Benefit-Cost Ratio
School-based group CBT	343 million	6.0 million	US$57 in benefits per US$1 invested
School-based SEL skills education	6.4 billion	28.6 million	US$225 in benefits per US$1 invested
Community-based group therapy	17.4 billion	441.7 million	US$39 in benefits per US$1 invested

Key findings

The global CBA found that the impact of failing to address the mental health and psychosocial support needs of 10–17-year-old children and adolescents affected by humanitarian emergencies would lead to the **equivalent of a US$203 billion loss globally in potential lifetime earnings** (US$ 2022).

The economic benefits of investing in mental health and psychosocial support (MHPSS) across the mental health continuum **strongly outweigh the implementation costs.**

School-based social emotional learning skills education offers a particularly **strong benefit-cost ratio across all countries at risk for humanitarian emergencies.**

Recommendations

- Since the mental health of one in every five children and adolescents affected by humanitarian emergencies and protracted crises are currently affected by mental health conditions, taking action to promote mental health and psychosocial wellbeing and treat mental health conditions is essential to improve downstream impacts on education and future economic outcomes.
- The diversity of children's and adolescents' mental health needs demands implementation of a range of complementary mental health promotion, prevention, and treatment interventions.
- Investment in interventions that promote the mental health and psychosocial wellbeing of children and adolescents should be a high priority. The intervention that focused on promoting the mental health of children and adolescents (school-based social emotional learning skills education) offered a particularly strong benefit-cost ratio.
- Investment in school-based interventions that address mental health conditions and prevent exacerbation offer additional benefits to crisis-affected children and adolescents. While there are direct benefits from reducing the overall burden of disease, such interventions are also likely to offer reduced healthcare expenditures and reduce the social losses attributable to premature mortality and additional years of life lived with disability.
- Upscaling and strengthening the capacities of MHPSS facilitators, including teachers, school staff and MHPSS professional staff will ensure learners receive adequate support for their mental health and psychosocial wellbeing.

Introduction

The 'humanitarian-development nexus' refers to the relationship between humanitarian aid and development efforts, capturing the idea that the two should be interconnected and coordinated to achieve better outcomes for people transitioning between humanitarian support and long-term development assistance.[1] For example, a disaster response effort may also provide opportunities to rebuild resilient infrastructure or to improve access to education and healthcare in affected communities. Similarly, development efforts may need to be adjusted or accelerated in response to a crisis to prevent further deterioration of living conditions.

Globally, over 250 million children and adolescents struggle with mental health conditions, many of which are currently undiagnosed and untreated.[2] Half of all mental health conditions emerge before age 14, and an early onset in childhood or adolescence of conditions such as anxiety (generalized anxiety disorder), post-traumatic stress disorder (PTSD) and depression is associated with worse lifetime outcomes.[3]

Children and adolescents, particularly those who have been exposed to natural and human-mediated emergencies, have a higher risk of poor mental health. These issues can reduce education participation and worsen educational outcomes. Poor attainment in education can also impact negatively upon child and adolescent mental health. Difficulties in the domains of mental health and learning may be mutually reinforcing and significantly affect an individual's development. Low educational attainment and ongoing mental health issues in adolescence can have severe implications for lifetime earning potential and economic productivity.[4]

Emergency events often disrupt education by closing schools, displacing learners, and otherwise impairing access to learning environments. Failure to address education and learning loss in the wake of emergency events ignores the very foundation of recovery efforts and extends the negative consequences of these events to younger generations.[5] Mitigating learning loss improves the long-term recovery of countries affected by disaster and conflict, and the economic rate of return on education is highest in those countries where the quality of education and academic outcomes are lowest. The World Bank found that one additional year of learning is associated with a 9.3 per cent average growth in lifetime earnings in LMICs compared to 8.2 per cent in high-income countries.[6]

Mental health and psychosocial support (MHPSS) interventions aim to promote mental wellbeing and/or prevent and respond to mental health conditions. When implemented in education environments for children and adolescents, MHPSS interventions offer a promising strategy to improve mental health and learning outcomes[7] with enormous potential to improve the life trajectories of the world's most disadvantaged children and adolescents.[8] Interventions focused on the mental health of children and adolescents in education settings take many forms and address a range of outcomes, including promoting mental health and psychosocial wellbeing, preventing mental health conditions, and improving access to mental health care and support. Implementation in education settings enables these programs to reach substantial numbers of children and adolescents while improving learning environments.

By implementing MHPSS interventions where they are needed most, policymakers and international donors can contribute to achieving the United Nations Sustainable Development Goals.[9] However, there is currently an important evidence gap related to the quantifiable costs and benefits of implementing these interventions in the humanitarian-development nexus, which impedes prioritization and investment in these solutions by governments and international donors.

This report details a global cost-benefit analysis (CBA) on mental health and psychosocial support interventions in education settings across the humanitarian-development nexus to address the gap. The analysis quantifies the global economic benefits in relation to the cost of investing in a range of MHPSS interventions for children and adolescents who are highly vulnerable to emergency events.

Background

The relationship between education, mental health, and economic potential are interconnected with a strong bidirectional linkage between child and adolescent mental health and educational achievement.[10]

The World Economic Forum has identified improvements in education as a critical necessity for global economic growth in the twenty-first century. Lost education is associated with significant declines in lifetime income, and accordingly, investments in improving education hold the potential to generate significant economic returns across an individual's productive lifespan.[5] Learning losses and disruptions in education may reduce opportunities to develop mental health resilience and the range of life skills and knowledge an individual needs to achieve their economic potential.[4] Likewise, when poor mental health among children and adolescents is not addressed, it can negatively impact academic achievement and preparation for employment. As psychosocial distress can severely reduce an individual's quality of education, cognition, and lifetime earning potential, interventions promoting mental wellbeing in educational settings can be beneficial to mitigating the downstream impacts of poor mental health and psychosocial wellbeing.[4]

The following section of the report details the relationship between education, mental health, and economic potential, the literature on MHPSS interventions and implementation strategies, and the implications of MHPSS and education on children and adolescents across the Humanitarian Development Nexus.

Learning loss adversely impacts mental health and economic potential

The COVID-19 pandemic has highlighted the extent to which emergency-related education disruptions can cause wide-scale losses to learning and economic potential. Global school closures caused over six months of learning loss for the average learner, which the World Economic Forum projects will lead to a 3.9 per cent decline in lifetime incomes for the affected cohort.[5] Learning loss reduces a child or adolescent's future economic potential because education is vital to the development of cognitive, technical and socioemotional skills that allow an individual to become productive and innovative later in life.[11] The effects of education disruption extend beyond individual earning potential and reduce productivity across entire economic systems. The OECD estimates that for the average member country, a half-year learning loss across an entire cohort of children and adolescents results in a 2.2 per cent shrinkage of future GDP.[12]

Education disruption also reduces the likelihood of completing secondary education – a marker that has been shown to be critical to economic participation and prosperity later in life.[13] Additionally, participation in a learning environment helps children and adolescents meet milestones that are critical to their mental health. One such milestone is represented by the concept of 'learning poverty,' an indicator that measures the proportion of children who cannot read and comprehend simple text at the age of 10.[14] Children who struggle with literacy face higher risks of experiencing ongoing mental health problems.[15]

Even before children learn to read, schools and other learning environments are critical channels for obtaining key competencies to help an individual succeed over the life course. Learning loss among children and adolescents includes loss of social and emotional learning (SEL)—the development of competencies such as self-awareness, discipline, social skills, and responsible decision-making.[16] SEL skills are a strong determinant of academic outcomes and contribute to mental resilience[17] and the ability to cope with mental health difficulties and adversity.[18–20] Essential adolescent SEL competencies such as motivation, self-worth and self-control have been shown to develop prosocial behaviours and reduce high-risk behaviour such as early sexual activity and drug and alcohol use that negatively impact learning.[16,21]

In summary, education quality, years spent in education and completion of secondary education are all important determinants of lifetime earning potential. Early academic setbacks stemming from emergency events and mental health difficulties can jeopardize an individual's chances of achieving key educational milestones. Education settings also provide opportunities for children and adolescents to build essential cognitive, technical and socioemotional skills needed to become productive later in life.

Mental health impacts on education and economic potential

Beyond the human right to access mental health services,[22] child and adolescent mental health difficulties require particular attention both for their immediate influence on educational attainment and personal development, as well as their potential to precipitate more serious lifelong mental health issues and healthy social development. Childhood and adolescence are periods of intense physiological, cognitive, neurological, emotional, and social change; they are a critical window of opportunity for holistic interventions to promote positive mental wellbeing and build coping skills and functional skills that protect mental health against future adversity.[16] The developmental changes experienced by children and adolescents further heighten their vulnerability to poor mental health.[23,24] Adolescence is a common age of onset for various mental health conditions, and it is estimated that half of all lifetime mental health issues emerge before the age of 14.[3]


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Mental health difficulties in childhood and adolescence can incur lifelong costs to the individual and society. Learners' mental health difficulties hamper academic success, undermine the development of cognitive, social, functional, and technical skills, and diminish the human capital they bring to the workforce and their communities. Functional impairment is a key indicator of a child or adolescent's need for mental health support, representing the overall impact of psychosocial distress or mental health conditions on the cognitive ability to perform daily responsibilities and accomplish goals. Key areas of performance for children include interpersonal functioning, school functioning and self-care.[25] Functional impairment is predicted by symptoms of common mental health conditions like anxiety, depression and PTSD but is also associated with overall mental distress.[26]

Poor mental health hampers the development of essential skills needed to enter the labour force and constructive civic engagement and increases a learner's risk of dropout.[27] Quality of learning and completion of secondary education are important determinates of employability and lifelong earning potential.[11] Additionally, mental health conditions that persist into adulthood can affect labour productivity, social cohesion and civic engagement.[28,29] For example, adult mental distress has been linked to higher levels of workplace absenteeism (decreased number of working days) and presenteeism (reduced productivity in the workplace), which together comprise a significant portion of the economic burden of mental illness.[29] Early action is critical not only to preserve the human right to mental health care, but also because poor mental health hampers development of future workforce skills, harming workplace performance and lifetime income and, more broadly, the healthy development of communities and societies.[28,30,31]

One of the most powerful risk factors for mental health conditions among children and adolescents is exposure to life-threatening events such as natural or human-made emergencies.[32,33] Children and adolescents are particularly vulnerable. While most children and adolescents who endure such events are to experience psychological distress, for most this improves over time.[34] However, 22.1 per cent of children and adolescents affected by emergencies are likely to experience adjustment reactions such as stress, depression, anxiety and exacerbation of any pre-existing conditions.[35] Children and adolescents living in protracted crises may be continually exposed to risk factors that threaten their mental health and psychosocial wellbeing; forcibly displaced adolescents have a higher risk of depression, the longer they remain displaced.[36,37] Without proper care and

support, psychosocial distress can adversely impact a child or adolescent's functioning in learning environments and their ability to develop socioemotional competencies.[38] The importance of equipping affected children and adolescents with resilience and coping skills to mitigate the long-term mental health effects of exposure to emergency events is a major theme in the literature.[39,40] It is therefore vital to develop effective systems and support mechanisms to equip children and adolescents with these skills.

MHPSS interventions

MHPSS interventions should be available across the various stages of the mental health continuum which spans mental health promotion, prevention and treatment.[41] Interventions can be categorized as either universal or selective. Universal interventions target entire cohorts of children and adolescents without inclusion criteria, whereas selective interventions target individuals who present with specific symptoms or risk factors. Universal interventions complemented by a selective component generally produce stronger results than universal programmes alone.[42] However, caution is recommended in the way that selective interventions are implemented; for instance, in education settings care should be taken to ensure learners are not stigmatized for participating.[43]

MHPSS promotion interventions generally target the development of positive mental wellbeing through, for example, the development of social and emotional skills. Promotion of mental wellbeing in learning environments can also improve learners' academic success and engagement and have a lasting impact on the education setting's supportive structures, positive climates, empowered communities, and deliver long-lasting change in attitudes and policies, further sustaining the effect of MHPSS intervention.[42] Common approaches include training teachers to promote the mental health and psychosocial wellbeing of children through add-on activities in the school environment. At times, teachers may incorporate psychoeducational materials and SEL activities into classroom curricula. An example of promotion is a universal, school-based programme that integrates reading and curricula with a socioemotional focus, combined with in-service teacher training and coaching.[44]

Prevention interventions aim to build resilience against developing mental health problems. These interventions employ many similar approaches to promotion interventions but are targeted toward children and adolescents who have been identified as having elevated risk factors. Identified risk factors for child and adolescent mental health include orphanhood, lack of socialization, poor school attendance, violence at home or in schools, and forced migration.[45,46]

Symptoms of psychological distress, mental health conditions and functional impairment are common target indicators for preventive interventions because improvements in these areas have been associated with improved academic performance across the humanitarian-development nexus.[7] An example of a prevention intervention whose effects will feature in the global CBA model is a selective prevention programme of group-based cognitive behavioural therapy.[47,48]

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Treatment interventions respond to mental health conditions that adversely affect an individual's wellbeing and academic functioning. Mental health problems are often not recognized and managed in resource-constrained settings as the development of mental health services is hampered by a limited government policy, inadequate funding, and a dearth of trained mental health workers and specialists.[49] Accessing available services can also be constrained by the stigma associated with mental health conditions.[49] Common treatment interventions include individual and group therapy, peer support exercises, and trauma-sensitive activities. For children and adolescents who experience emergency events, the combination of promotion, prevention, and treatment interventions are critical to mitigating the impact of psychological distress and adverse events.

Overall, the literature demonstrates that MHPSS interventions improve child and adolescent mental wellbeing and learning outcomes and translate into individual and social economic benefits over the productive period of an individual's lifespan.[4] Children and adolescents who experience more of the risk factors for psychosocial distress and low-quality learning stand to gain the most from participating in MHPSS interventions.[42] Given that exposure to emergency events is a major risk factor for the mental health of children and adolescents, and that emergency events can disrupt education by closing schools, displacing learners, and otherwise impairing children and adolescents from accessing learning environments[46] it is clear that those exposed to emergency events can greatly benefit from MHPSS interventions. It is therefore important that these interventions are available to children and adolescents in countries across the humanitarian-development nexus.[50]


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MHPSS implementation strategies

MHPSS intervention literature has predominantly been focused on high-income and Western countries. However, a developing body of evidence from LMICs identifies the characteristics of effective approaches in development settings.[51]

For instance, there is a strong consensus that MHPSS interventions are more effective when they are of longer duration and more structured.[52] Interventions lasting nine months or more have been shown to be superior to short-term interventions, achieving broad outcomes such as promoting positive mental health and preventing poor mental health.[42] The intervention effects of manualized psychological or psychoeducational programmes, including individual, group and digital interventions, interpersonal psychotherapy, mindfulness-based cognitive therapy, wellbeing therapy and psycho-educational approaches, have also been shown to deteriorate after the implementation period. Follow-up booster sessions are a common strategy to maintain intervention effects.[53] Although humanitarian responses to emergency events generally focus on rapid delivery, long-term support for mental health is needed not only because the needs precipitated by such events endure,[54] but also because humanitarian emergencies often persist and put longer-term stresses and pressures on children and adolescents.[36,37]

It is important to consider which interventions are best suited to address participants' needs based on their age, gender, and mental health status across the mental health continuum.[55] SEL activities are particularly valuable for children between 5–11 years of age, a period in which they are developing their social awareness and sense of identity.[56] They can also effectively reduce rates of school dropout among adolescents;[20] reduce negative student behaviour in schools and in the community such as bullying, violence, and juvenile crime; and improve health outcomes by reducing teenage pregnancies and drug abuse.[21]

When possible, interventions focused on anxiety, depression, or PTSD should be preventive rather than delivered after their onset.[53] Anxiety disorders generally emerge around age 11, and the average onset of depression occurs between ages 11 and 14.[57] For school-based interventions targeting

specific mental health conditions, evidence is strongest for the effectiveness of those which prevent and treat PTSD.[52] Interventions on depression and anxiety appear to reduce symptom severity.[43,58] Intervention outcomes for improved mental health are generally most significant among participants who have more risk factors. Universal interventions complemented by a selective component generally produce stronger results than universal programmes alone.[42] Successful MHPSS interventions in emergency response efforts often incorporate individual or group-based cognitive behavioural therapy, a technique that reframes participants' negative thought patterns and assists with recovery from trauma.[54]

MHPSS interventions are often delivered by school staff (primarily teachers, and sometimes school nurses or counsellors) or mental health staff who visit schools to deliver interventions (usually mental health nurses and community mental health workers). Children and adolescents who have experienced emergency events are at heightened risk of mental health difficulties, and interventions that target this should focus on coping skills, processing and recovery.[33]

Conclusions about who most effectively facilitates MHPSS interventions are mixed. There is evidence of positive results for interventions delivered by trained teachers and school staff, mental health professionals, and even trained volunteers.[59] There is some suggestion that certain facilitators may be more effective when delivering interventions that target specific outcomes.

A number of literature reviews that survey a range of studies suggest interventions delivered by mental health staff yield larger mental health effect sizes.[42,53] A possible explanation for this is that these types of mental health interventions tend to be more intense, suggesting that most salient is the nature of the intervention rather than the characteristics of the implementer.[42] However, other literature reviews support the view that outcome effect sizes from MHPSS interventions may be strongest when teachers and school staff deliver them.[42,44,60] Hypotheses supporting this finding suggest that participants, particularly younger children, may be more comfortable with familiar members of teaching or nursing staff rather than visiting professionals,[53] and that school staff have opportunities to reinforce key points during routine interactions.[42]

Furthermore, leveraging the existing education systems and infrastructure to implement MHPSS interventions can improve access to MHPSS in settings across the humanitarian development nexus, where the availability of mental health workers is limited. Ultimately, interventions should be context-specific and tailored to meet local MHPSS needs.


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Evidence gap

Although the limited current evidence from LMICs and humanitarian settings indicates that school-based MHPSS interventions effectively improve both short-term mental health and education outcomes, these studies draw limited conclusions about the long-term benefits of these outcomes.[7,52,61] Nonetheless, there is a substantial global body of literature that links the same short-term outcomes that have been demonstrated in LMICs to lifelong improvements in mental health and earning potential.[11,27] This suggests that similar long-term benefits from the interventions may reasonably be expected in development and humanitarian settings, and that the current lack of evidence reflects the limited quantity and quality of evaluative studies in these countries rather than a difference in effectiveness. Similarly, there is limited cost-effectiveness data on school-based MHPSS interventions in humanitarian settings, particularly among younger children.

