

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



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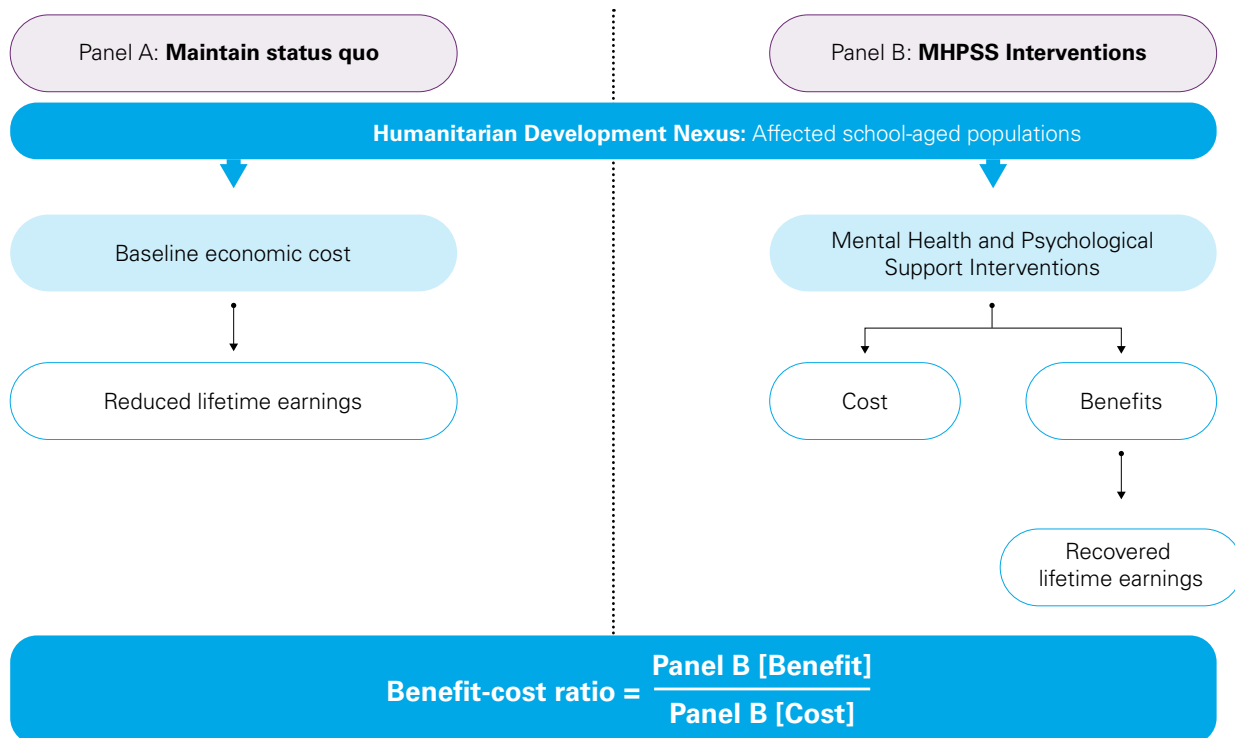
# Overview



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.<sup>1</sup> 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<sup>2-4</sup>. 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.<sup>5,6</sup> Noncognitive learning outcomes such as social-emotional learning (SEL) are considered crucial to an individual's well-being and educational achievement.<sup>7</sup> We estimate the economic costs and benefits (Figure 1) of MHPSS interventions on young people following an emergency.