Emergency context


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According to the INFORM Risk Initiative, the main underlying factors that lead to humanitarian risk include exposure to climate-mediated events and human conflict.[62] Climate-mediated events include earthquakes, tsunamis, droughts, floods, tropical cyclones, and epidemics. Human conflict can range from violent conflict at national level to subnational conflict over issues like secession, autonomy, or subnational predominance. Additionally, the humanitarian risk to populations affected by climate-mediated events and human conflict is higher if there is increased socioeconomic vulnerability, and weak infrastructure and institutional capacity to respond to such crises.[62] Although many of these events can lead to forcible displacement (either internally within a country or across international borders), there is also a sizeable population that is affected by such events but may not be forcibly displaced.

In 2022 there were 323 recorded natural disasters across the globe and over 151 million children and adolescents aged 10–17 years were estimated to be affected by crises in 66 countries categorized as having medium to very high levels of risk for humanitarian emergencies.[63,64] There is therefore a substantial and growing need to address the impact on child and adolescent education outcomes and mental health. More than one in every five children and adolescents affected by humanitarian emergencies in 2022 were forcibly displaced.[64] Estimates indicate that approximately 30 per cent of refugee children are likely to be suffering from PTSD and 24 per cent of refugee children report feeling depressed.[65] Moreover, while 11 per cent of refugees across all age groups experience anxiety disorders, the proportion of refugee children with anxiety disorders is more than double this rate, at 27 per cent.[66,67] Child internally displaced persons (IDPs) also experience higher levels of internalising symptoms and post-traumatic stress than non-displaced children.[68] Displaced populations face multiple barriers to care, ranging from limited access to healthcare to stigma around poor mental health.[69,70]

Climate-mediated events and conflict disrupt schooling in many ways. Emergency events may reduce school attendance and learning when they destroy schools, damage infrastructure and supply chains triggering malnourishment and illness and learning loss.[71] Exposure to natural disasters and conflict negatively affects school attendance even years after the event.[69] Children and adolescents may have left school to join the labour market or help at home if an emergency event has adversely impacted household income.[71,72] In addition, conflict – particularly ethnic conflict –increases gender inequality around education availability and outcomes.[73]

Global action to promote and develop MHPSS in the education sector

There is a global responsibility to protect child and adolescent mental health and address educational losses.

The United Nations Convention on the Rights of the Child commits all countries to promote child and adolescent mental health.[74]

UNICEF's Global Multisectoral Operational Framework offers guidance for developing programmes across the social ecological model and the mental health continuum of prevention, promotion and treatment to improve the mental health and psychosocial wellbeing of children, adolescents and their caregivers.[41] The MHPSS Minimum Service Package (MSP) was developed by the Inter-Agency Standing Committee Reference Group for Mental Health and Psychosocial Support in Emergency Settings. It establishes a set of activities that are considered to be of the highest priority in meeting the immediate critical needs of emergency-affected populations.[75] The MHPSS MSP provides a foundation for progressive strengthening and further scale-up of MHPSS activities.

The World Health Organization's (WHO) Comprehensive Mental Health Action Plan (2013–2030) commits all countries to build comprehensive and integrated care and develop strategies for mental health promotion while improving governance and infrastructure for mental health care.[34,76] The WHO Global Action Plan (2019–2023) to promote the health of refugees and migrants seeks to support member countries to provide short- and long- term programmes and systems to care for the physical and mental health needs of displaced populations.[77,78] MHPSS in education settings contributes directly to all 17 of the UN Sustainable Development Goals.[79]

Due to the learning loss associated with the COVID-19 pandemic, urgent action is required from international organizations and national governments to improve the educational and psychological wellbeing of the next generation. At the Transforming Education Summit in 2022, representatives from the UN and other international organizations urged policymakers to prioritize the development of children's foundational literacy, numeracy, and SEL skills to allow them to realize their full social potential.[80]

Promoting MHPSS programmes in education settings has global potential to reverse learning loss, reduce learning poverty, improve the psychological wellbeing of children and adolescents, and support social cohesion-building efforts in countries affected by emergencies.


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Study population

The global CBA focused on children and adolescents aged 10–17 affected by humanitarian emergencies. It calculated the cost of inaction on protecting their mental health and illustrated the economic costs and benefits of implementing MHPSS interventions.

The study population used 2022 population numbers from the United National Population Division and the United Nations High Commissioner for Refugees. Children and adolescents were categorized into two groups based on what might be termed the 'displacement outcome' of humanitarian emergencies. These were: (1) crisis-affected and forcibly displaced (AFD) populations, including both internally displaced people (IDPs) and externally displaced populations (refugees and asylum seekers); and (2) crisis-affected but not forcibly displaced (ANFD) populations, including local populations affected by a humanitarian crisis, but who are not forcibly displaced. In total, approximately 151 million children and adolescents aged 10–17 years were affected by humanitarian emergencies in 66 countries in 2022.[64]

The 66 countries are classified by the INFORM Risk Index as at medium, high, or very high risk of a humanitarian crisis, and the risk level determines each country's likelihood of needing international assistance (Figure 1).[62] Within each country classification on the INFORM Risk Index, the analysis applied estimates the total affected populations, and the proportions of people who are or are not forcibly displaced. The 66 countries included in the cost of inaction analysis also represent regional diversity across the six UNICEF regions.

As an illustrative example of the cost and benefits of implementing MHPSS interventions among children and adolescents affected by humanitarian emergencies, the global CBA examined the potential economic returns from implementing school- and community-based MHPSS interventions among Internally Displaced People (IDPs). This sub-population comprises two-thirds of the global population of children and adolescents who have been forcibly displaced.[81,82] Based on data from the United Nations High Commissioner for Refugees (UNHCR) and the Internal Displacement Monitoring Centre, 52 countries with risk level ranging from medium to very high on the INFORM risk index and with data on IDPs were included in the global CBA.[82] All included countries are represented within UNICEF's national and regional Humanitarian Action for Children (HAC) appeals.[83]

Approximately half of all children and adolescents aged 10–17 included in the global CBA were from countries with a very high risk of a humanitarian emergency event (49 per cent). Over a quarter of children and adolescents resided in high-risk countries (28 per cent), and over a fifth were from countries at medium risk (23 per cent). Sub-Saharan Africa (SSA) accounted for the highest number of countries impacted by humanitarian emergencies (36 countries), followed by Latin America and the Caribbean (LAC; 13 countries), Middle East and North Africa (MENA; 11 countries), East Asia and the Pacific (EAP; seven countries), Europe and Central Asia (ECA; five countries), and South Asia (SA; four countries).


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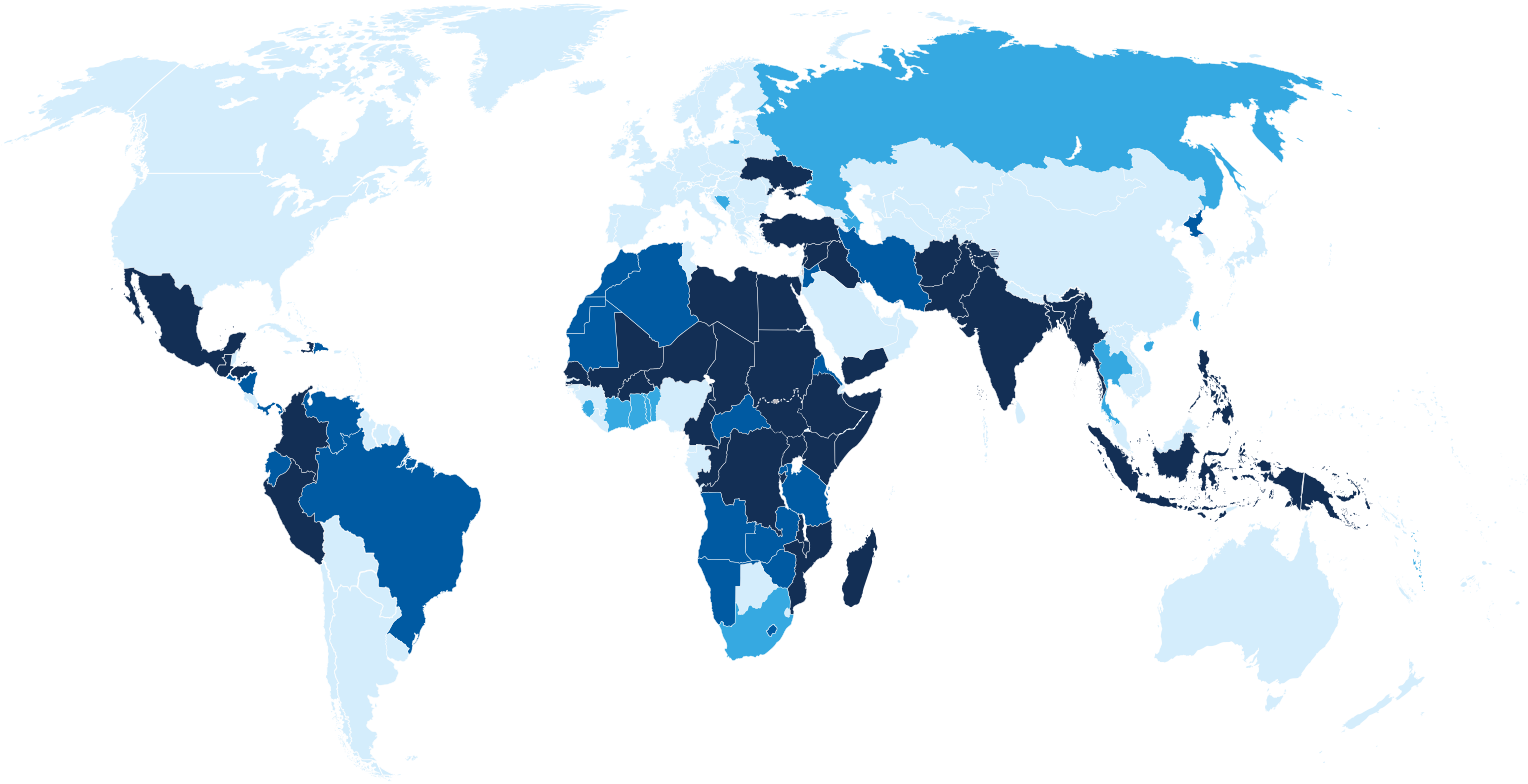


Figure 1.
Sampled countries by region and INFORM Risk Index Class

INFORM Risk Index Classification:

Very High Risk (VH);
High Risk (H);
Medium Risk (M)

* Indicates inclusion in intervention analysis only
** Indicates inclusion in both cost of inaction and intervention analyses

Indicates inclusion in the intervention analysis only.
Indicates inclusion in the cost of inaction analysis only.
Indicates inclusion in both cost of inaction and intervention analyses.

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.

East Asia and the Pacific
Indonesia** (M)
Myanmar** (VH)
Papua New Guinea** (H)
Philippines** (H)
North Korea (H)
Thailand* (M)
Vanuatu (M)

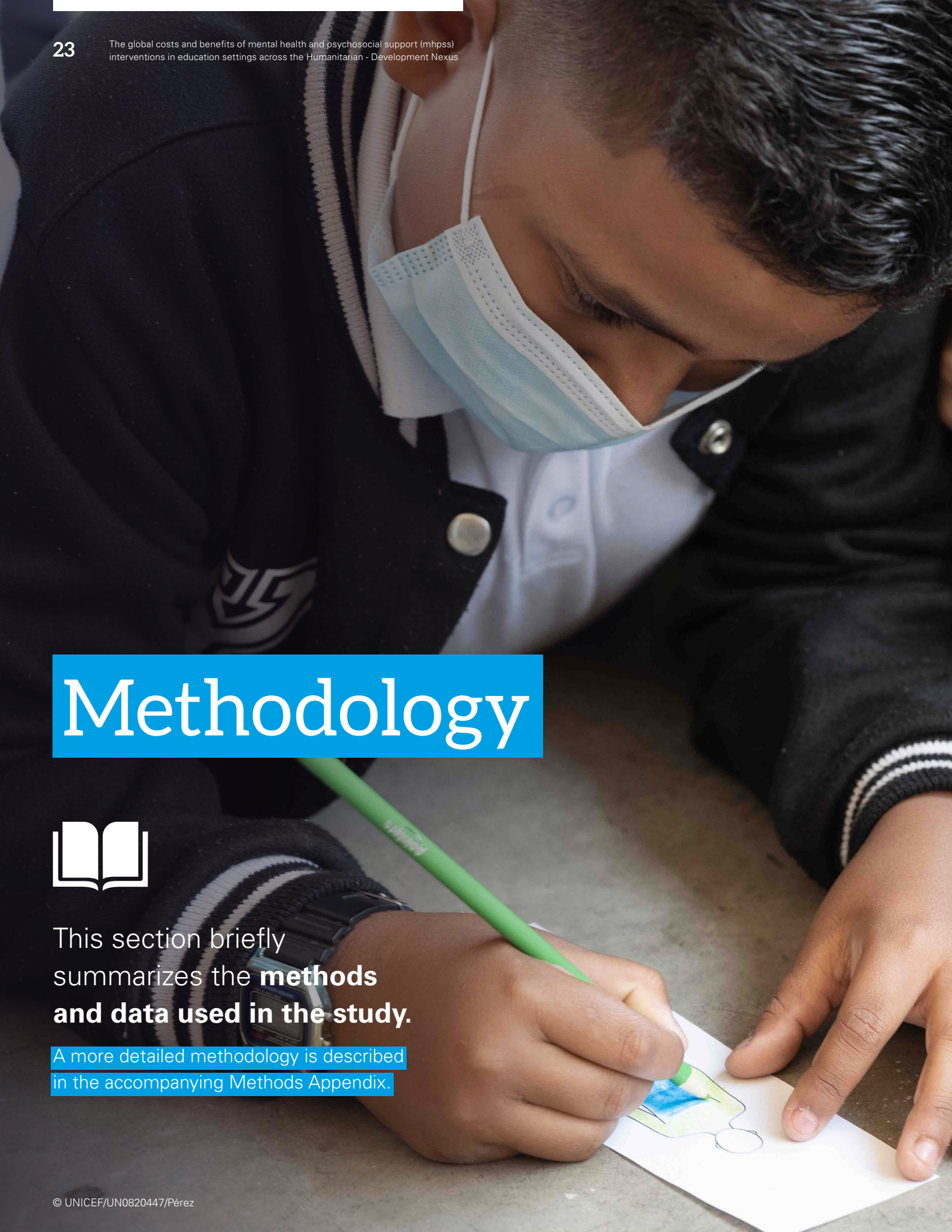
Middle East and North Africa
Egypt** (M)
Iraq** (VH)
Iran (H)
Lebanon** (M)
Libya** (H)
Palestinian Territories** (M)
Syrian Arab Rep.** (VH)
Yemen** (VH)
Morocco (M)
Jordan (M)
Algeria (M)

Latin America and the Caribbean
Colombia** (H)
Guatemala** (H)
Haiti** (VH)
Honduras** (H)
Mexico** (H)
Peru** (M)
Venezuela (H)
El Salvador (M)
Brazil (M)
Dominican Republic (M)
Nicaragua (M)
Panama (M)
Ecuador (M)

Europe and Central Asia
Azerbaijan* (H)
Bosnia and Herzegovina* (M)
Russian Federation* (M)
Turkiye** (M)
Ukraine** (H)

Sub-Saharan Africa
Angola (M)
Benin* (M)
Burkina Faso** (VH)
Burundi** (H)
Cameroon** (VH)
Central African Republic (VH)
Chad** (VH)
Congo** (H)
Cote d'Ivoire* (M)
Djibouti (M)
Dem. Rep. of the Congo** (VH)
Ethiopia** (VH)
Eritrea (H)
Ghana* (M)
Kenya** (VH)
Madagascar** (H)
Malawi** (M)
Mali** (VH)
Mauritania (M)
Mozambique** (VH)
Namibia (M)
Niger** (VH)
Nigeria (H)
Senegal** (M)
Sierra Leone* (M)
Somalia** (VH)
South Africa* (H)
South Sudan** (VH)
Sudan** (VH)
Tanzania (H)
Togo* (M)
Uganda** (VH)
Lesotho (M)
Rwanda (M)
Zambia (M)
Zimbabwe (M)

South Asia
Afghanistan** (VH)
Bangladesh** (H)
India** (H)
Pakistan** (H)



Methodology

This section briefly summarizes the **methods and data used in the study.**

A more detailed methodology is described in the accompanying Methods Appendix.

This section also summarizes the modelling process used to estimate the economic cost of failing to address mental health and psychosocial needs of crisis-affected children and adolescents (the 'cost of inaction') and to calculate the impact of implementing two school and one community-based MHPSS interventions among children and adolescents affected by a humanitarian emergency. The analysis examined the economic cost of mental health conditions through their effect on education completion and social and emotional (SE) skills among affected populations.

Model cohort

The model was divided into two components.

1. The first component examined what might be termed the 'cost of inaction' or a 'business as usual' scenario where no additional investments were made in existing or new interventions. Here we estimated the economic cost of failing to address mental health and psychosocial needs of children and adolescents affected by humanitarian emergencies. In total, approximately 33.4 million children and adolescents aged 10–17 years were affected by humanitarian crises in 66 countries, and developed mental health conditions in 2022.* The analysis determined this population number by using the 22.1 per cent pooled and adjusted prevalence of mental health conditions (depression, anxiety, post-traumatic stress disorder, bipolar disorder, and schizophrenia) among populations in conflict settings.[84] Therefore, the cost of inaction estimate included more than 33.4 million children and adolescents with a mental health condition, of whom approximately 7.6 million were AFDs and 25.8 million were ANFDs.

2. The second component examined investment in interventions scenario, where interventions at scale aim to avert the economic cost of mental health conditions and poor SE skills among children and adolescents impacted by emergencies.

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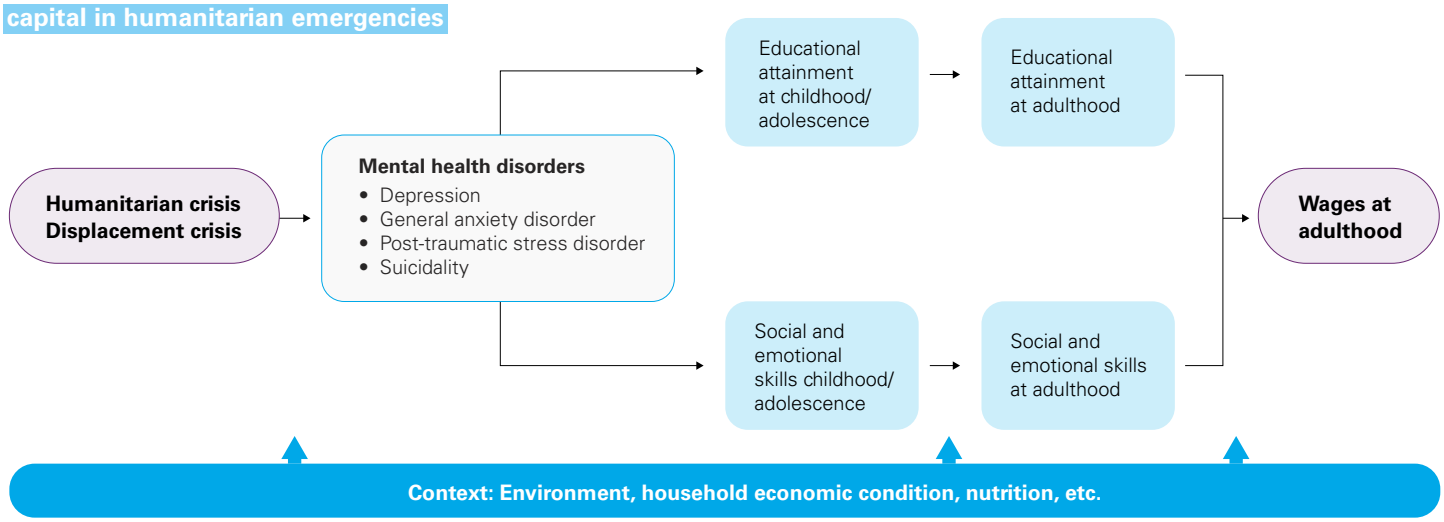
* Of the 224 million school-age children affected by crisis situations in 2023, 151 million are aged 10–17, and an estimated 33.4 million, or 22 per cent, live with a mental health condition.64

Part I:
Evaluating the economic cost of inaction on humanitarian emergencies for children and adolescents

Estimates of the economic cost of failing to take action to address the mental health and psychosocial needs of children and adolescents impacted by humanitarian emergencies are based on a human capital approach, calculating the reduction in their potential lifetime earnings as a result of lower school enrolment and completion rates, and poorer SE skills due to mental health conditions caused by exposure to humanitarian crises (Figure 2).

Figure 2:
Pathways of mental-ill health effect on human capital in humanitarian emergencies



The model estimated an individual's potential lifetime earnings based on their school completion status and SE skills due to their mental health status. Without additional intervention to improve their mental health and psychosocial needs, children who develop mental health conditions because of exposure to emergencies generally have lower school enrolment and completion levels and SE skills.[85] Accounting for the fact that wages and rate of employment differ based on school completion, SE skills and sex, and adjusting for the mediating role of mental health conditions, the model estimated a population's lifetime earnings across different contexts. This strategy to estimate an individual's potential lifetime earnings focuses on the quantitative features of 'learning poverty', an indicator used to capture the level of both schooling and learning, and whether all children are able to acquire meaningful skills.[86]

To estimate the economic cost across humanitarian emergencies, the model estimated the potential reduction in lifetime earnings of children and adolescents *who have been affected by a humanitarian emergency* (for instance, IDPs, refugees, asylum seekers and those affected but not forcibly displaced).

No new MHPSS interventions were introduced in this scenario. This reduction was estimated through school completion and SE skills deficits among those affected by humanitarian emergencies and diagnosed with a mental health condition in countries at medium, high, and very high risk of future emergency events on the INFORM Risk Index.

The model assumed that the global average age of retirement is 65 years. The analysis´s time horizon (that is, the duration) over which the potential lifetime earnings are calculated is 48 years. All lifetime earnings were enumerated in 2022 US Dollars (US$), and future earnings were discounted at a rate of three per cent.[87,88]

Additional details on the data sources can be found in the *Methods Appendix*.

Part II:
Estimating the economic impact of MHPSS interventions in humanitarian emergencies

To estimate the economic impact of implementing school- and community-based MHPSS interventions for children and adolescents affected by humanitarian emergencies, the analysis focused on the impact of providing these interventions for IDPs - a subset of the children and adolescents who are affected by emergencies and forcibly displaced from 52 countries. This subset was chosen due to the data limitations on MHPSS intervention effects and implementation costs among refugees and asylum seekers.

The economic costs and benefits were examined by implementing three different MHPSS interventions. The economic benefits from these interventions were represented by averted loss of lifetime earnings that could be attributed to intervention implementation. The costs were based on the total cost of each intervention and its implementation at scale. The model used an ingredients-based costing approach to estimate the total cost of each intervention, its implementation costs, and any pre-implementation training costs. Each intervention was evaluated individually as there was limited literature on the collective impact of implementing multiple MHPSS interventions at the same time. The model also assumed that the interventions were implemented once, in 2022.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Selected MHPSS interventions

The MHPSS interventions in the analysis were identified through a comprehensive review of peer-reviewed literature. Interventions were included in the CBA if they focused on school-aged children and adolescents (ages 5–18), described costs per person, and the effect sizes are known. Interventions implemented in education settings were prioritized. The interventions that matched these inclusion criteria focused on children and adolescents between the ages of 10–17, as there was limited evidence on the impact of interventions between the ages 5 to 10. To reflect the nuances of implementing proposed interventions in each country, an activity-based costing was performed using details of activities engaged in implementing each intervention.

- **The school-based group cognitive behavioural therapy (CBT) intervention** addresses mental health needs through group-based cognitive behavioural therapy in school settings among children and adolescents with depression symptoms.[48] As depression is associated with lower levels of school completion, the intervention positively impacts upon an individual's lifetime earning potential by reducing the risk of school dropout.[48,89]

- **The school-based socio-emotional learning (SEL) intervention** targets social and emotional learning skills through a Life Skills Education programme that promotes self-esteem, self-efficacy, and other aspects known to contribute to psychosocial wellbeing.[90] Sessions are delivered by teachers in a school setting.

- **The community-based group therapy intervention** uses community health workers to deliver group-based therapy sessions for out-of-school adolescents exposed to emergencies.[91] Target outcomes include improved mental wellbeing and increased school enrolment and attendance.

Additional details on the interventions can be found in the *Methods Appendix.*

Summary of Modeled MHPSS Interventions

The school-based group cognitive behavioural therapy (CBT) intervention focuses on prevention as it addresses mental health needs by implementing group-based cognitive behavioral therapy in school settings among children and adolescents with depression symptoms. As depression is associated with lower levels of school completion, the intervention positively impacts upon an individual's lifetime earning potential by reducing the risk of depression and school dropout. Sessions may be delivered by trained teachers, school personnel (such as counsellors and nurses), or medical staff.

The school-based socio-emotional learning (SEL) intervention focuses on mental health and wellbeing promotion by targeting social and emotional learning skills through a Life Skills Education program that promotes self-esteem, self-efficacy, and other aspects known to contribute to psychosocial wellbeing. Sessions are delivered by trained teachers in a school setting.

The community-based group therapy intervention focuses on treatment by using community health workers to deliver group-based therapy sessions for out-of-school adolescents exposed to emergencies. Target outcomes include improved mental wellbeing and increased school enrollment and attendance.

Economic benefits

To compare the implementation costs and benefits offered by each intervention, the global CBA used net benefits and benefit-cost ratio (BCR) as indicators. Net benefits were defined as the total averted loss in potential lifetime earnings from implementing proposed MHPSS interventions using a 3 per cent discount rate. The BCR represents the net benefits of a given intervention divided by the total implementation costs of that intervention. A BCR above US$1 indicates that benefits outweigh the costs.


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The intervention model uses the human capital approach whereby investments in the skills, knowledge, and capabilities of individuals attained during education are understood to provide lasting long-term income gains. The CBA model focused on only the effects that could be directly linked to earning potential, or to earning potential through school completion and SE skills.

Limitations

Due to data limitations, the cost of inaction estimates are conservative since the study focused on the impact of humanitarian emergencies on mental health and education by examining a select number of mental health conditions and educational outcomes. Extending the analysis to include both quantity and quality of educational outcomes would potentially increase the magnitude of estimates of the cost of inaction and the benefits of implementing proposed interventions. The analysis relied on best available estimates, including for the ingredient-based costing of interventions, and this might not fully reflect the unique costs and contexts in each country included in the study.

It should be noted that the calculation of the benefits of implementing the assessed interventions is also conservative. Firstly, this is because the modelled interventions provided a wider range of benefits not directly used as part of the analysis. Secondly, forcibly displaced youth are especially prone to developmental, cognitive, behavioural and mental health challenges beyond those explicitly included in the modelled scenarios.[36,92] For these reasons the results likely underestimate the full benefits of implementing these interventions in countries categorized as at medium, high, and very high risk of emergencies.

Additionally, while the literature search for interventions included school-aged children and adolescents between the ages of 5–18, the interventions that matched these inclusion criteria focused on children and adolescents between the ages of 10–17 as there was limited evidence on the impact of interventions between ages 5 to 10.

Results

Economic cost of inaction to address the mental health of children and adolescents affected by humanitarian emergencies

The cost of humanitarian emergencies in relation to a child or adolescent mental health refers to the reduction in their future lifetime earnings that would be expected as a result of the education, social, and emotional deficits attributable to their exposure to life-threatening emergencies. The 'cost of inaction' refers to the loss in lifetime earnings from failing to address their mental health and psychosocial support needs. This is estimated in terms of weakened human capital development due to lower school enrolment and completion, limited social and emotional skills development, and lower employment. This estimate included both children and adolescents displaced due to emergencies and those affected but not displaced.

If approximately one in every five of those affected by humanitarian emergencies[84] experiences lower school completion rates, develops fewer SE skills, and experiences lifetime earning loss due to mental health conditions, the total global economic cost is substantial. The cost of inaction would result in the equivalent of US$203 billion (in 2022 US$) in losses over the lifetime of the affected children and adolescents across the 66 countries (Figure 3). The 7.6 million children and adolescents forcibly displaced in 2022 who live with mental health conditions would be projected to lose US$52 billion in lifetime earnings without further action. Among the 25.8 million children and adolescents affected by emergencies but not forcibly displaced and who have mental health conditions, the lost lifetime earnings would be US$151 billion.

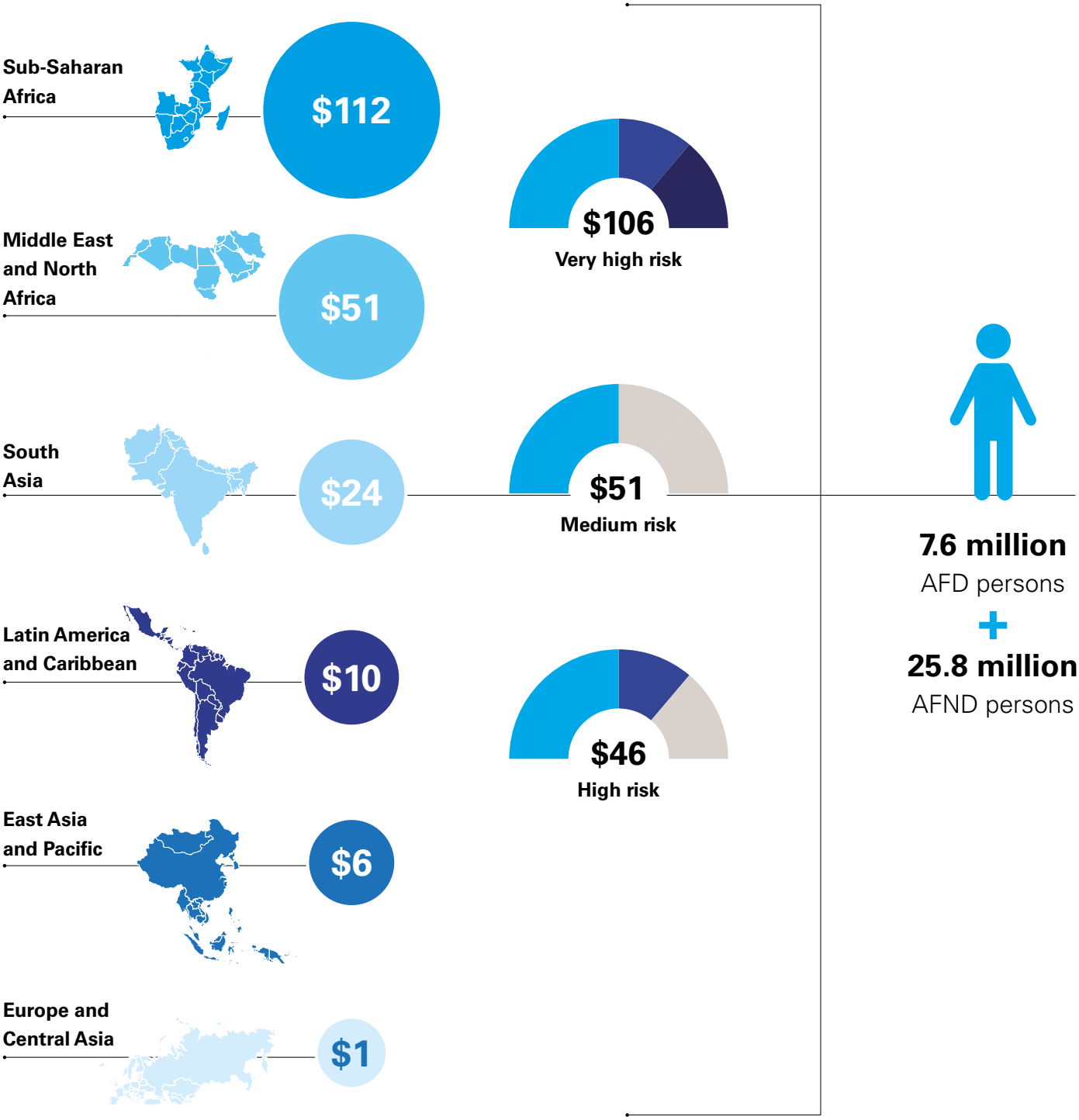
Approximately three-quarters of the total economic loss would occur among crisis-affected children and adolescents in countries at high or very high risk for humanitarian emergencies. The twenty-six countries in the very high risk classification of the INFORM Risk Index would experience the highest economic costs, losing about US$106 billion in lifetime earnings among both those affected and forcibly displaced and affected but not forcibly displaced (Figure 3). Without further intervention, countries classified as high risk would lose about US$46 billion in lifetime earnings. Due to the size of the affected population, including the number of countries in each region, the highest loss would be expected in Sub-Saharan Africa (US$111.6 billion) (Figure 3).

Table 3: Total lifetime earning loss by region and INFORM Risk Index class (2022 US$)

			Total lifetime earning loss for ANFDs	Total lifetime earning loss for AFDs	Total lifetime earning loss
		US$, billions	US$, billions	US$, billions	US$, billions
Region	**Europe and Central Asia**	N=2	0.9	0.2	1.1
	East Asia and the Pacific	N=6	5.8	0.1	5.9
	Latin America and the Caribbean	N=13	6.5	3.6	10.1
	Middle East and North Africa	N=11	19.3	31.4	50.6
	South Asia	N=4	22.3	1.4	23.7
	Sub-Saharan Africa	N=30	96.0	15.5	111.6
INFORM Risk Index class	**Medium**	N=26	21.9	29.1	51.0
	High	N=20	41.8	4.6	46.3
	Very high	N=20	87.2	18.5	105.6

Figure 3.
Total lifetime earning loss by UNICEF region and INFORM Risk Index class (billions 2022 US$)

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.



Cost benefit analysis of implementing MHPSS interventions for emergency-affected children and adolescents

Intervention costs

The modelling for the implementation cost and benefits of the MHPSS interventions is focused on an illustrative sub-population within the wider population exposed to emergencies. Implementing each intervention would offer MHPSS support to different groups of children and adolescents who are affected by an emergency, and so the modelling for each intervention covered a different population size. As such, intervention implementation costs vary by intervention, regions, and INFORM Risk Index classification (Tables 2 and 3).

The total global implementation cost for the **school-based CBT intervention** was US$6.0 million (average cost of US$0.8 per child) (Tables 2 and 3). The total implementation cost was highest in the Europe and Central Asia region at US$5 million (average cost of US$20) (Tables 2 and 3) and was lowest in four regions; Middle East and North Africa, Sub-Saharan Africa, East Asia and the Pacific, and South Asia (average cost of less than US$1). The average implementation cost was lowest across countries classified as very high risk for humanitarian emergencies (US$0.1) and highest among medium-risk countries (US$10).

The total global implementation cost for the **school-based SEL intervention** was US$28.6 million (average cost of US$3.7) (Tables 2 and 3). The total implementation cost was significantly higher since this intervention targeted a larger population of in-school children and adolescents. The total implementation cost was highest in the Sub-Saharan Africa region US$17.0 million (average cost of US$4.7) and was lowest in the East Asia and the Pacific region (total cost of US$212,626; average cost of US$2). The average implementation cost was lowest across countries classified as very high risk (US$ 3.7) and high risk (US$3.4) for humanitarian emergencies, and highest among medium-risk countries (US$5.3).

Implementing the **community-based group therapy intervention** would cost about US$442 million (average cost of US$57) globally (Tables 2 and 3). The total implementation cost was highest in the Middle East and North Africa region at US$221.4 million (average cost of US$102) and was lowest in the East Asia and the Pacific region (total cost of US$7.3 million; average cost of US$69). The average implementation cost was lowest across countries classified as very high risk for humanitarian emergencies (US$38) and highest among medium-risk countries (US$457).