**Figure 1.**  
Concept diagram





# Part 1: Economic burden of humanitarian emergencies



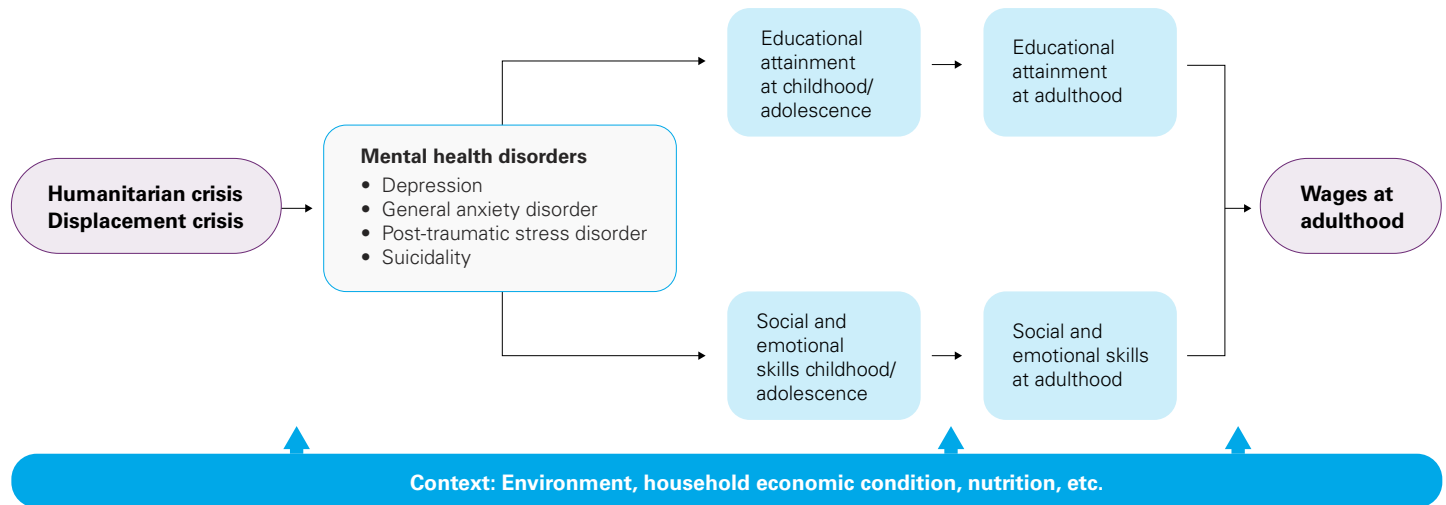
The economic burden of humanitarian emergencies was examined through its effect on mental health and, in turn, on education and SE skills for 10–17-year-old children and adolescents in 66 countries who were experiencing or at risk of humanitarian crisis. The economic burden analysis is also considered to be the ‘cost of inaction’ or the cost of maintaining the status quo (Figure 1: Panel A).

We used a human capital approach to estimate the lifetime earning loss expected of a child/adolescent who is diagnosed 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  $i$ ;  $\sigma$  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.<sup>8</sup> 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**