Table 4: Total intervention costs and average intervention costs per crisis-affected child and adolescent by INFORM Risk Index class (2022 US$)

Risk class	Medium (N=16)		High (N=17)		Very high (N=19)	
	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD
	US$, millions	US$	US$, millions	US$	US$, millions	US$
School-based group CBT	2.9	10.1	2.3	1.4	0.8	<1
School-based SEL education	1.5	5.3	5.8	3.4	21.3	3.7
Community-based group therapy	130.5	456.5	91.8	54.1	219.4	38.3

Table 5: Total intervention costs and average intervention costs per crisis-affected child and adolescent by UNICEF region (2022 US$)

Region	Latin America and the Caribbean (N=6)		Sub-Saharan Africa (N=25)		East Asia and the Pacific (N=5)		Europe and Central Asia (N=5)		South Asia (N=4)		Middle East and North Africa (N=7)	
	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD
	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$
School-based group CBT	1.3	1.5	0.2	<1	0.1	<1	5	20.2	0.1	<1	0.6	<1
School-based SEL education	4.1	4.9	17.0	4.7	0.2	2.0	1.9	7.9	1.4	1.9	7.7	3.5
Community-based group therapy	56.0	66.8	123.9	34.6	7.3	68.7	43.2	174.9	37.2	48.9	221.4	101.6

Economic benefits and benefit-cost ratios

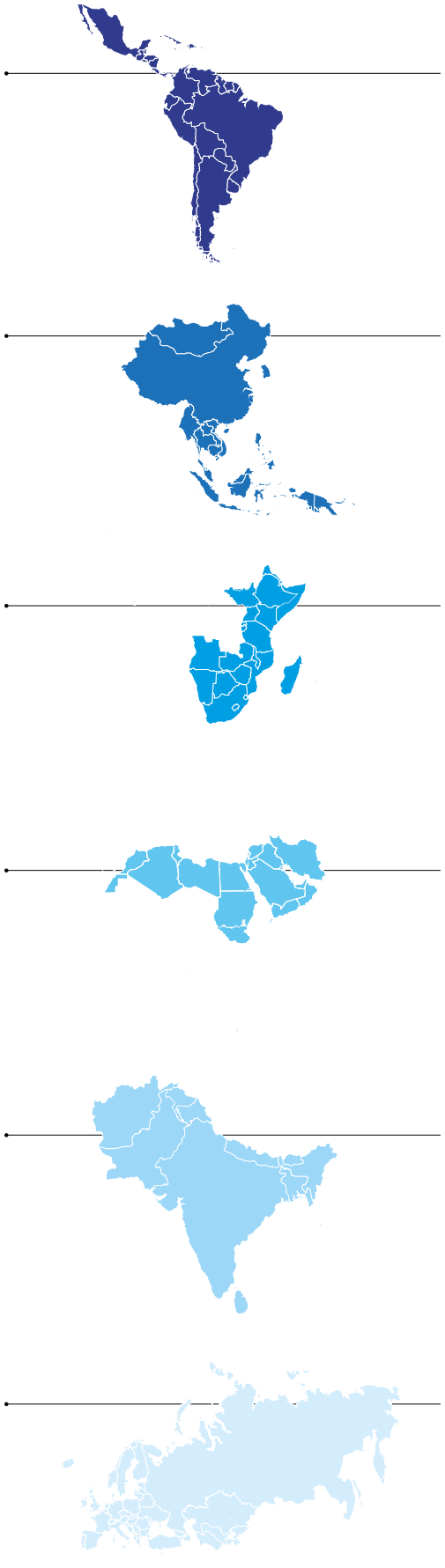
The global CBA suggests that **each modelled intervention would offer greater economic benefits relative to its implementation costs.**

The school-based CBT intervention averted approximately US$343 million in lifetime wage loss, globally. Comparing this benefit to the implementation cost produces expected benefits of US$57 per US$1 invested (Figure 4, Table 4). Across regions, the highest BCR would be in Sub-Saharan Africa (BCR US$269:US$1). This is followed by South Asia (BCR US$192:US$1), and those in Europe and Central Asia would gain the fewest benefits per US$1 invested from the intervention (BCR US$6:US$1). Countries categorized as very high risk by the INFORM index would accrue the greatest amount of benefit per US$1 invested from the school-based CBT intervention (BCR US$185:US$1) (Figure 5; Table 5).

The school-based SEL intervention is expected to avert approximately US$6.4 billion in lifetime earning loss at a total implementation cost of US$28.6 million, globally. This would result in US$225 in benefits per US$1 invested. Across regions, the highest BCR would be in Latin America and the Caribbean (BCR US$521:US$1). This is followed by East Asia and the Pacific (BCR US$431:US$1), and the lowest BCR would be in Sub-Saharan Africa (BCR US$98:US$1). Countries categorized as medium risk by the INFORM index would gain the greatest benefit per US$1 invested (BCR US$420:US$1).

The community-based group therapy intervention for out-of-school children and adolescents is expected to avert approximately US$17.4 billion in lifetime earning loss at a total implementation cost of US$442 million, globally. This would result in US$39 in benefits per US$1 invested. Across regions, the highest BCR would be in Latin America and the Caribbean (BCR US$132:US$1). This is followed by Europe and Central Asia (BCR US$121:US$1), and the lowest BCR would be in Sub-Saharan Africa (BCR US$11:US$1). The highest benefits accrue in high risk countries on the INFORM index (BCR US$88:US$1).

Figure 4.
MHPSS intervention benefit-cost ratio by UNICEF region (2022 US$)
[benefit-cost ratios greater than 1 denote benefits outweigh the costs.]



Latin America and Caribbean

135 School-based group CBT
521 School-based SEL education
132 Community-based group therapy

East Asia and Pacific

108 School-based group CBT
431 School-based SEL education
45 Community-based group therapy

Sub-Saharan Africa

269 School-based group CBT
98 School-based SEL education
11 Community-based group therapy

Middle East and North Africa

176 School-based group CBT
273 School-based SEL education
20 Community-based group therapy

South Asia

192 School-based group CBT
299 School-based SEL education
26 Community-based group therapy

Europe and Central Asia

6 School-based group CBT
393 School-based SEL education
121 Community-based group therapy

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.

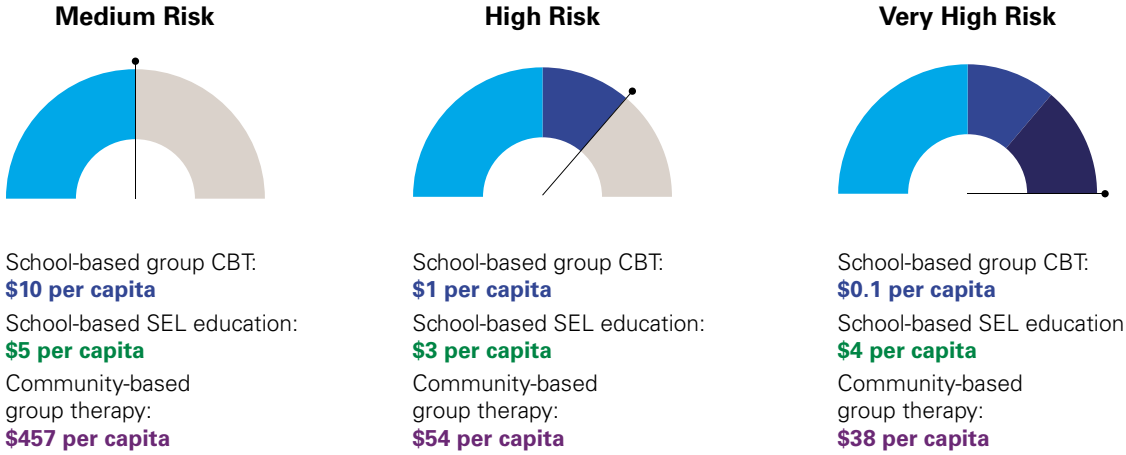
Table 6: Intervention benefit-cost ratio and net benefits by UNICEF region

Region	Latin America and the Caribbean (N=6)		Sub-Saharan Africa (N=25)		East Asia and the Pacific (N=5)		Europe and Central Asia (N=5)		South Asia (N=4)		Middle East and North Africa (N=7)	
	BCR	Net benefits	BCR	Net benefits	BCR	Net benefits	BCR	Net benefits	BCR	Net benefits	BCR	Net benefits
		US$, million		US$, million		US$, million		US$, million		US$, million		US$, million
School-based group CBT	135	169	269	48	108	8	6	31	192	21	176	104
School-based SEL education	521	2.137	98	1.669	431	92	393	762	299	428	273	2.087
Community-based group therapy	132	7.382	11	1.348	45	329	121	5.218	26	954	20	4.482

Table 7: Intervention benefit-cost ratio and net benefits by INFORM Risk Index class

Risk class	Medium (N=16)		High (N=17)		Very high (N=19)	
	BCR	Net benefits	BCR	Net benefits	BCR	Net benefits
		US$, millions		US$, millions		US$, millions
School-based group CBT	10	27	75	174	185	142
School-based SEL education	420	633	419	2,420	158	3,364
Community-based group therapy	28	3,688	88	8,078	26	5,619

Figure 5. **MHPSS intervention benefit-cost ratio by INFORM Risk Index class (2022 US$)** [benefit-cost ratios greater than 1 denote benefits outweigh the costs.]



Key findings

Failing to address the mental health and psychosocial needs of 10–17-year-old children and adolescents affected by humanitarian emergencies would result in the equivalent of a global **US$203 billion loss of potential lifetime earnings (US$ 2022).**

Countries classified as very high risk on the INFORM Risk Index would experience the highest economic costs, losing about **US$106 billion in lifetime earnings among both those affected and forcibly displaced and those affected but not forcibly displaced.**

Due to the number of countries and size of the affected population at risk for both natural and human-made humanitarian crises, **Sub-Saharan Africa would experience the highest losses in lifetime earnings (US$111.6 billion).**

The economic benefits of investing in mental health and psychosocial support (MHPSS) across the mental health continuum **strongly outweigh the implementation costs.**

School-based social emotional learning skills education offers a particularly **strong benefit-cost ratio across all countries at risk for humanitarian emergencies.**

Summary

In 2022, an estimated 151 million children and adolescents aged 10–17 years were affected by humanitarian emergencies in the 66 countries at medium to very high levels of risk for future emergencies. This underscores the urgent need to address the impact upon child and adolescent mental health and psychosocial wellbeing.[64] MHPSS interventions improve child and adolescent mental health and psychosocial wellbeing and learning outcomes and translate into individual and social economic benefits over the productive period of an individual's lifespan.

However, until now there has been an evidence gap around the quantifiable costs and benefits of implementing these interventions in learning environments; this is critical information for government and international donor decisions on priorities and resource allocation. To address this gap, the global CBA has calculated the cost of poor mental health and socio-emotional well-being among children and adolescents affected by humanitarian emergencies. It also illustrates the impact of implementing MHPSS interventions in humanitarian emergencies by quantifying the costs and benefits of implementing MHPSS for internally displaced children and adolescents. The findings constitute clear evidence for action.

Firstly, the cost of the impact of humanitarian emergencies on children and adolescents, both forcibly displaced and not displaced, is equivalent to a global loss of US$203 billion in potential lifetime earnings. Countries classified by the INFORM Risk Index as very high and high risk for humanitarian emergencies account for three-quarters (75 per cent) of the total economic cost. Crisis-affected children and adolescents in sub-Saharan Africa, the region with the highest number of countries affected by crises in 2022, would experience 49 per cent of these total lifetime economic losses.

The global CBA considered a diverse set of complementary MHPSS interventions that target various points across the care continuum including mental health promotion, preventing poor mental health, and providing care for people with poor mental health. The CBA found that each type of intervention had a strong benefit-cost ratio across every global region and among countries whose risk of humanitarian emergency ranges from medium through to very high. The school-based SEL educational programme had a particularly strong benefit-cost ratio across INFORM Risk Index classes and regions. This is due not only to the intervention's affordability (school-based interventions can be integrated into a pre-existing system) but also to the effectiveness of social and emotional education for improving psychosocial wellbeing and the direct link this has to improved economic outcomes.

Recommendations

- Investment in interventions in education settings that promote the mental health and psychosocial wellbeing of children and adolescents should be a **high priority** to avert adverse downstream impacts on education and future economic outcomes.

- **School-based social emotional learning skills education offer a particularly strong benefit-cost ratio** and should be a priority to promote mental health resilience among children and adolescents in countries at medium to very high risk of emergencies. Complementary mental health promotion, prevention, and treatment interventions should respond to the diversity of children's and adolescents' mental health needs.

- **Interventions in education settings that address mental health conditions and prevent their exacerbation deliver direct benefits** by reducing the overall burden of disease; and investing in such interventions likely also reduces healthcare expenditures and social losses attributable to premature mortality and years lived with disability.

- **Marginalized groups** such as refugees, children and adolescents on the move, children and adolescents with disabilities, those living with HIV, and survivors of gender-based violence **should be prioritized when delivering interventions**.

- The **capacities of MHPSS facilitators should be upscaled and strengthened**; teachers, school staff, and MHPSS professional staff should be trained to give learners adequate support for their mental health and psychosocial wellbeing. **Frontline responders should also receive appropriate care for their own mental health needs**.

The global CBS identified important areas for future research:

* While global patterns offer guidance for international priorities, country-specific CBAs based on a tailored set of interventions will identify the most cost-effective support for learners in specific national contexts.

* Evidence of effective MHPSS interventions for children aged under 10 (particularly during early childhood) is sparse in humanitarian settings. Interventions that address the needs of this age group should be piloted and evaluated to inform future analysis and identify appropriate and cost-effective interventions for different contexts.

* There is limited evidence about the effectiveness of MHPSS interventions in non-formal education settings outside schools is limited. It is recommended therefore to pilot robust interventions evaluations to enable a future CBA to consider the contribution of non-formal education to MHPSS and education outcomes.

Annex

List of countries included in the global CBA

Country	INFORM Risk Index level	UNICEF region	Included in cost of inaction	Included in intervention CBA
			X = Yes	X = Yes
Afghanistan	Very high	South Asia	X	X
Algeria	Medium	Middle East and North Africa	X	-
Angola	Medium	Sub-Saharan Africa	X	-
Azerbaijan	High	Europe and Central Asia	-	X
Bangladesh	High	South Asia	X	X
Benin	Medium	Sub-Saharan Africa	-	X
Bosnia and Herzegovina	Medium	Europe and Central Asia	-	X
Brazil	Medium	Latin America and Caribbean	X	-
Burkina Faso	Very high	Sub-Saharan Africa	X	X
Burundi	High	Sub-Saharan Africa	X	X
Cameroon	Very high	Sub-Saharan Africa	X	X
Central African Republic	Very high	Sub-Saharan Africa	X	-
Chad	Very high	Sub-Saharan Africa	X	X
Colombia	High	Latin America and Caribbean	X	X
Congo	High	Sub-Saharan Africa	X	X
Cote d'Ivoire	Medium	Sub-Saharan Africa	-	X
Dem. Rep. of the Congo	Very high	Sub-Saharan Africa	X	X
Djibouti	Medium	Sub-Saharan Africa	X	-
Dominican Rep	Medium	Latin America and Caribbean	X	-
Ecuador	Medium	Latin America and Caribbean	X	-
Egypt	Medium	Middle East and North Africa	X	X
El Salvador	Medium	Latin America and Caribbean	X	-
Eritrea	High	Sub-Saharan Africa	X	-
Ethiopia	Very high	Sub-Saharan Africa	X	X
Ghana	Medium	Sub-Saharan Africa	-	X
Guatemala	High	Latin America and Caribbean	X	X
Haiti	Very high	Latin America and Caribbean	X	X
Honduras	High	Latin America and Caribbean	X	X
India	High	South Asia	X	X
Indonesia	Medium	East Asia and Pacific	X	X
Iran	High	Middle East and North Africa	X	-
Iraq	Very high	Middle East and North Africa	X	X
Jordan	Medium	Middle East and North Africa	X	-
Kenya	Very high	Sub-Saharan Africa	X	X
Lebanon	Medium	Middle East and North Africa	X	X

Country	INFORM Risk Index level	UNICEF region	Included in cost of inaction	Included in intervention CBA
			X = Yes	X = Yes
Lesotho	Medium	Sub-Saharan Africa	X	-
Libya	High	Middle East and North Africa	X	X
Madagascar	High	Sub-Saharan Africa	X	X
Malawi	Medium	Sub-Saharan Africa	X	X
Mali	Very high	Sub-Saharan Africa	X	X
Mauritania	Medium	Sub-Saharan Africa	X	-
Mexico	High	Latin America and Caribbean	X	X
Morocco	Medium	Middle East and North Africa	X	-
Mozambique	Very high	Sub-Saharan Africa	X	X
Myanmar	Very high	East Asia and Pacific	X	X
Namibia	Medium	Sub-Saharan Africa	X	-
Nicaragua	Medium	Latin America and Caribbean	X	-
Niger	Very high	Sub-Saharan Africa	X	X
Nigeria	High	Sub-Saharan Africa	X	X
North Korea	High	East Asia and Pacific	X	-
Pakistan	High	South Asia	X	X
Palestinian Territories	Medium	Middle East and North Africa	X	X
Panama	Medium	Latin America and Caribbean	X	-
Papua New Guinea	High	East Asia and Pacific	X	X
Peru	Medium	Latin America and Caribbean	X	X
Philippines	High	East Asia and Pacific	X	X
Russian Federation	Medium	Europe and Central Asia	-	X
Rwanda	Medium	Sub-Saharan Africa	X	-
Senegal	Medium	Sub-Saharan Africa	X	X
Sierra Leone	Medium	Sub-Saharan Africa	-	X
Somalia	Very high	Sub-Saharan Africa	X	X
South Africa	High	Sub-Saharan Africa	-	X
South Sudan	Very high	Sub-Saharan Africa	X	X
Sudan	Very high	Sub-Saharan Africa	X	X
Syrian Arab Republic	Very high	Middle East and North Africa	X	X
Tanzania	High	Sub-Saharan Africa	X	-
Thailand	Medium	East Asia and Pacific	-	X
Togo	Medium	Sub-Saharan Africa	-	X
Turkiye	Medium	Europe and Central Asia	X	X
Uganda	Very high	Sub-Saharan Africa	X	X
Ukraine	High	Europe and Central Asia	X	X
Vanuatu	Medium	East Asia and Pacific	X	-
Venezuela	High	Latin America and Caribbean	X	-
Yemen	Very high	Middle East and North Africa	X	X
Zambia	Medium	Sub-Saharan Africa	X	-
Zimbabwe	Medium	Sub-Saharan Africa	X	-

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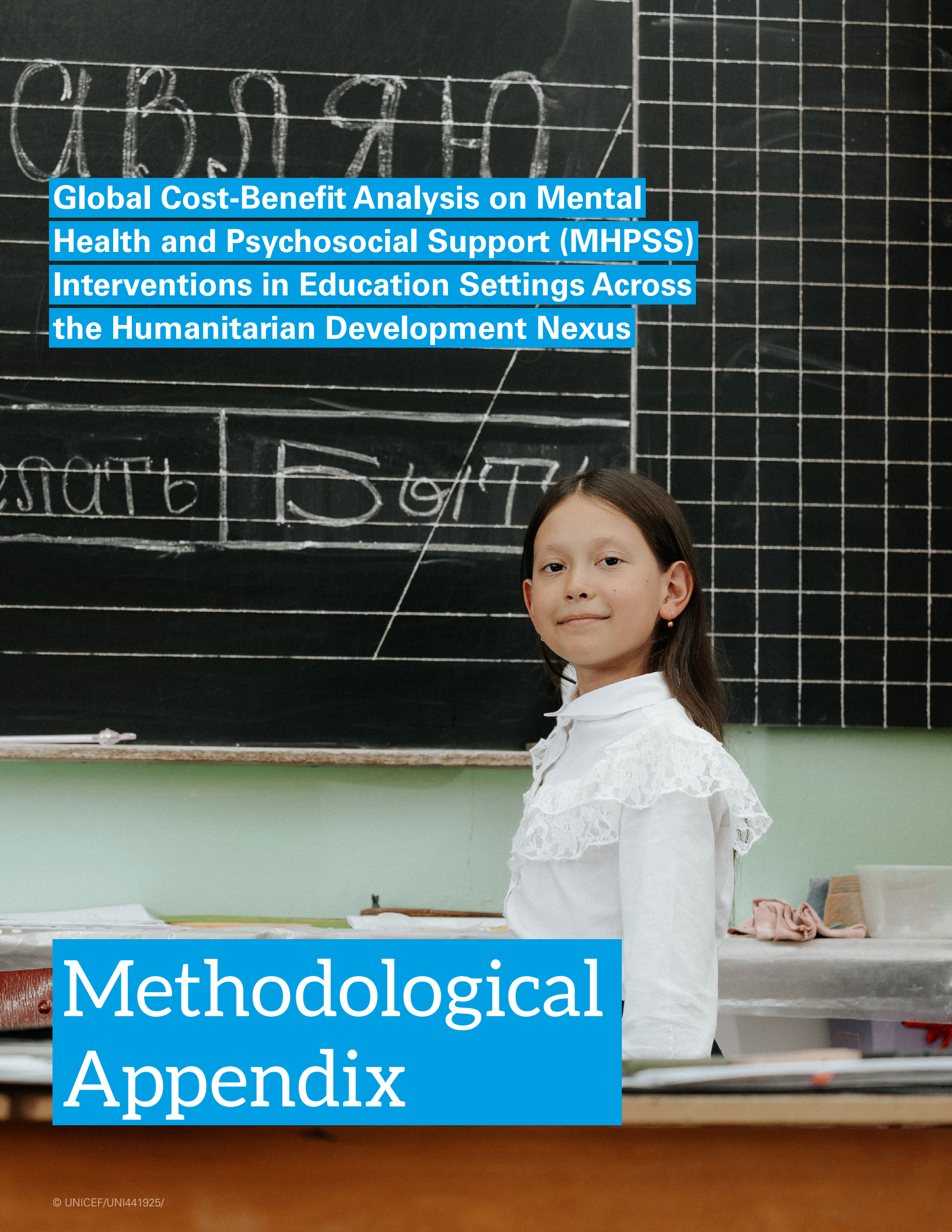

Global Cost-Benefit Analysis on Mental Health and Psychosocial Support (MHPSS) Interventions in Education Settings Across the Humanitarian Development Nexus

Methodological Appendix

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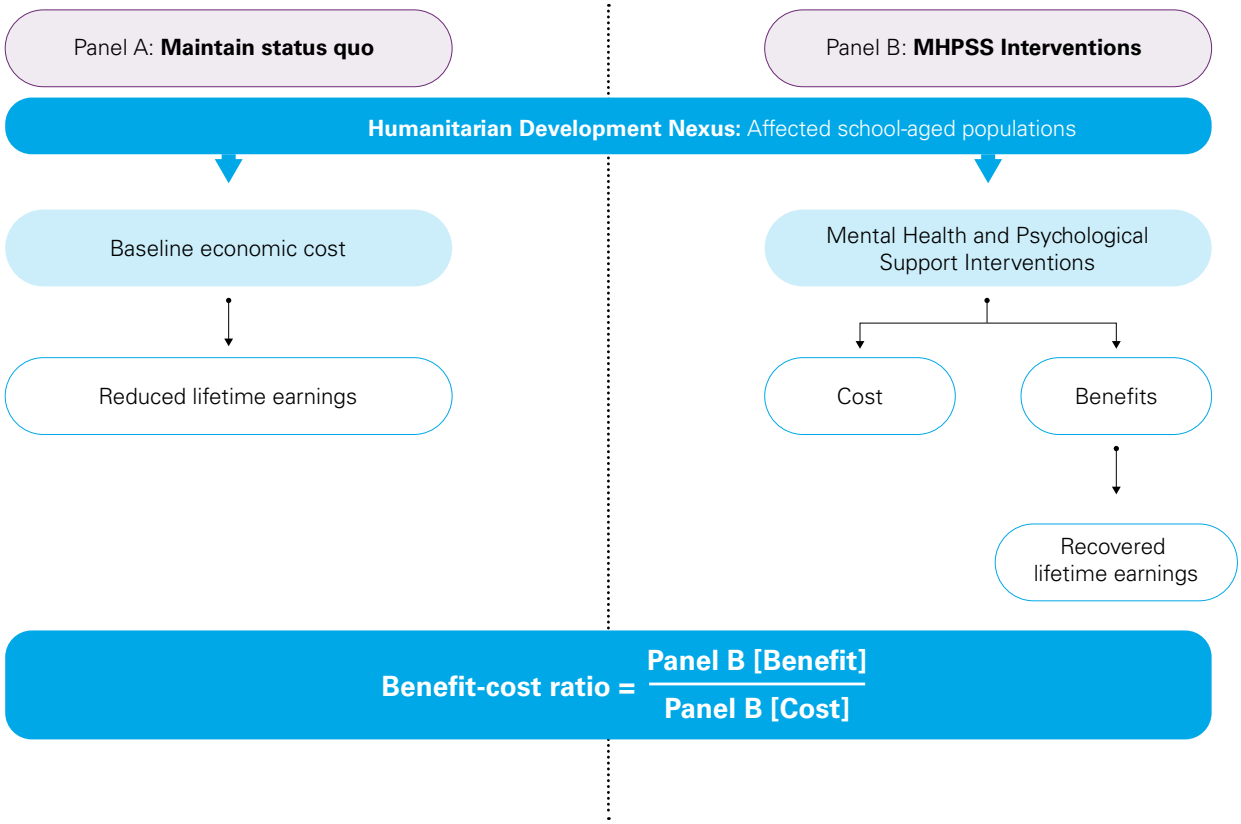
Overview

Mental health and psychosocial support (MHPSS) interventions have been shown to have positive impacts on a range of outcomes for children and adolescents in educational settings that include but are not limited to mental well-being, social-emotional (SE) skills, and school attendance.[1] Compared to the general population, people affected by humanitarian emergencies experience a higher burden of mental illness which is associated with lower likelihood of school enrolment and poor social and emotional skills, and they experience unique barriers to psychosocial development [2–4]. Additional measures are needed to reduce the impacts of humanitarian emergencies on the mental health of affected young people. The effects of good mental health and, conversely, of mental health conditions on level of education achieved and earning potential is well-documented, and there is likewise evidence linking earning potential to quality of education based on cognitive and noncognitive measures.[5,6]Noncognitive learning outcomes such as social-emotional learning (SEL) are considered crucial to an individual's well-being and educational achievement.[7] We estimate the economic costs and benefits (Figure 1) of MHPPS interventions on young people following an emergency.

Figure 1.
Concept diagram



Part 1: Economic burden of humanitarian emergencies

The economic burden of humanitarian emergencies was examined through its effect on mental health and, in turn, on education and SE skills for 10–17-year-old children and adolescents in 66 countries who were experiencing or at risk of humanitarian crisis. The economic burden analysis is also considered to be the 'cost of inaction' or the cost of maintaining the status quo (Figure 1: Panel A).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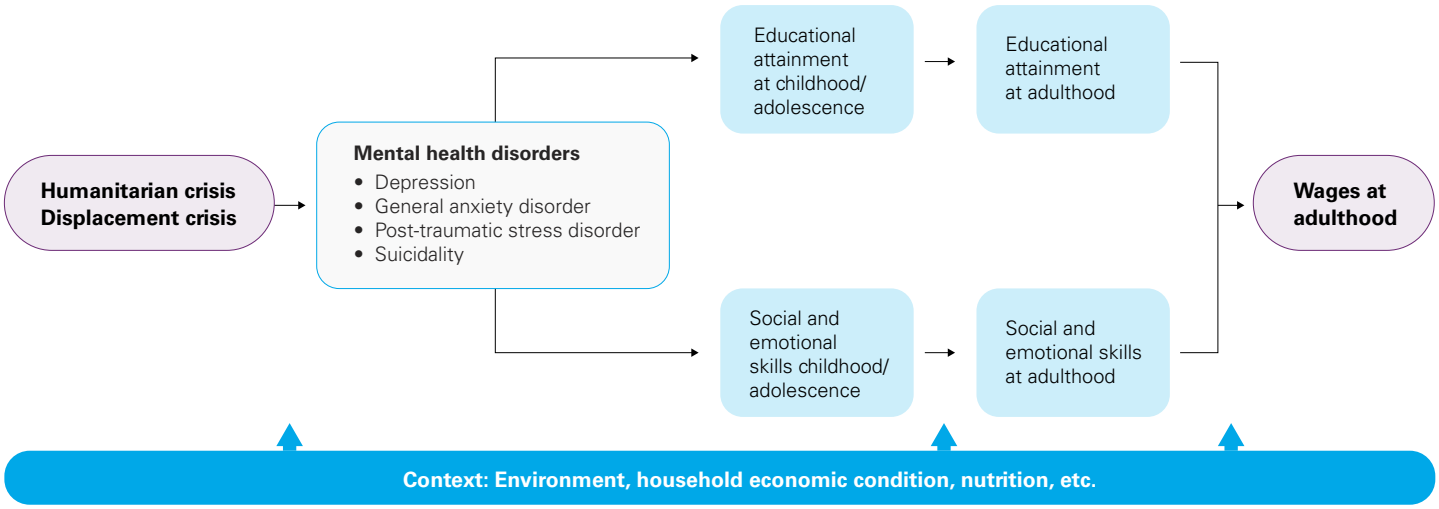
We used a human capital approach to estimate the lifetime earning loss expected of a child/adolescent who is dtiagnosed with mental ill health as a result of a humanitarian emergency and has suboptimal educational outcomes and social and emotional skills (Figure 1). Suboptimal education is estimated as lower primary and secondary school enrolment and completion rates. This effect through suboptimal educational and SE outcomes is considered to be the 'humanitarian emergency effect' and is estimated as follows:

$$Ce = rEdu_i + \sigma SE_i \quad (1)$$

where Ce is the emergency effect, defined as the effect of a humanitarian emergency on mental health and in turn education and SE skills; r is the economic returns from improved education (Edu) for child/adolescent i; σ is the returns per unit increase in SE scores for child/adolescent i. Based on the presence of mental health conditions in a child/adolescent, we assume that they would experience suboptimal schooling and have less well-developed SE skills. This assumption was informed by a systematic review of 33 studies which confirmed a prevailing consensus that SE skill development and programmes have an important role in educational attainment.[8] To arrive at the total earning loss, we added the loss through poor education and SE skills. More details of the parameters used can be found in Appendix A.

Figure 2:
Human capital cost pathways in humanitarian emergencies



The model estimates an individual's potential lifetime earnings based on their school completion and SE skills. Without additional intervention, children affected by emergencies generally have lower levels of school enrolment and completion and weaker SE skills that may be attributed to mental ill health.[3] Accounting for the fact that wages and employment rate differ based on school completion, SE skills and sex, and adjusting for the mediating role of mental health conditions, the model is able to estimate a population's lifetime earnings across different emergency contexts (Figure 3). This strategy, used to estimate an individual's potential lifetime earnings, focuses on the quantitative features of 'learning poverty', an indicator used to capture the level of both schooling and learning and whether all children are able to acquire meaningful skills.[9]

To estimate the economic cost across humanitarian emergencies, the model estimated the potential reduction in lifetime earnings of children and adolescents who have been affected by a humanitarian emergency (e.g., IDPs, refugees, asylum seekers, as well as those affected but not forcibly displaced). No new MHPSS interventions were introduced in this scenario. This reduction was estimated through school completion and SE skills deficits among those who were affected by humanitarian emergencies and diagnosed with a mental health condition in countries exposed to various levels of risk for future emergencies (e.g., medium, high, and very high risk) based on the INFORM Risk Index. The model assumes that the global average age of retirement is 65 years.

All lifetime earnings are enumerated in 2022 US$, and future earnings are discounted at a rate of three per cent.[10,11]

Since not all affected people will be diagnosed with mental ill health and not all people with a mental ill health diagnosis would drop out of school nor have a poor SE skill score, we adjusted the total number of affect populations. We used the 22.1 per cent pooled and adjusted prevalence of mental ill health in conflict settings from Charlson et al. (2019)[12] and estimated school dropout rates for affected populations using school enrolment and dropout rates for IDPs.


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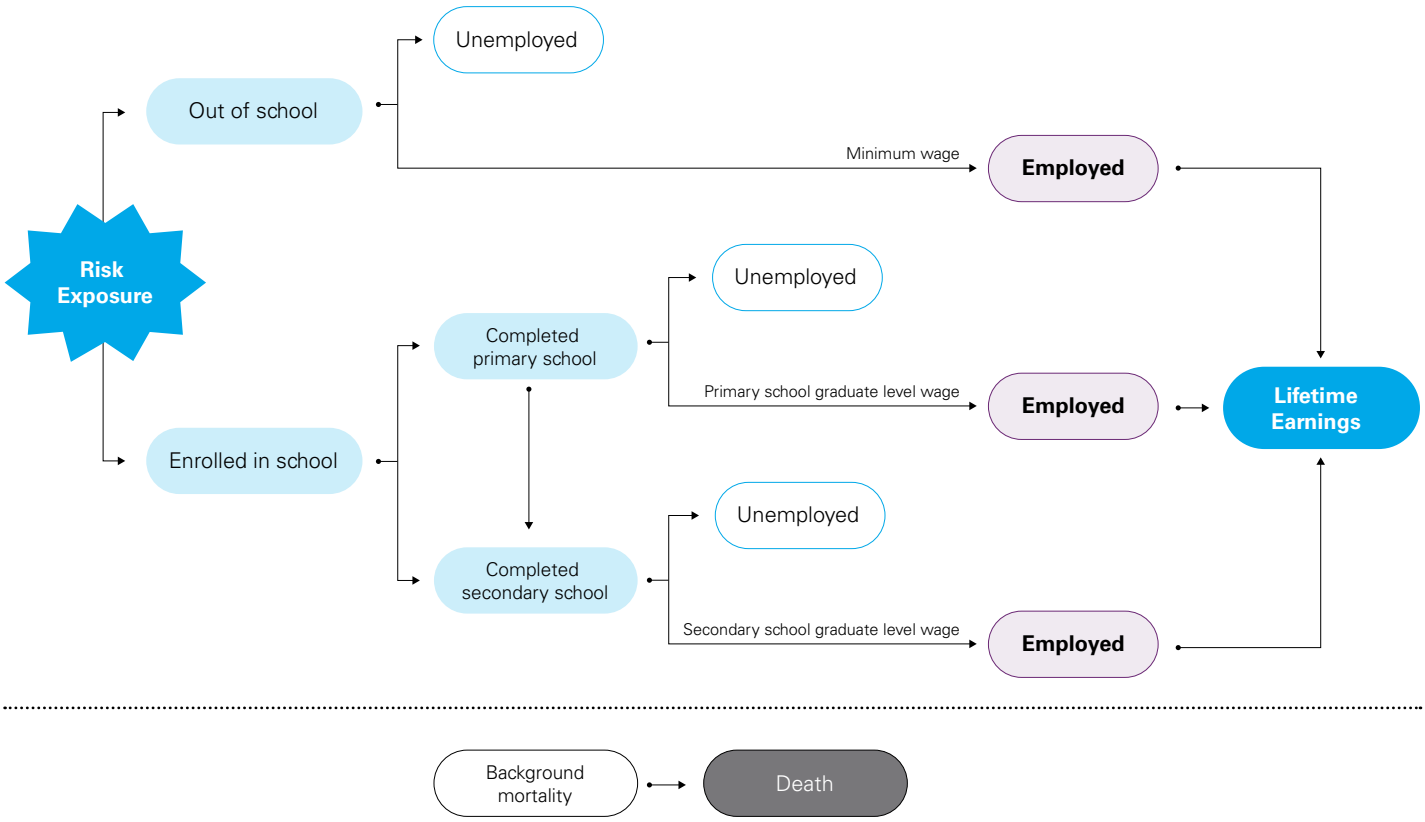
Figure 3.
Pathway to lifetime earnings



The parameters identified for estimating the magnitude and direction of the effect of a humanitarian emergency on mental health, education and SE skills were calculated for internally displaced populations (IDPs). Hence, the model was adjusted to reflect the effect of a humanitarian emergency upon other affected populations. The two broad categories of populations included in the analysis were those affected by humanitarian emergency: that is, (1) crisis-affected and forcibly displaced (CAFD) populations, which include internally displaced people (IDPs) and externally displaced populations (refugees and asylum seekers); and (2) crisis-affected but not forcibly displaced (ANFD) populations, including local populations who are affected by the humanitarian context but are not forcibly displaced. In 2022, about 151 million children and adolescents aged 10–17 years were affected by humanitarian emergencies in the 66 countries included in the study.[4*]

To include these broader populations, the analysis first assumed that the magnitude and direction of the effect of a humanitarian emergency upon IDPs was reflective of the experience of other AFD populations (refugees and asylum seekers). This assumption is conservative since there is evidence to suggest that the economic cost per externally displaced person (refugees and asylum seekers) is higher than that of an IDP.[14] Using this approach, we were able to apply the estimated lifetime earning loss per IDP to all AFDs with outcome of interest.

The analysis used a **multiplier** to extrapolate the lifetime wage loss for an AFD child/adolescent to that of an ANFD child/adolescent who experienced poor school completion and SE skills due to mental ill health attributable to a humanitarian emergency. We conducted a scoping review of existing literature to identify estimates of: (1) the difference in wage between AFDs and local populations; and (2) the difference in economic burden through education and SE skills between internally and externally displaced populations and

* Of the 224 million school-age children affected by crisis situations in 2023, 151 million are aged 10–17, and an estimated 33.4 million, or 22 per cent, live with a mental health condition.[13]

between AFDs and ANFDs. We also searched for evidence of a moderating or interacting effect of mental ill health. The literature on these topics was limited and not fully robust, hence we relied on ***best available estimates*** for inclusion in the model.

The International Labor Organization (ILO) found that migrants, including refugees and asylum seekers, earn a median wage approximately 16.1 per cent lower than nationals in a sample of 33 high income countries.[15] Further, the study found that in Gambia, unskilled migrant workers earn approximately 45 per cent less than nationals.[15] Further, according to the UNHCR and World Bank Global Cost of Inclusive Refugee Education report, educating a refugee child/adolescent costs 20 per cent more than the cost for nationals.[16]

To apply these parameters to ANFD populations, we made some assumptions. We assumed that the wage gap between nationals and migrants (including refugees) would reflect the wage gap between all AFDs and ANFDs. Since the effect of suboptimal education and SE skill is estimated through lower lifetime wages, we applied the wage difference to suggest that lifetime wages for ANFD populations would be 16.1 per cent lower than that of AFDs.