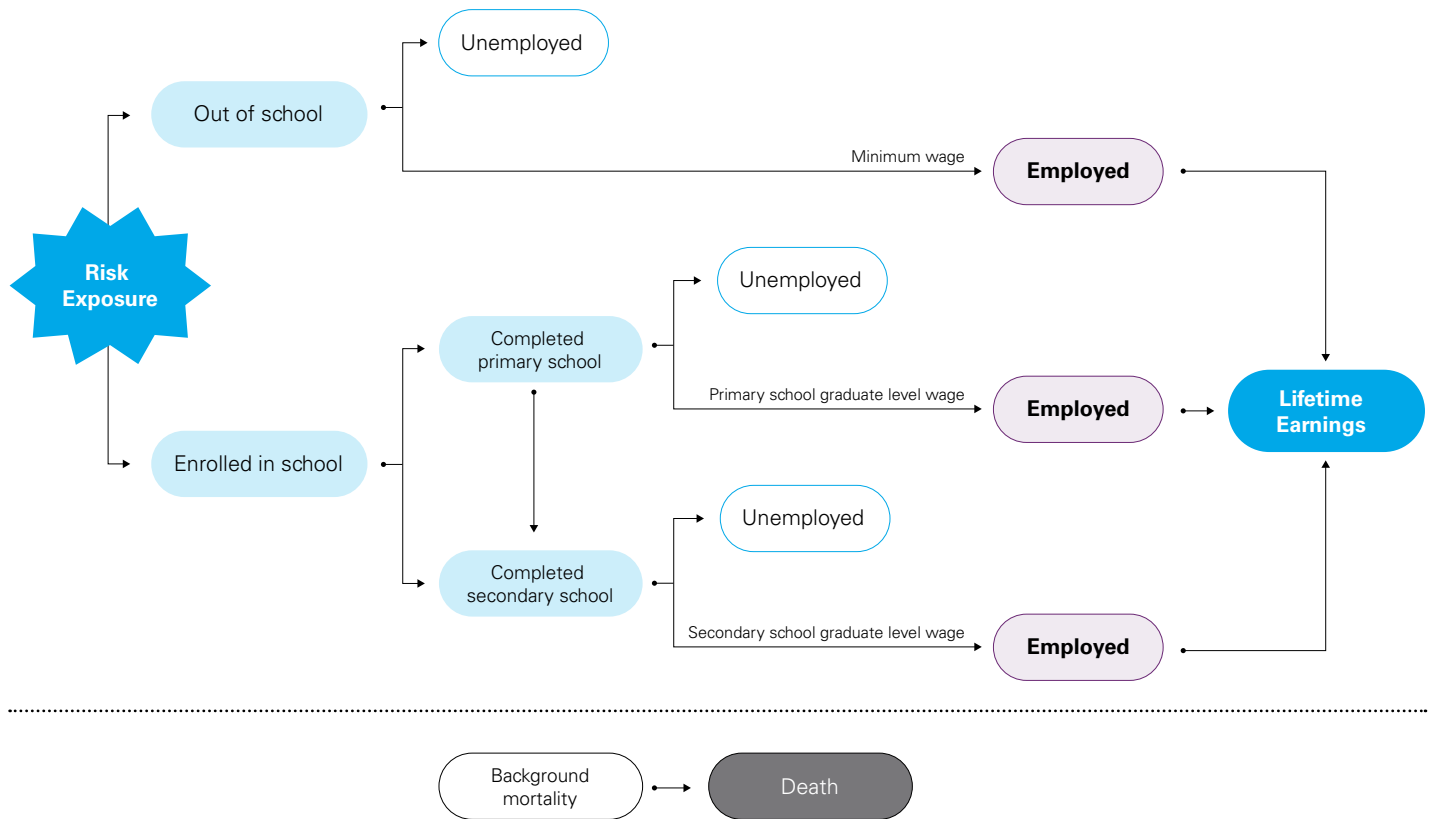
The model estimates an individual's potential lifetime earnings based on their school completion and SE skills. Without additional intervention, children affected by emergencies generally have lower levels of school enrolment and completion and weaker SE skills that may be attributed to mental ill health.<sup>3</sup> 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.<sup>9</sup>

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.<sup>10,11</sup>

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)<sup>12</sup> and estimated school dropout rates for affected populations using school enrolment and dropout rates for IDPs.



**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.<sup>4\*</sup>

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.<sup>14</sup> 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.<sup>13</sup>



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.<sup>15</sup> Further, the study found that in Gambia, unskilled migrant workers earn approximately 45 per cent less than nationals.<sup>15</sup> 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.<sup>16</sup>

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).<sup>13</sup>





# 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.<sup>17</sup> 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.<sup>18</sup> 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.<sup>3</sup> 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	<b>Group-based cognitive behavioural therapy sessions delivered in schools to those with depression symptoms</b>	Formal education	IDPs aged 12–17 with depression symptoms and enrolled in secondary school	Indicated prevention	Beck depression inventory (BDI)	Sregonja et al. 2019 <sup>19</sup>
2	<b>NIMHANS Model Life Skills Education Program delivered by trained teachers over one academic school year and designed to promote psychosocial skills and positive behaviour</b>	Formal education	IDPs aged 10–17 enrolled in primary or in secondary school	Promotion	Rosenberg Scale of Self-Esteem	Srikala et al. 2010 <sup>20</sup>
3	<b>Youth Readiness programme delivered by community health workers to war-affected adolescents aimed at improving symptoms of psychological distress</b>	Community-based	IDPs aged 10–17 enrolled in neither primary nor secondary school	Treatment	School enrolment	McBain et al. 2016 <sup>1</sup>

\* 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, Ssegona 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.<sup>19</sup> 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.<sup>20</sup> 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.<sup>5</sup> 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.<sup>18</sup> 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.<sup>21</sup> 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.<sup>1</sup> 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.<sup>22</sup> 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) <sup>23</sup>	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 <i>who also</i> 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 <sup>24</sup>	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 <sup>25</sup>	Average monthly earnings of employees by sex and economic activity.
Average working days per month	ILO Stat <sup>25</sup>	Average working days per month, assumes an eight-hour workday.
risk level / risk class	INFORM <sup>26</sup>	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 <sup>25</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>27</sup>	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.<sup>28,29</sup> 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.<sup>25</sup> 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.<sup>22</sup> 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'*.<sup>30</sup> The UNHCR database estimates forcibly displaced population groups.