To determine the share of affected populations and the proportions that were AFD, or affected but not forcibly displaced, we relied on estimates from the 2023 Education Cannot Wait (ECW) report (see Appendix A for summary of the parameters used in the modelling).[13]

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Part 2: Intervention impact and cost-benefit analysis

MHPPS interventions

The cost and benefits of investing in MHPSS interventions at scale illustrates the investment scenario of the global cost-benefit analysis (Figure 1: Panel B). The subpopulation of IDPs in 52 countries was used as an illustrative example based on stronger data availability for this subpopulation compared to other subpopulations within the wider population that is affected by emergencies. Applied to the subpopulation, the MHPSS interventions are projected to reduce education deficits and improve mental health and psychosocial well-being among IDPs and, in turn, prevent future earning loss due to humanitarian emergencies.

According to the Inter-Agency Standing Committee of the United Nations Office for the Coordination of Humanitarian Affairs, mental health and psychosocial support (MHPSS) interventions are interventions that aim to promote mental health and well-being and/or to prevent and respond to the mental health conditions.[17] The importance of the protecting and promoting mental health and psychosocial well-being in children is included across all five goals in the United Nations Children's Fund (UNICEF) 2022–2025 strategic plan with the ultimate aim of achieving the 2030 Sustainable Development Goals.[18] While MHPSS interventions are commonly integrated across development contexts and a wide array of sectors, including health, social welfare and child protection, education, adolescent development participation, and early childhood development, MHPSS interventions are also used in situations where people have experienced natural disasters, conflicts, violence or other traumatic events that can lead to significant psychological distress, such as anxiety, depression, post-traumatic stress disorder (PTSD), among other mental health conditions. People exposed to emergency situations are especially vulnerable. It is known that IDPs as a group face disparate and reduced access to education as well as other basic needs.[3] MHPSS interventions may be delivered by school personnel, mental health professionals, social workers, or other trained personnel who have experience in working with people who have experienced psychological distress. Overall, the aim of interventions is to improve resilience, coping skills, and social support to help people recover from the effects of exposure to traumatic events and adversity, and lead productive and fulfilling lives. The three unique programmes evaluated align with the aims of MHPSS interventions as a whole and are also designed primarily for educational settings; one is designed to reach young people not in education.

Intervention summaries

The MHPSS interventions in the analysis were identified through a comprehensive review of peer-reviewed literature. Interventions were included in the Global CBA if they focused on school-aged children and adolescents (ages 5–18), described costs per person, and the effect sizes are known. Interventions implemented in education settings were prioritized. The interventions that matched these inclusion criteria focused on children and adolescents between the ages of 10–17 as there was limited evidence on the impact of interventions between ages 5–10. To reflect the nuances in implementing proposed interventions in each country, an activity-based costing used details of activities engaged in implementing each intervention.

Table 1: Summary of modelled interventions

No.	Description	Setting	Target Population	Health Continuum	Outcomes Modelled*	Source
1	**Group-based cognitive behavioural therapy sessions delivered in schools to those with depression symptoms**	Formal education	IDPs aged 12–17 with depression symptoms and enrolled in secondary school	Indicated prevention	Beck depression inventory (BDI)	Ssegonja et al. 2019[19]
2	**NIMHANS Model Life Skills Education Program delivered by trained teachers over one academic school year and designed to promote psychosocial skills and positive behaviour**	Formal education	IDPs aged 10–17 enrolled in primary or in secondary schoo	Promotion	Rosenberg Scale of Self-Esteem	Srikala et al. 2010[20]
3	**Youth Readiness programme delivered by community health workers to war-affected adolescents aimed at improving symptoms of psychological distress**	Community-based	IDPs aged 10–17 enrolled in neither primary nor secondary school	Treatment	School enrolment	McBain et al. 2016[1]

* Other outcomes measured in study, but not included in the model, are as follows.
Intervention 1: Children's Depression Inventory, K-SADS. | Intervention 2: Preadolescent Adjustment Scale, Generalized Self-Efficacy Scale, Strengths and Difficulties Questionnaire. | Intervention 3: Functional Impairment, Internalizing (Depression & Anxiety), Externalizing (Aggression & Hostility), Emotional Regulation, Adaptive Behavior, School Attendance, and Classroom Performance.

Intervention 1

The school-based cognitive behavioural therapy (school-based CBT) intervention addresses mental health by way of depression. In a meta-analysis of school-based group CBT interventions, Ssegonja et al. (2019) point to the benefits of this form of indicated prevention for adolescents with depression symptoms. The costing components necessary to school-based CBT interventions replicate the components and quantities used in a school-based CBT programme recently implemented in Sweden.[19] Depression in adolescence is linked to educational attainment through increased odds of dropping out.

Intervention 2

The school-based social and emotional learning (school-based SEL) intervention targets SE skills for in-school children and adolescents. In 2010, Srikala et al. implemented a school-based Life Skills Education Program (NIMHANS) to promote adolescents' self-esteem and self-efficacy, among other proxies for psychosocial well-being, through teacher-delivered sessions.[20] Isolating the impact of SE on future earnings is complex to navigate due to covariates such as academic achievement and overall educational attainment. Belfield et al. (2015) examine the feasibility of independently evaluating SE skills and labour market outcomes, suggesting the shadow pricing method to control for great variation in measures of SE.[5] SE encompasses five components of emotional intelligence outlined by Daniel Goldman and referenced by UNICEF as emotional self-awareness, self-regulation, empathy, motivation, and social skills.[18] The lack of a gold-standard measurement tool which can encompass all aspects of psychosocial and emotional skills, and the subsequent lack of any baseline population standard, means that a specific attribute of SE must be utilized. Specifically, self-esteem is an outcome measured in adolescents who receive this intervention using the Rosenberg Self-Esteem Scale, which is the same measurement tool used by Eren et al. (2013) to estimate the impact of improvements in self-esteem (non-cognitive abilities) over time on expected earnings.[21] Using the shadow pricing method, a direct link between increases in self-esteem after an intervention are assumed to have a positive impact on earnings; the quantification of benefits circumvents covariates such as educational attainment or achievement.

Intervention 3

The community-based group therapy intervention is based on evidence from a randomized controlled trial in which community health workers provided a Youth Readiness intervention for out-of-school adolescents who were exposed to war and violence in Sierra Leone.[1] The study cohort (aged 15 to 24) received group-based therapy sessions from community health workers, with various targeted outcomes such as improved mental well-being and increased school enrolment. While benefits reported by study authors extend beyond school enrolment, the model uses this effect in isolation from other ancillary benefits to avoid conflating or double-counting interactive causal pathways.

Input sources

To generate a representative global scope for analysis, the breadth of geographic scope for the intervention CBA is first limited to the number of countries with demographic data available for IDPs and which had more than eight total IDPs between ages 10 and 17 for each sex in 2019, and had an INFORM risk classification of medium, high or very high. The population demographic data is accessible through the United Nations Refugee Agency database. Of the countries listed, Tunisia, Bolivia, and North Macedonia were removed due to having too small a starting population size; Cyprus, Georgia and Sri Lanka were removed as they had an INFORM risk classification of low. The UNHCR reports IDPs separately but alongside population figures for other categories of forcibly displaced populations such as stateless people, returnees, refugees, asylum seekers, and 'other people in need of international protection'. The total number of IDPs disaggregated by sex and age group presented by the UNHCR includes people totalled in the stagnant 'stock' measure reported at the end of each year by the Internal Displacement Monitoring Centre (IDMC) *who are also included* in the total population that the UNHCR is mandated to protect and assist.[22] The estimate for UNHCR data in 2019 is therefore slightly smaller than the total figure presented by the IDMC. Wherever feasible, country-age-sex level of detail is prioritized, but data imputations are necessary to accommodate missing granularities among various input sources required to generate each country-sex-age triad. A detailed description of specific data imputations made is provided in the appendix. The data repositories accessed for modelling purposes are listed in Table 2.

Table 2: Data repositories

Input parameters	Database	Definition
IDP population in 2019 by country, age group, and sex	UNHCR (IDMC)[23]	Selected only IDPs of concern to UNHCR. This includes people in an IDP-like situation. The UNHCR sources data from the IMDC reported total number (stock) displaced at the end of the year with the number of IDPs *who also* fall under the total population that the UNHCR is mandated to protect.
Country total population in 2023 by single year age bands and sex	UNPD[24]	United Nations, Department of Economic and Social Affairs, Population Division (2023). World Population Prospects 2023, Online Edition. Medium-variant.
Mean nominal monthly earnings	ILO Stat[25]	Average monthly earnings of employees by sex and economic activity.
Average working days per month	ILO Stat[25]	Average working days per month, assumes an eight-hour workday.
risk level / risk class	INFORM[26]	A scoring system used to standardize overall risk between countries based on numerous factors that encompass a combination of climate-based and conflict-based events, population vulnerability, and coping capacity. The numeric risk levels correspond with five broader risk classes ranging from very low to very high.
Employment to population ratio by age, sex, and education level	ILO Stat[25]	The employment-to-population ratio is the number of people who are employed as a percentage of the total of working-age population. Data disaggregated by highest level of education completed according to the International Standard Classification of Education (ISCED).
Regional school completion rate	UNESCO[3]	SDG Indicator 4.1.2: Percentage of a cohort of children or young people aged 3–5 years above the intended age for the last grade of each level of education who have completed that grade.
Regional school total net enrolment rate	UNESCO[3]	Total number of students in the official school age range for the given level of education who are enrolled in any level of education expressed as percentage of the population of the same age group for the given level of education.
Background mortality	WHO[27]	Overall death rate and probability of dying, by sex and age group. Data are from WHO life tables by country, available online from the World Health Organization Global Health Observatory Data Repository.

Model specification

The model follows a cohort of adolescents aged 10–17 years who are affected by an emergency event with a deterministic model projection. No new adolescents enter the model as the cohort is followed into future years. We estimate the impacts of three unique MHPSS interventions in three different projections using a human capital approach. The benefits are summarized as averted lifetime earning loss attributable to each intervention. The 52 countries included in the intervention cost-benefit analysis represent six UNICEF regions, four World Bank income levels, and three of the five

INFORM risk levels. The distribution of IDPs used in the model across countries, regions, and risk levels are presented in Figures 4a and 4b.

Each intervention only occurs once in the first year, and each intervention occurs in isolation from the others considered. The population targeted by each intervention is specified in Table 1. The model assumes 100 per cent of the target population will receive the intervention. We do not evaluate joint impacts of any combination of the interventions considered. These scenarios are modelled in isolation, and costs, benefits, and benefit-cost ratios are likewise quantified separately for each scenario. The net present value of lifetime earnings is estimated using a 3 per cent discount rate. The final model estimates are inflated to 2022 values using IMF inflation rates. Regional estimates are inflated using IMF regional inflation rates. INFORM risk level estimates are inflated using IMF global inflation rates.

As has been noted in the literature, economic analyses that examine the lifetime effects of exposures, including humanitarian emergencies and the impact of ameliorating interventions, are sensitive to a number of factors. These factors include the discount rate; the costing of interventions; assumptions regarding the magnitude of the impact; and the time horizon (i.e. duration) over which the impact and benefits are calculated.[28,29] As previously described, the analysis used a three per cent discount rate. The analysis also assumed that children and adolescents enter the workforce at age 15 and retire at age 65, thereby exiting the workforce at 64 years old. Hence, the analysis' time horizon is assumed to be 48 years.

Cost estimation

An ingredients-based costing approach is used to estimate the total cost of each intervention. Pre-implementation training costs were tallied in addition to fixed implementation costs. A full list of intervention components can be found in Appendix C. Local currency units are used for each costing ingredient and are initially inflated to 2019 where necessary (before the final model results were inflated to 2022 values). Non-traded inputs such as materials printing and IT infrastructure are adjusted using the 2019 consumer price index and converted to US$ before summing. For each country, project personnel, including training costs, are costed on a per-hour basis using mean nominal monthly wages and average working days per month.[25] The choice to use a single country-specific mean wage simplifies potential differences in salary for senior health care workers, trainees and teachers. However, this choice allows the inputting of labour costs with the wage estimate relied upon later to quantify the cohort's earning potential in their country's labour market. Interventions vary in overall duration and therefore the components are quantified and summed on a cost per adolescent, per month basis. The coverage of interventions is equivalent to 100 per cent of the target population – this assumption allows the monthly cost per adolescent measure to be scaled according to the specified targeted portion; for each intervention, this is a fraction of the entire at-risk population of IDPs. The cost is scaled by the number of IDPs targeted in the country of interest.

Cohort characteristics

For the intervention impacts and cost-benefit analysis, the study cohort includes all internally displaced people (IDPs) aged 10 to 17 in the most recent year available from the United Nations Refugee Agency (UNHCR), 2019.[22] While the net benefits are summed for this broad cohort, the three interventions selected are only appropriate for, and thus only apply to, adolescents. The target population for all three interventions is limited to those aged 10 to 17; in other words, costs are scaled to the number in this subgroup, effects are distributed among those eligible to receive the intervention and recovered lifetime earnings for intervention scenarios are only seen in these age bands. Every country with demographic data on IDPs in 2019 was included, for a total of 52 countries included in the analysis. IDPs are defined as *'people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized state border'*.[30] The UNHCR database estimates forcibly displaced population groups.

An individual's lifetime income will begin to accrue with the earliest possible productive year starting at age 15 for those who drop out of school at or before age 15. For those who

are enrolled and complete upper secondary school, the first year of income accrual will be quantified at age 18. Although the minimum legal working age in some jurisdictions may be below 18, the economic productivity of an individual who is in the proportion of out-of-school adolescents and who is not unemployed will be assumed to earn minimum wage and their economic contributions will be included in the lifetime earnings accrued in each modelling scenario. The range of secondary school duration varies from four to eight years depending on country; for the purposes of the global iteration, and to align with UNICEF school attendance data, secondary education includes children aged 12 to 17 for a total of six years. Primary school education is then defined as the first six years taught to those aged 5 through 11. Individuals are disaggregated by sex and single-year age bands. A student in the cohort is considered to have completed compulsory education if he or she is included in the fraction enrolled in the primary or secondary school during the age band's graduation year.

Figure 4a.
Geographic distribution of school-age IDPs

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.

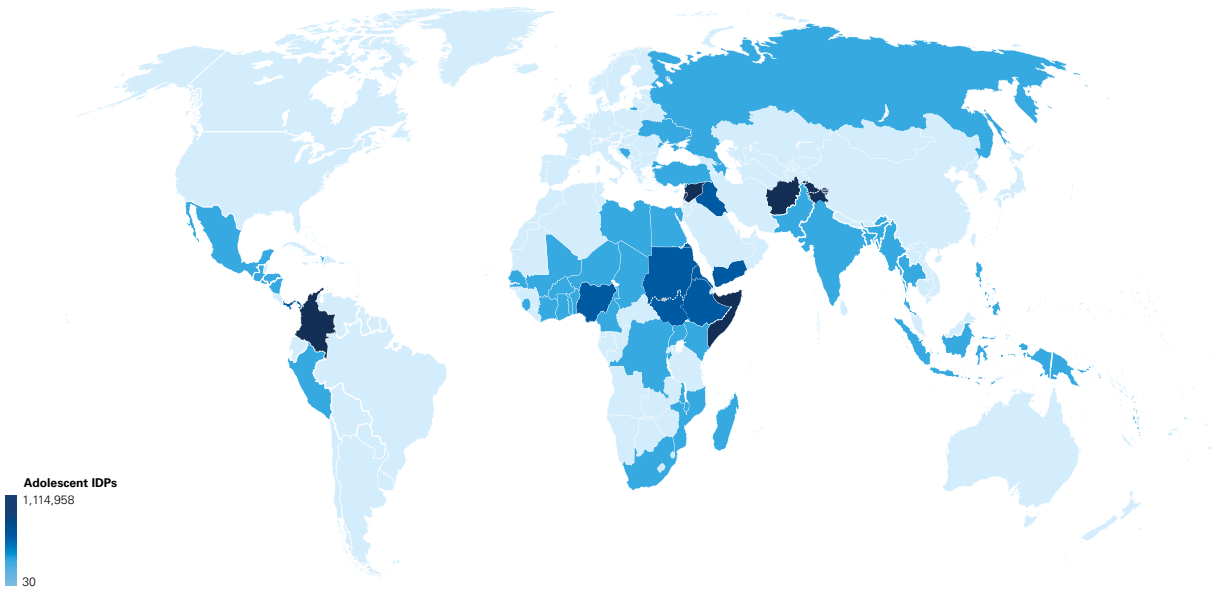

Figure 4b.
Adolescent IDPs (ages 10–17) by INFORM risk level

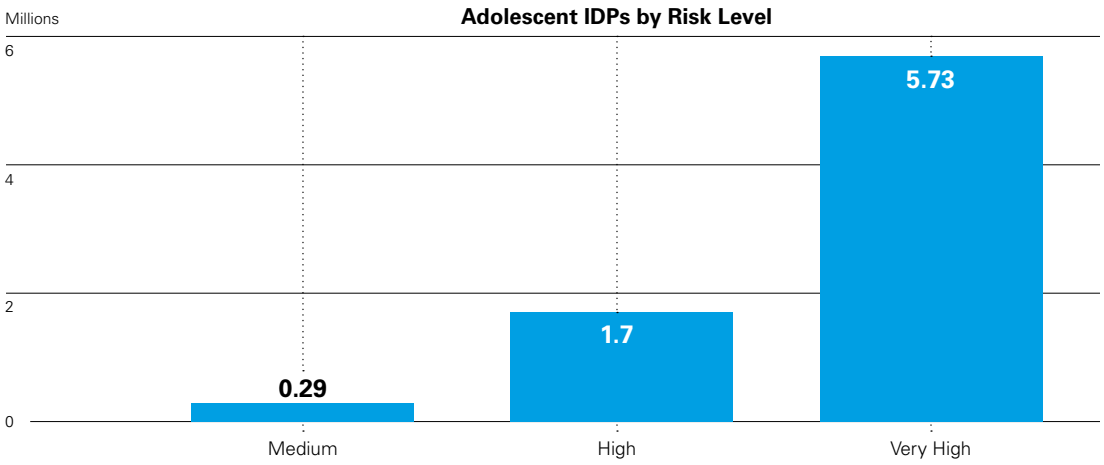

Table 3: Starting intervention cost-benefit analysis cohort by INFORM risk

Risk class	Countries	Females	Males	Total
Very high	19	2,826,147	2,908,340	5,734,487
High	17	828,070	869,212	1,697,282
Medium	16	140,386	145,431	285,817

Educational attainment

Acquiring reliable school attendance and standardizing achievement data from the 52 countries for the exposed and unexposed population is essential to understanding the reach and impact of the interventions modelled herein. Access to formal education is influenced by exposure to a climate or human-mediated emergency. Forcibly displaced children and adolescents comprise over 16 per cent of the estimated 78.2 million out-of-school children.[4] Internally displaced people (IDPs), refugees, and asylum seekers are collectively considered 'forcibly displaced', and authors of the United Nations ECW fund go on to estimate IDPs make up the majority of all forcibly displaced out-of-school children (11.1 million) compared to refugees (3.4 million) and asylum seekers (1.2 million). Formal educational settings are used to obtain years of education completed, with the acknowledgement that schools and curricula vary in quality, and that some portion of the cohort may have access to various forms of informal education in real-world scenarios. The incremental increase in an individual's earning potential attributable to the level of non-private school completed (primary and secondary) using the discounting method for low-income countries is relied upon to adjust the cohort's mean nominal wages by level of education achieved in the country of interest.[6]

To estimate the number of school-aged children who would complete each level of schooling (none, primary and secondary), the regional school completion rate is applied to each single-age group in the starting population. Regional enrolment and completion rates for the counterfactual scenario of not-at-risk individuals are detailed in Table 4.


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Table 4: School completion rates by region

Completion Rate	Primary	Lower Secondary	Upper Secondary
Europe and Northern America	0.99	0.98	0.98
Latin America and the Caribbean	0.94	0.81	0.63
Eastern and South-Eastern Asia	0.96	0.87	0.63
Central and Southern Asia	0.84	0.74	0.38
Sub-Saharan Africa	0.62	0.38	0.27
Northern Africa and Western Asia	0.85	0.68	0.42

Enrolment Rate	Primary	Lower Secondary	Upper Secondary
Europe and Northern America	0.98	0.98	0.98
Latin America and the Caribbean	0.96	0.93	0.93
Eastern and South-Eastern Asia	0.97	0.9	0.9
Central and Southern Asia	0.93	0.85	0.85
Sub-Saharan Africa	0.81	0.63	0.63
Northern Africa and Western Asia	0.91	0.86	0.86

UNICEF (2022)[31]

IDPs are likely to have lower rates of school enrolment than the general population; thus enrolment rates for the at-risk population are adjusted using the global estimate of school participation – a proxy for enrolment – in displacement camps. The proportion of IDPs estimated to participate in primary and secondary school in displacement camps are 69 per cent and 30 per cent, respectively.[2] Crucial to note is the variability of access to education among those living in displacement camps depending on the situational context. The Global Education Monitoring Report estimates suggest rates are higher among those who live in camps (45 per cent enrolment rate) and those who do not (30 per cent have access to education).[3] Since the proportion of camp-residing IDPs cannot be separated from those not living in camps in the starting cohort, the consistent 30 per cent approximation for access is used for the secondary school enrolment proxy,[3] while the conservative measure of 69 per cent is applied to those of primary school age[2].

Once an individual has graduated or is out of school and reaches working age (15), their monthly earnings begin to accrue and are summed for the cohort's economically productive years, defined here as ages 15 to 64. The 48-year projection thus begins in rounds as each graduating class enters the workforce. No new age groups are fed into the model as time passes. Instead, the predefined group is tracked over their productive years with benefits calculated for each age-sex-country triad. Employment and unemployment rates by country, gender and level of education are applied to the population using the ILO Stat database for the most recent year available to the model start year of 2019.[25] The proportion of cohort members who are expected, based on these demographics, to be employed in year one remain employed throughout the model's timeline. The minimum wage, primary and secondary school wage premiums also remain constant as scalars throughout the model's timeline.

Table 5: Economic returns to educational attainment

Parameter	Value	Source
Economic returns to education: primary, non-private	18%	Patrinos and Psacharopoulus 2020[6].
Economic returns to education: secondary, non-private	12%	Patrinos and Psacharopoulus 2020[6].

Intervention effects

School-based group cognitive behavioural therapy (CBT) intervention

Major depressive disorder (MDD) disproportionately affects refugees and asylum seekers.[32] The proportion of displaced populations with depression seems to be dependent on type of displacement, duration of displacement, country of asylum (among asylum seekers and refugees) and therefore its incidence varies, with estimates as high as 60.21 per cent among adult populations.[33] Hazard-specific impacts of climate disasters on those exposed have also been studied. For example, the prevalence of MDD and PTSD symptoms remained higher for eight years among those exposed to the 2004 Indian Ocean Tsunami.[34] Major depressive disorder is associated with an individual's lifetime earning potential.[35] The mitigative effect of depression on lifetime wages could operate through a multitude of factors and covariates, including the age of diagnosis, gender and access to treatment. The direct causative link between mental health status and lifetime income will be quantified for the economically productive years of the cohort. While these reductions take place post-adolescence, only the impact of a depression diagnosis *during* adolescence is relevant for the purposes of this exercise. Those in the cohort who suffer from mental health conditions while in school are less likely to produce complete final grades in compulsory school.[36] The relative risk of remission over our cohort's productive years is a particularly challenging variable to accommodate due to limited evidence from long-term, prospective cohort studies following displaced people, and the unpredictable duration of displacement for each individual. Hence, the impact of depression is linked to lifetime earnings by way of a depressed individual's likelihood of completing secondary education.

Quiroga et al. (2012) provide evidence suggesting 2.75 increased odds of dropping out of school among those who were diagnosed with depression at seventh grade (age 11 to 12) after controlling for other variables such as grade retention and parental education.[37] IDPs in S1 already have reduced completion rates by way of reduced odds of being enrolled compared to not-at-risk populations. To estimate the added reduction of completing secondary school due to being depressed, an average dropout rate was derived from the number who *only* completed primary school divided by the sum of all who completed secondary school and all who completed primary school. The increased odds of dropping out before completion of secondary school attributable to depression in seventh grade (2.75) was then applied to the average dropout rate. In this way, depression prevalence and dropout odds are assumed to follow an even distribution for both genders and age groups. Depressed adolescents have a reduced enrolment-to-completion rate which is proportionate to their region's overall enrolment-to-completion rate (see Table 4).

Ssegonja et al. (2019) provide a meta-analysis of school-based group cognitive behavioural therapy interventions (school-based CBT) targeting those at risk for developing depression and report that individuals who received treatment had an overall post-intervention relative risk of depression incidence of 0.43 (RR 95 per cent CI 0.21 – 0.87) compared to controls.[19] Blackmore et al. (2020) estimate that about 13.81 per cent of forcibly displaced children and adolescents have depression symptoms.[32] The relative risk reduction (RRR) value of 57 per cent was applied to the cohort of adolescents aged 10 to 17 who are expected to have symptoms of depression based on the 13.81 per cent prevalence estimate from Blackmore et al. (2020).[32] Those who received the intervention were then divided into two groups: those who would experience remission of symptoms (43 per cent) and those who would continue to be symptomatic (57 per cent). The proportion who remained symptomatic had the same elevated dropout rate calculated for depressed individuals. For those who experienced remission of symptoms, school enrolment to completion rates returned to the baseline values used for at-risk IDPs (see Table 4). Using the intervention description outlined in Ssegonja et al. (2020), the per-adolescent cost of implementing the school-based group CBT intervention in each of the 52 countries included was calculated using an ingredients-based costing approach.[38] Ingredients were obtained in local currencies, inflated to 2019 where necessary, and converted to 2019 US$ after adjusting traded and non-traded goods using the 2019 CPI. Cohort members eligible to receive the intervention include those aged 12 to 17 in 2019 and who had depression symptoms in the same year.

Table 6: Depression intervention effect

Parameter	Value	Source
The odds ratio of dropout within six years if depressed in seventh grade	2.75	Quiroga 2012[37]
The prevalence of depression in adolescent refugees and asylum seekers	13.81%	Blackmore 2020[32]
The relative risk of depression incidence post-intervention	0.43	Ssegonja 2019[19]

The school-based social and emotional learning (SEL) intervention

In 2010, Srikala et al. implemented a school-based Life Skills Education Program (NIMHANS) which aims to promote adolescents' self-esteem and resilience through teacher-delivered sessions.[20] SE skills are defined using five components of emotional intelligence by Daniel Goldman and referenced as such by UNICEF as emotional self-awareness, self-regulation, empathy, motivation and social skills.[18] An ingredients-based costing approach was used to estimate the monthly per-adolescent cost of this intervention in 52 countries. The unit costs were obtained in local currencies, inflated to 2019 dollars where necessary and converted into 2019 US$ using 2019 PPP. Total intervention costs were obtained by multiplying the per-adolescent value by the target population of enrolled IDPs aged 10 to 17 as of 2019. Although the authors only implemented this intervention to grades 8–10 (ages 14–16), we assume coverage for all adolescent grade levels in our model. The intervention was simulated once in the first year of the model's projection.

Quality of education is traditionally measured via cognitive abilities such as reading and math scores. The effect of non-cognitive abilities on an individual's earning potential has been approximated by multiple authors.[5,7,39] Social-emotional skills (non-cognitive) are argued to be equally as influential on an individual's future income as cognitive abilities. Eren et al. (2013) provide an estimate for the direct relationship of noncognitive ability on earnings over the life course, where noncognitive ability is measured as self-esteem using tenth grade Rosenberg self-esteem scores. A single standard deviation increase in this score was estimated to result in a 9.1 per cent increase in lifetime earnings.[21]

The Impact of the NIMHANS Model Life Skills Education Program was measured using the Rosenberg self-esteem score which is presented for the control and intervention arms. The difference in score was divided by the study population's standard deviation and multiplied against the 9.1 per cent anticipated increase in total earning potential.

This increase was then applied to the total lifetime earning potential of the population who would have received the intervention starting in year 2020 and carried through until the age group reached retirement age. The incremental increase in lifetime earnings is the difference between the sum of each cohort's lifetime earnings in S_3 and S_1.

Table 7: SEL intervention effect

Parameter	Value	Source
The per cent increase in weekly earnings for every one SD increase in noncognitive abilities (Rosenberg self-esteem score)	9.10%	Eren 2013[21]
The per cent increase in SE skills (measured with Rosenberg self-esteem) post-intervention as a proportion of one standard deviation	38.33%	Srikala 2010[20]
The per cent increase in monthly earnings due to increase in SE skills from intervention	3.48%	Srikala 2010; Eren 2013[20,2]

The community-based group therapy intervention

The Youth Readiness intervention demonstrated by McBain et al. (2016) involves behavioural group therapy sessions designed to improve trauma-based functional impairment while encouraging school enrolment and attendance[1]. Despite an increase in enrolment being one of many measured effects from this intervention, the total costs are assumed for the model cohort and only enrolment rates are perturbed. The intervention's cost per adolescent per month in the model start year of 2019 was calculated using an ingredients-based costing approach based on the methods outlined by McBain et al. (2016).[1] The unit costs were converted from 2019 local currency units for 52 countries and summarized in 2019 US$. The intervention is assumed to have occurred once during the entire model projection. The target population was defined as all adolescents (defined by the United Nations as people aged 10 to 19) within the starting cohort who were not enrolled in school in 2019. The intervention total cost was then obtained for each country using the target population and cost per adolescent per month multiplied by 12.

For each level of education completed, a corresponding income premium was applied to the national monthly minimum wage for the proportion of the population that would complete each level. For those who would not complete primary school, the national minimum wage was used.[25] Wherever national-level data on minimum wage were unavailable from the ILO, the average of the set of countries included in the model that did have wage data was used. Local currencies were converted to 2019 US$ using the DEC exchange rate.[25] The earnings premiums for educational achievement in low-income country, non-private school estimates are detailed in Appendix A. These premiums were assumed to begin in the first year an individual would be eligible to work and remain unchanged throughout their working years. The proportion of unemployed people by country, gender, 10-year age bands, and level of education attained was also applied to the cohort projection such that unemployed individuals did not contribute to the cohort's lifetime earning potential.

Table 8: Intervention effect on educational attainment

Parameter	Value	Source
Odds Ratio of enrolment post-intervention	8.9*	McBain 2016[1]
Primary school enrolment post-intervention	95%	McBain 2016; Dryden-Peterson 2011[1,2]
Secondary school enrolment post-intervention	79%	McBain 2016; Dryden-Peterson 2011; UNESCO 2016[1–3]

*OR applied to region-specific enrolment-to-completion ratios based on the receiving adolescent's country.

Intervention reach and costs

Intervention reach

The modelling for the implementation cost and benefits of the MHPSS interventions is focused on an illustrative subpopulation within the wider population exposed to emergencies. Implementing each intervention offers MHPSS support to different groups of children and adolescents who are affected by an emergency, and so the modelling for each intervention covered a different size of population.

When implemented among the global IDP population, the **group-based CBT intervention** for those with symptoms of depression would reach approximately 15,500 internally displaced children and adolescents affected by depressive symptoms (Table 9). The intervention had the lowest implementation costs of the three modelled interventions. The **school-based SEL educational intervention** would have the potential to reach nearly 64 per cent, approximately 5 million, of all child and adolescent IDPs globally. The **community-based group therapy intervention** would have the potential to reach 2.7 million children and adolescents in community settings.

Intervention costs

Intervention implementation costs also vary by intervention, regions, and INFORM risk classification (Table 10; Table 11). The total global implementation cost for the **school-based CBT intervention** was US$6.0 million with an average cost of US$0.8 per child or adolescent affected and forcibly displaced. The total and individual implementation cost was highest in the ECA region and was lowest in four regions; MENA, SSA, EAP, and SA where administering the intervention cost


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less than US$1 per child or adolescent affected and forcibly displaced, on average. The average implementation cost was lowest across countries classified as very high risk for humanitarian emergencies (US$0.1) and highest among medium-risk countries (US$10) (Figure 5).

The total global implementation cost for the **school-based SEL intervention** was US$28.6 million with an average cost of US$3.7 per child or adolescent affected and forcibly displaced. The total implementation cost was significantly higher since this intervention targeted a larger population of in-school children and adolescents. The total implementation cost was highest in the SSA region US$17.0 million (average cost of US$4.7 per child) and was lowest in the EAP region (total cost of US$212,626; average cost of US$2). The average implementation cost was lowest across countries classified as very high (US$3.7) and high-risk for humanitarian emergencies (US$3.4) and highest among medium-risk countries (US$5.3).

Implementing the **community-based group therapy intervention** would cost about US$442 million (average cost of US$57), globally. The total implementation cost was highest in the MENA region US$221.4 million (average cost of US$102) and was lowest in the EAP region (total cost of US$7.3 million; average cost of US$69). The average implementation cost was lowest across countries classified as very high risk for humanitarian emergencies (US$38) and highest among medium-risk countries (US$457).

The estimated country-specific monthly costs to provide the three different interventions to *participating children and adolescents* can be found in Appendix B.

Table 9: Number of intervention recipients by region and INFORM Risk Index class

Number of Intervention Recipients	Region						INFORM Risk Index class		
	Europe and Central Asia	East Asia and the Pacific	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Medium	High	Very High
✱ School-based group CBT	8,281	463	3,334	2,192	745	492	5,152	6,989	3,368
✱ School-based SEL education	194,871	70,265	620,896	1,330,094	477,702	2,237,223	234,370	1,255,989	3,440,692
✚ Community-based group therapy	130,525	51,268	419,144	924,663	328,129	880,536	127,716	701,482	1,905,067

Total (% of Global Child and Adolescent IDPs)	School-based group CBT	School-based SEL education	Community-based group therapy
	15,508 (<1%)	**4,931,051 (64%)**	**2,734,264 (35%)**

Figure 5.
Intervention costs per crisis-affected child and adolescent by INFORM Risk Index class (2022 US$)

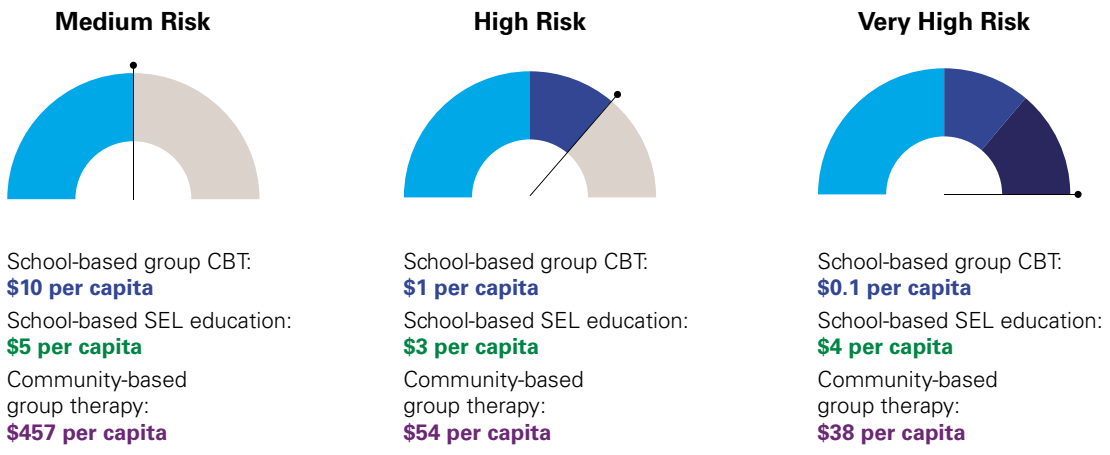

Table 10: Total intervention costs and average intervention costs per crisis-affected child and adolescent by INFORM Risk Index class (2022 US$)

Risk class	Medium (N=16)		High (N=17)		Very high (N=19)	
	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD
	US$, millions	US$	US$, millions	US$	US$, millions	US$
School-based group CBT	2.9	10.1	2.3	1.4	0.8	<1
School-based SEL education	1.5	5.3	5.8	3.4	21.3	3.7
Community-based group therapy	130.5	456.5	91.8	54.1	219.4	38.3

Table 11. Total intervention costs and average intervention costs per crisis-affected child and adolescent (AFD) by UNICEF region (2022 US$)

Region	Latin America and the Caribbean (N=6)		Sub-Saharan Africa (N=25)		East Asia and the Pacific (N=5)		Europe and Central Asia (N=5)		South Asia (N=4)		Middle East and North Africa (N=7)	
	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD	Total costs	Average Cost per AFD
	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$	US$, millions	US$
School-based group CBT	1.3	1.5	0.2	<1	0.1	<1	5	20.2	0.1	<1	0.6	<1
School-based SEL education	4.1	4.9	17.0	4.7	0.2	2.0	1.9	7.9	1.4	1.9	7.7	3.5
Community-based group therapy	56.0	66.8	123.9	34.6	7.3	68.7	43.2	174.9	37.2	48.9	221.4	101.6

Estimating benefit-cost ratios

The benefit-cost ratio (BCR) represents the net benefits of a given intervention divided by total implementation costs of that intervention. Net benefits are defined as the cohort's lifetime earnings in real US$ after the implementation of intervention minus their expected lifetime earnings in real US$ for S1. The cohort's total expected lifetime earnings for each of the five scenarios modelled are presented as the net present value of their wages in real US$ using a discount rate of 3 per cent. Although the literature reported other positive impacts of modelled interventions (Table 1), due to data limitations only the effects which could be directly linked to productivity gains through increased educational attainment were included in the analysis. Hence, the results are conservative and represent a lower estimate of the full benefits of investing in MHPSS interventions.