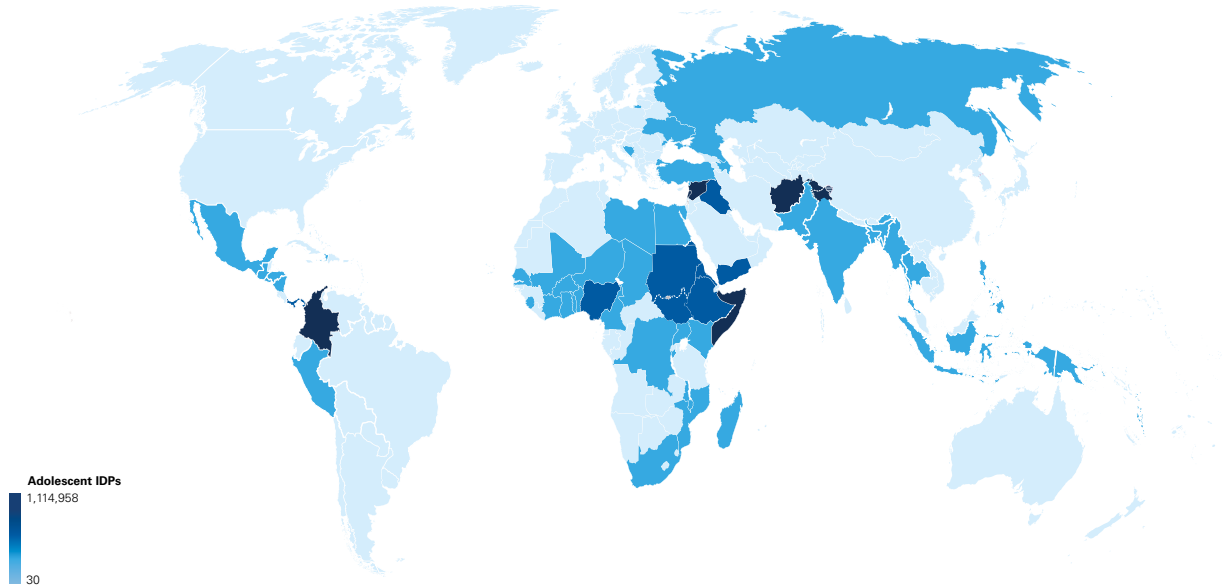
An individual's lifetime income will begin to accrue with the earliest possible productive year starting at age 15 for those who drop out of school at or before age 15. For those who

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

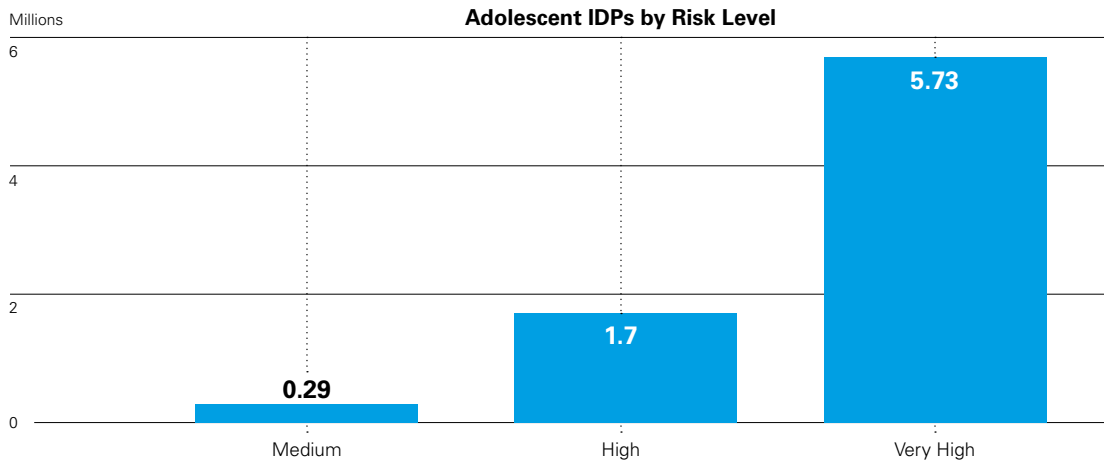
depending on country; for the purposes of the global iteration, and to align with UNICEF school attendance data, secondary education includes children aged 12 to 17 for a total of six years. Primary school education is then defined as the first six years taught to those aged 5 through 11. Individuals 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
<b>Very high</b>	19	2,826,147	2,908,340	5,734,487
<b>High</b>	17	828,070	869,212	1,697,282
<b>Medium</b>	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.<sup>4</sup> 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.<sup>6</sup>