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Appendices

Appendix A: Key parameters

From	To	Parameter	Value	Source
Receive intervention 2	**Lifetime earnings**	For every 1 SD increase in noncognitive abilities (Rosenberg self-esteem), the % increase in weekly earnings	**9.10%**	Eren 2013[21]
Receive intervention 2	**SEL skills**	The increase in SEL skills (measured with Rosenberg self-esteem) post-intervention as a fraction of one standard deviation	**0.383%**	Srikala 2010[20]
Receive intervention 2	**Increase in monthly minimum wage**	Per cent increase in monthly earnings due to increase in SEL skills from intervention	**3.48%**	Srikala 2010; Eren 2013[20,21]
IDP	**Enrolment primary**	Primary school participation in IDP camps	**69%**	Dryden-Peterson 2011[2]
IDP	**Enrolment secondary**	Secondary school participation in IDP camps	**30%**	Dryden-Peterson 2011; UNESCO 2016[2,3]
Receive intervention 3	**Enrolled**	OR of enrolment post-intervention	**8.9%**	McBain 2016[1]
Receive intervention 3	**Enrolment primary**	Primary school participation post-intervention	**95%**	McBain 2016; Dryden-Peterson 2011[1,2]
Receive intervention 3	**Enrolment secondary**	Secondary school participation post-intervention	**79%**	McBain 2016; Dryden-Peterson 2011[1,2]
Completed p rimary school	**Lifetime earnings**	Income premium for individuals who are employed and have completed primary school, but not secondary school	**11.8%**	Patrinos & Psacharopoulos 2020[6]
Completed secondary school	**Lifetime earnings**	Income premium for individuals who are employed and have completed secondary school	**17.5%**	Patrinos & Psacharopoulos 2020[6]
Primary school age	**Primary school completion**	Europe and Northern America	**99%**	UNICEF 2022[31]
Primary school age	**Primary school completion**	Latin America and the Caribbean	**94%**	
Primary school age	**Primary school completion**	Eastern and South-Eastern Asia	**96%**	
Primary school age	**Primary school completion**	Central and Southern Asia	**84%**	
Primary school age	**Primary school completion**	Sub-Saharan Africa	**62%**	

From	To	Parameter	Value	Source
Primary school age	**Primary school completion**	Northern Africa and Western Asia	**85%**	UNICEF 2022[31]
Secondary school age	**Secondary school completion (Upper secondary completion)**	Europe and Northern America	**98%**	
Secondary school age	**Secondary school completion (Upper secondary completion)**	Latin America and the Caribbean	**63%**	
Secondary school age	**Secondary school completion (Upper secondary completion)**	Eastern and South-Eastern Asia	**63%**	
Secondary school age	**Secondary school completion (Upper secondary completion)**	Central and Southern Asia	**38%**	
Secondary school age	**Secondary school completion (Upper secondary completion)**	Sub-Saharan Africa	**27%**	
Secondary school age	**Secondary school completion (Upper secondary completion)**	Northern Africa and Western Asia	**42%**	
Crisis-affected populations	**Share of affected populations from total populations**	Country-specific		Education Cannot Wait 2023[13]
Crisis-affected and forcibly displaced populations	**Share of affected populations who are forcibly displaced**	Country-specific		Education Cannot Wait 2023[13]
Crisis-affected and not forcibly displaced populations	**Share of affected populations who are forcibly displaced**	Country-specific		Education Cannot Wait 2023[13]
Wage pay gap	**Median pay gap between migrants and nationals**	High income countries	**16.1%**	The migrant pay gap 2023[15]
Education cost gap	**Increase in education cost per refugee (emergency remium)**	LMICs	**20%**	Education for all 2000-2015 2023[40]
Prevalence of mental ill health	**22.1 per cent pooled and adjusted prevalence of mental ill health among countries in**	Countries in conflict settings	**22.1%**	Charlson et al. (2019)[12]

Appendix B: Intervention cost per child or adolescent per month in 2019 US$

Cost Per Receiving Adolescent Per Month (2019 US$)	Intervention		
Country	1	2	3
Syrian Arab Republic	$ 19.12	$ 0.25	$ 8.34
Colombia	$ 24.63	$ 0.32	$ 7.05
Dem. Rep. Of The Congo	$ 23.52	$ 0.31	$ 7.45
Yemen	$ 14.88	$ 0.19	$ 7.43
Afghanistan	$ 9.43	$ 0.12	$ 7.98
Somalia	$ 20.12	$ 0.26	$ 8.34
Nigeria	$ 10.47	$ 0.14	$ 7.83
Sudan	$ 63.28	$ 0.83	$ 9.66
Iraq	$ 19.50	$ 0.25	$ 7.73
Ethiopia	$ 5.27	$ 0.07	$ 9.15
South Sudan	$ 20.12	$ 0.26	$ 8.34
Turkiye	$ 41.01	$ 0.53	$ 20.56
Cameroon	$ 14.65	$ 0.19	$ 11.61
Ukraine	$ 24.96	$ 0.33	$ 11.88
Burkina Faso	$ 9.69	$ 0.13	$ 8.26
India	$ 16.90	$ 0.22	$ 7.36
Myanmar	$ 7.19	$ 0.09	$ 11.67
Libya	$ 20.14	$ 0.26	$ 22.85
Bangladesh	$ 8.07	$ 0.11	$ 7.08
Azerbaijan	$ 24.29	$ 0.32	$ 22.37
Mexico	$ 21.21	$ 0.28	$ 13.00
Cote D'ivoire	$ 10.30	$ 0.13	$ 22.69
Honduras	$ 17.75	$ 0.23	$ 11.75
Palestinian Territories	$ 20.40	$ 0.26	$ 384.44
Guatemala	$ 19.82	$ 0.26	$ 22.94
Mali	$ 7.22	$ 0.09	$ 8.29
Niger	$ 8.58	$ 0.11	$ 8.24
Philippines	$ 19.10	$ 0.25	$ 8.25

Cost Per Receiving Adolescent Per Month (2019 US$)	Intervention		
Country	1	2	3
Chad	$ 12.59	$ 0.16	$ 8.38
Kenya	$ 7.25	$ 0.09	$ 8.57
Congo	$ 19.12	$ 0.25	$ 11.86
Mozambique	$ 28.99	$ 0.38	$ 8.20
Pakistan	$ 7.85	$ 0.10	$ 7.86
Bosnia And Herzegovina	$ 28.93	$ 0.38	$ 22.60
Egypt	$ 16.09	$ 0.21	$ 26.81
Peru	$ 34.66	$ 0.45	$ 22.73
Thailand	$ 29.13	$ 0.38	$ 9.57
Indonesia	$ 11.79	$ 0.15	$ 16.67
Uganda	$ 5.58	$ 0.07	$ 7.16
Burundi	$ 2.43	$ 0.03	$ 8.11
Papua New Guinea	$ 20.12	$ 0.26	$ 12.03
Senegal	$ 14.94	$ 0.20	$ 11.70
Lebanon	$ 39.01	$ 0.51	$ 23.19
Sierra Leone	$ 19.32	$ 0.25	$ 8.25
Benin	$ 7.31	$ 0.10	$ 11.63
Madagascar	$ 5.52	$ 0.07	$ 8.23
Haiti	$ 6.89	$ 0.09	$ 8.50
Togo	$ 9.36	$ 0.12	$ 8.27
Russian Federation	$ 45.95	$ 0.60	$ 9.07
South Africa	$ 15.86	$ 0.21	$ 16.37
Ghana	$ 9.54	$ 0.12	$ 11.59
Malawi	$ 5.29	$ 0.07	$ 8.34

Appendix C: Costing details

Intervention 1: **School-based group CBT**

Intervention Component		Unit Type	Unit Name	No. Units
Basic Set Up		Coverage	Participants	8.00
			Participants per facilitator	4.00
			Sessions	9.00
			Duration training (weeks)	7.00
			Duration implementation (weeks)	9.00
Training Costs	Monthly Unit	Hours	Trainer	4.67
			Participant allowance	2.80
	Monthly Unit Per Participant	Hours	Trainer	0.58
			Participant allowance	2.80
Implementation Costs	Monthly Unit	Hours	Facilitator	9.33
			Supervisor	4.67
		Other	Facility	1.00
			Materials	1.00
	Monthly Unit Per Participant	Hours	Facilitator	2.33
			Supervisor	0.58
		Other	Materials	0.13

Intervention 2: **School-based SEL skills**

Intervention Component		Unit Type	Unit Name	No. Units
Basic Set Up		Coverage	Schools	261.00
			Adolescents	55000.00
			Block Education Officers	4.00
			Headmasters	261.00
			Master Trainers	31.00
			Head Trainers	2.0
			Months	4.0
Training Costs	Monthly Unit	Hours	Master Trainer	155.00
			Head Trainer	104.0
			Block Education Officers	8.00
			Headmaster	522.00
			Teacher	6000.00

Intervention 2: **School-based SEL skills**

Intervention Component		Unit Type	Unit Name	No. Units
Training Costs	Monthly Unit Per Participant	Hours	Master Trainer	0.00
			Head Trainer	0.00
			Block Education Officers	0.00
			Headmaster	0.00
			Teacher	0.11
School session Costs	Monthly Unit	Hours	Master Trainer	1044.00
	Monthly Unit Per Participant	Hours	Master Trainer	0.02

Intervention 3: **Community-based group therapy**

Intervention Component		Unit Type	Unit Name	No. Units
Basic Set Up		Coverage	Adolescents	222.00
			Adolescents per community health worker	13.88
			Community health workers per session	2.00
			Community health workers per medical officer	8.00
			Adolescents per support staff	111.00
			Adolescents per clinical space	37.00
During Implementation Recurring Costs	Monthly Unit	Hours	Community health worker	8.00
			Medical Officer	16.00
			Support Staff	8.00
		Other	Transportation	222.00
	Monthly Unit Per Adolescent	Hours	Community health worker	0.58
			Medical Officer	0.07
			Support Staff	0.07
		Other	Transportation	1.00
Pre-Implementation Recurring Costs	Monthly Unit	Hours	Community health worker	80.00
			Medical Officer	80.00
			Support Staff	40.00
	Monthly Unit Per Adolescent	Hours	Community health workers	5.77
			Medical Officer	0.36
			Support Staff	0.36
Programme Fixed Costs	Monthly Unit	Hours	Staff training	160.00
		Other	Material for treatment groups	555.00
			Computers and office supplies	0.80
	Monthly Unit Per Adolescent	Hours	Staff training	0.72
		Other	Material for treatment groups	2.50
			Computers and office supplies	0.00

Appendix D: Starting population full distribution

Starting Cohort		Female								Male							
Risk	Country	10	11	12	13	14	15	16	17	10	11	12	13	14	15	16	17
6.9	Syrian Arab Republic	75,214	75,202	70,143	67,852	66,695	65,382	63,915	62,075	78,169	78,051	73,252	70,746	69,448	67,987	66,385	64,443
5.4	Colombia	40,293	40,749	41,526	42,270	43,105	43,924	44,760	45,561	42,156	42,629	43,458	44,217	45,049	45,856	46,630	47,332
7.6	Dem. Rep. of the Congo	74,274	71,197	70,559	67,656	64,895	62,621	60,485	58,253	75,386	72,251	71,457	68,519	65,725	63,425	61,286	59,044
8.1	Yemen	44,155	43,335	43,003	41,974	40,803	39,768	38,634	37,631	45,939	45,063	44,585	43,506	42,298	41,240	40,074	39,008
8.1	Afghanistan	37,899	37,942	39,489	38,392	37,367	36,626	35,769	34,787	39,804	39,869	41,437	40,282	39,204	38,428	37,530	36,467
8.7	Somalia	35,637	34,468	35,532	34,315	33,163	32,055	30,982	29,891	36,098	34,884	35,896	34,674	33,506	32,384	31,296	30,182
6.4	Nigeria	33,645	32,592	31,804	30,798	29,776	28,787	27,834	26,803	35,341	34,245	33,025	32,004	30,943	29,917	28,935	27,882
7.1	Sudan	26,145	25,179	26,300	25,048	24,216	23,853	23,570	23,261	26,818	25,814	27,033	25,734	24,849	24,448	24,136	23,796
6.6	Iraq	17,750	17,220	17,136	16,761	16,466	16,119	15,727	15,487	18,748	18,172	18,106	17,700	17,379	17,002	16,567	16,279
7	Ethiopia	17,751	17,635	17,140	16,817	16,491	16,138	15,840	15,518	18,145	18,010	17,516	17,174	16,814	16,419	16,091	15,749
8.5	South Sudan	16,646	15,914	16,464	16,077	15,804	15,373	14,781	13,905	17,053	16,301	16,761	16,375	16,120	15,724	15,162	14,317
4.7	Turkiye	8,560	8,539	8,771	8,707	8,563	8,435	8,480	8,893	8,951	8,924	9,167	9,103	8,960	8,833	8,886	9,324
6.5	Cameroon	12,608	12,252	12,130	11,768	11,418	11,050	10,640	10,234	12,787	12,408	12,297	11,932	11,576	11,201	10,781	10,365
5.1	Ukraine	4,070	3,916	3,886	3,693	3,551	3,482	3,322	3,183	4,329	4,145	4,119	3,923	3,780	3,694	3,536	3,399
7	Burkina Faso	7,483	7,257	7,295	7,012	6,717	6,461	6,212	5,981	7,752	7,514	7,587	7,289	6,981	6,713	6,452	6,210
5.3	India	3,922	3,919	4,011	4,037	4,081	4,114	4,135	4,146	4,337	4,332	4,471	4,502	4,554	4,590	4,610	4,626
6.8	Myanmar	3,851	3,868	4,104	4,122	4,163	4,217	4,270	4,254	3,892	3,906	4,139	4,155	4,193	4,244	4,294	4,274
6.2	Libya	4,193	4,178	3,917	3,872	3,835	3,774	3,675	3,575	4,433	4,435	4,179	4,130	4,042	3,938	3,825	3,716
5.5	Bangladesh	3,874	3,962	3,780	3,834	3,906	3,955	3,962	3,947	4,029	4,122	3,961	4,014	4,087	4,140	4,149	4,131
5.8	Azerbaijan	2,538	2,454	2,312	2,207	2,103	2,014	1,946	1,917	2,931	2,832	2,739	2,611	2,466	2,314	2,195	2,148
5.1	Mexico	2,938	2,934	2,927	2,926	2,930	2,940	2,944	2,940	3,078	3,070	3,056	3,049	3,051	3,060	3,056	3,039
4.5	Cote d'Ivoire	3,873	3,770	3,728	3,636	3,542	3,451	3,355	3,252	3,921	3,834	3,721	3,643	3,558	3,473	3,382	3,280
5.1	Honduras	2,454	2,466	2,511	2,523	2,531	2,537	2,543	2,545	2,558	2,571	2,616	2,627	2,635	2,642	2,646	2,645
4.6	Palestinian Territories	2,909	2,829	2,709	2,663	2,601	2,527	2,470	2,420	3,010	2,913	2,824	2,771	2,705	2,628	2,567	2,514
5.1	Guatemala	2,558	2,558	2,564	2,556	2,565	2,571	2,572	2,570	2,669	2,668	2,673	2,663	2,672	2,679	2,681	2,680
6.9	Mali	2,902	2,801	2,805	2,710	2,605	2,485	2,369	2,260	3,007	2,902	2,887	2,793	2,687	2,566	2,447	2,336

Starting Cohort		Female								Male							
Risk	Country	10	11	12	13	14	15	16	17	10	11	12	13	14	15	16	17
7.5	Niger	2,805	2,697	2,582	2,480	2,380	2,279	2,180	2,084	2,903	2,789	2,665	2,560	2,458	2,355	2,255	2,158
5.2	Philippines	1,823	1,811	1,775	1,757	1,731	1,703	1,683	1,670	1,916	1,902	1,887	1,869	1,838	1,798	1,769	1,757
7.9	Chad	2,412	2,326	2,396	2,307	2,211	2,098	2,003	1,940	2,429	2,342	2,410	2,319	2,219	2,103	2,006	1,941
6.7	Kenya	2,104	2,080	2,061	2,000	1,939	1,881	1,830	1,782	2,134	2,107	2,104	2,038	1,972	1,907	1,849	1,793
5.1	Congo	1,712	1,634	1,683	1,609	1,541	1,477	1,422	1,376	1,738	1,658	1,707	1,631	1,562	1,496	1,440	1,393
7.2	Mozambique	1,476	1,413	1,429	1,394	1,361	1,330	1,294	1,255	1,480	1,416	1,424	1,387	1,353	1,321	1,285	1,244
6.1	Pakistan	1,118	1,096	1,081	1,057	1,047	1,039	1,030	1,013	1,209	1,189	1,170	1,146	1,136	1,124	1,112	1,092
3.5	Bosnia and Herzegovina	502	498	492	489	493	496	504	514	528	522	519	514	516	521	531	537
4.7	Egypt	991	968	869	849	833	820	808	795	1,056	1,030	924	900	881	867	856	846
4.8	Peru	488	488	496	491	481	470	461	458	485	485	479	473	463	451	441	435
4	Thailand	225	226	239	238	238	240	244	251	239	239	253	252	252	253	258	266
4.6	Indonesia	340	339	340	333	327	323	321	321	355	355	361	353	347	342	341	340
7.1	Uganda	457	447	423	414	404	393	382	371	463	452	431	420	410	398	386	375
6	Burundi	314	298	301	286	269	252	237	222	318	302	303	287	271	253	238	223
5.9	Papua New Guinea	151	149	151	149	146	145	143	140	163	161	160	158	156	154	152	150
4.2	Senegal	111	107	103	100	97	94	91	88	114	110	106	103	99	96	93	90
4.5	Lebanon	55	54	58	57	56	55	55	54	61	60	61	60	60	60	59	58
4.4	Sierra Leone	70	69	68	66	64	64	63	61	71	69	68	67	65	64	63	62
3.8	Benin	46	45	45	44	42	41	40	38	48	47	46	45	44	42	41	39
5.3	Madagascar	38	37	36	36	35	34	33	32	38	37	37	36	35	34	33	32
6.5	Haiti	22	22	22	22	21	21	21	21	23	22	22	22	22	22	22	21
4.1	Togo	25	25	25	24	23	23	22	22	26	25	25	24	24	23	22	22
4.1	Russian Federation	11	10	10	9	9	9	9	9	11	11	10	10	10	10	10	9
5.3	South Africa	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.6	Ghana	3	3	2	2	2	2	2	2	3	3	3	3	3	2	2	2
4.6	Malawi	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

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