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.



**Table 4: School completion rates by region**

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

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

UNICEF (2022)<sup>31</sup>

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.<sup>2</sup> 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).<sup>3</sup> 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,<sup>3</sup> while the conservative measure of 69 per cent is applied to those of primary school age<sup>2</sup>.

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.<sup>25</sup> 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 Psacharopoulos 2020 <sup>6</sup> .
Economic returns to education: secondary, non-private	12%	Patrinos and Psacharopoulos 2020 <sup>6</sup> .

## Intervention effects

### School-based group cognitive behavioural therapy (CBT) intervention

Major depressive disorder (MDD) disproportionately affects refugees and asylum seekers.<sup>32</sup> 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.<sup>33</sup> 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.<sup>34</sup> Major depressive disorder is associated with an individual's lifetime earning potential.<sup>35</sup> 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.<sup>36</sup> 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.<sup>37</sup> 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.<sup>19</sup> Blackmore et al. (2020) estimate that about 13.81 per cent of forcibly displaced children and adolescents have depression symptoms.<sup>32</sup> 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).<sup>32</sup> 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.<sup>38</sup> 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 <sup>37</sup>
The prevalence of depression in adolescent refugees and asylum seekers	13.81%	Blackmore 2020 <sup>32</sup>
The relative risk of depression incidence post-intervention	0.43	Ssegonja 2019 <sup>19</sup>

### 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.<sup>20</sup> 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.<sup>18</sup> 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.<sup>5,7,39</sup> 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.<sup>21</sup>

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 <sup>21</sup>
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 <sup>20</sup>
The per cent increase in monthly earnings due to increase in SE skills from intervention	3.48%	Srikala 2010; Eren 2013 <sup>20,2</sup>

### 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<sup>1</sup>. 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).<sup>1</sup> 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.<sup>25</sup> 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.<sup>25</sup> 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
<b>Odds Ratio of enrolment post-intervention</b>	8.9*	McBain 2016 <sup>1</sup>
<b>Primary school enrolment post-intervention</b>	95%	McBain 2016; Dryden-Peterson 2011 <sup>1,2</sup>
<b>Secondary school enrolment post-intervention</b>	79%	McBain 2016; Dryden-Peterson 2011; UNESCO 2016 <sup>1-3</sup>

\*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



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

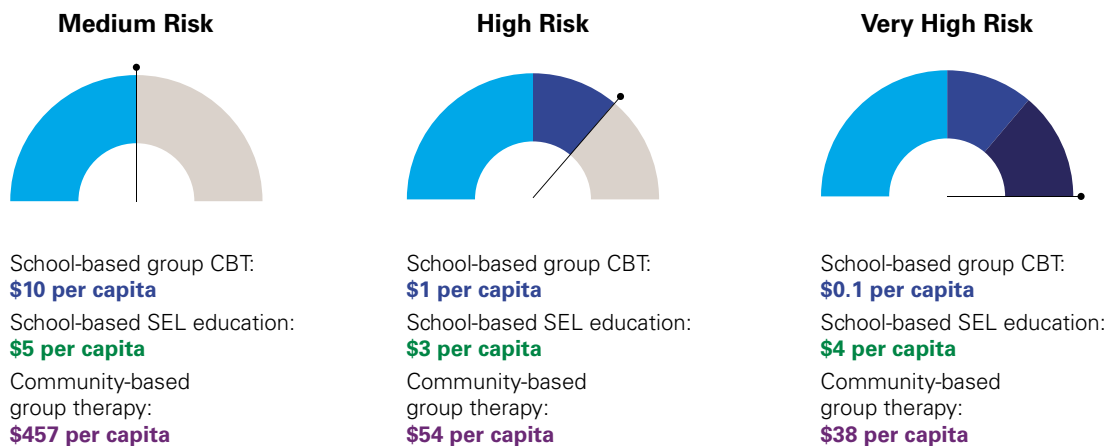
as very high risk for humanitarian emergencies (US\$38) and highest among medium-risk countries (US\$457).

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
<b>School-based group CBT</b>	8,281	463	3,334	2,192	745	492	5,152	6,989	3,368
<b>School-based SEL education</b>	194,871	70,265	620,896	1,330,094	477,702	2,237,223	234,370	1,255,989	3,440,692
<b>Community-based group therapy</b>	130,525	51,268	419,144	924,663	328,129	880,536	127,716	701,482	1,905,067
<b>Total</b> (% of Global Child and Adolescent IDPs)	<b>School-based group CBT</b> 15,508 (<1%)		<b>School-based SEL education</b> 4,931,051 (64%)			<b>Community-based group therapy</b> 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 <sup>21</sup>
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 <sup>20</sup>
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 <sup>20,21</sup>
IDP	Enrolment primary	Primary school participation in IDP camps	69%	Dryden-Peterson 2011 <sup>2</sup>
IDP	Enrolment secondary	Secondary school participation in IDP camps	30%	Dryden-Peterson 2011; UNESCO 2016 <sup>2,3</sup>
Receive intervention 3	Enrolled	OR of enrolment post-intervention	8.9%	McBain 2016 <sup>1</sup>
Receive intervention 3	Enrolment primary	Primary school participation post-intervention	95%	McBain 2016; Dryden-Peterson 2011 <sup>1,2</sup>
Receive intervention 3	Enrolment secondary	Secondary school participation post-intervention	79%	McBain 2016; Dryden-Peterson 2011 <sup>1,2</sup>
Completed primary school	Lifetime earnings	Income premium for individuals who are employed and have completed primary school, but not secondary school	11.8%	Patrinos & Psacharopoulos 2020 <sup>6</sup>
Completed secondary school	Lifetime earnings	Income premium for individuals who are employed and have completed secondary school	17.5%	Patrinos & Psacharopoulos 2020 <sup>6</sup>
Primary school age	Primary school completion	Europe and Northern America	99%	UNICEF 2022 <sup>31</sup>
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%	
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%	UNICEF 2022 <sup>31</sup>
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 <sup>13</sup>
Crisis-affected and forcibly displaced populations	Share of affected populations who are forcibly displaced	Country-specific		Education Cannot Wait 2023 <sup>13</sup>
Crisis-affected and not forcibly displaced populations	Share of affected populations who are forcibly displaced	Country-specific		Education Cannot Wait 2023 <sup>13</sup>
Wage pay gap	Median pay gap between migrants and nationals	High income countries	16.1%	The migrant pay gap 2023 <sup>15</sup>
Education cost gap	Increase in education cost per refugee (emergency premium)	LMICs	20%	Education for all 2000-2015 2023 <sup>40</sup>
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) <sup>12</sup>

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

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

Country	Intervention		
	1	2	3
<b>Chad</b>	\$ 12.59	\$ 0.16	\$ 8.38
<b>Kenya</b>	\$ 7.25	\$ 0.09	\$ 8.57
<b>Congo</b>	\$ 19.12	\$ 0.25	\$ 11.86
<b>Mozambique</b>	\$ 28.99	\$ 0.38	\$ 8.20
<b>Pakistan</b>	\$ 7.85	\$ 0.10	\$ 7.86
<b>Bosnia And Herzegovina</b>	\$ 28.93	\$ 0.38	\$ 22.60
<b>Egypt</b>	\$ 16.09	\$ 0.21	\$ 26.81
<b>Peru</b>	\$ 34.66	\$ 0.45	\$ 22.73
<b>Thailand</b>	\$ 29.13	\$ 0.38	\$ 9.57
<b>Indonesia</b>	\$ 11.79	\$ 0.15	\$ 16.67
<b>Uganda</b>	\$ 5.58	\$ 0.07	\$ 7.16
<b>Burundi</b>	\$ 2.43	\$ 0.03	\$ 8.11
<b>Papua New Guinea</b>	\$ 20.12	\$ 0.26	\$ 12.03
<b>Senegal</b>	\$ 14.94	\$ 0.20	\$ 11.70
<b>Lebanon</b>	\$ 39.01	\$ 0.51	\$ 23.19
<b>Sierra Leone</b>	\$ 19.32	\$ 0.25	\$ 8.25
<b>Benin</b>	\$ 7.31	\$ 0.10	\$ 11.63
<b>Madagascar</b>	\$ 5.52	\$ 0.07	\$ 8.23
<b>Haiti</b>	\$ 6.89	\$ 0.09	\$ 8.50
<b>Togo</b>	\$ 9.36	\$ 0.12	\$ 8.27
<b>Russian Federation</b>	\$ 45.95	\$ 0.60	\$ 9.07
<b>South Africa</b>	\$ 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: <b>School-based group CBT</b>				
Intervention Component		Unit Type	Unit Name	No. Units
<b>Basic Set Up</b>		Coverage	Participants	8.00
			Participants per facilitator	4.00
			Sessions	9.00
			Duration training (weeks)	7.00
			Duration implementation (weeks)	9.00
<b>Training Costs</b>	Monthly Unit	Hours	Trainer	4.67
			Participant allowance	2.80
	Monthly Unit Per Participant	Hours	Trainer	0.58
			Participant allowance	2.80
<b>Implementation Costs</b>	Monthly Unit	Hours	Facilitator	9.33
			Supervisor	4.67
		Other	Facility	1.00
	Materials		1.00	
	Monthly Unit Per Participant		Hours	Facilitator
		Supervisor		0.58
Other		Materials	0.13	
Intervention 2: <b>School-based SEL skills</b>				
Intervention Component		Unit Type	Unit Name	No. Units
<b>Basic Set Up</b>		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
<b>Training Costs</b>	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	
<b>Training Costs</b>	Monthly Unit Per Participant	Hours	Master Trainer	0.00
			Head Trainer	0.00
			Block Education Officers	0.00
			Headmaster	0.00
			Teacher	0.11
<b>School session Costs</b>	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	
<b>Basic Set Up</b>	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	
<b>During Implementation Recurring Costs</b>	Monthly Unit	Hours	Community health worker	8.00
		Hours	Medical Officer	16.00
		Hours	Support Staff	8.00
	Monthly Unit Per Adolescent	Other	Transportation	222.00
		Hours	Community health worker	0.58
		Hours	Medical Officer	0.07
<b>Pre-Implementation Recurring Costs</b>	Monthly Unit	Hours	Support Staff	0.07
		Hours	Transportation	1.00
		Hours	Community health worker	80.00
	Monthly Unit Per Adolescent	Hours	Medical Officer	80.00
		Hours	Support Staff	40.00
		Hours	Community health workers	5.77
<b>Programme Fixed Costs</b>	Monthly Unit	Hours	Medical Officer	0.36
		Hours	Support Staff	0.36
		Hours	Staff training	160.00
	Monthly Unit Per Adolescent	Other	Material for treatment groups	555.00
		Hours	Computers and office supplies	0.80
		Hours	Staff training	0.72
Monthly Unit Per Adolescent	Other	Material for treatment groups	2.50	
	Other	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



Published by

© **United Nations Children's Fund (UNICEF)**

Education Section, Programme Division

3 United Nations Plaza

New York, NY 10017

[www.unicef.org/education](http://www.unicef.org/education)

Contact email: [education@unicef.org](mailto:education@unicef.org)

Website: [www.unicef.org](http://www.unicef.org)

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Suggested citation: United Nations Children's Fund, Global Cost-Benefit Analysis on Mental Health and Psychosocial Support (MHPSS) Interventions in Education Settings Across the Humanitarian Development Nexus

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