MIND THE GAP

Child and Adolescent Mental Health and Psychosocial Support Interventions

AN EVIDENCE AND GAP MAP OF LOW- AND MIDDLE-INCOME COUNTRIES

UNICEF Office of Research – Innocenti

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Girl, 15, inside her family's room at Pa La Na camp for internally displaced people, on the outskirts of Myitkyina, Kachin State, Myanmar, July 2020.

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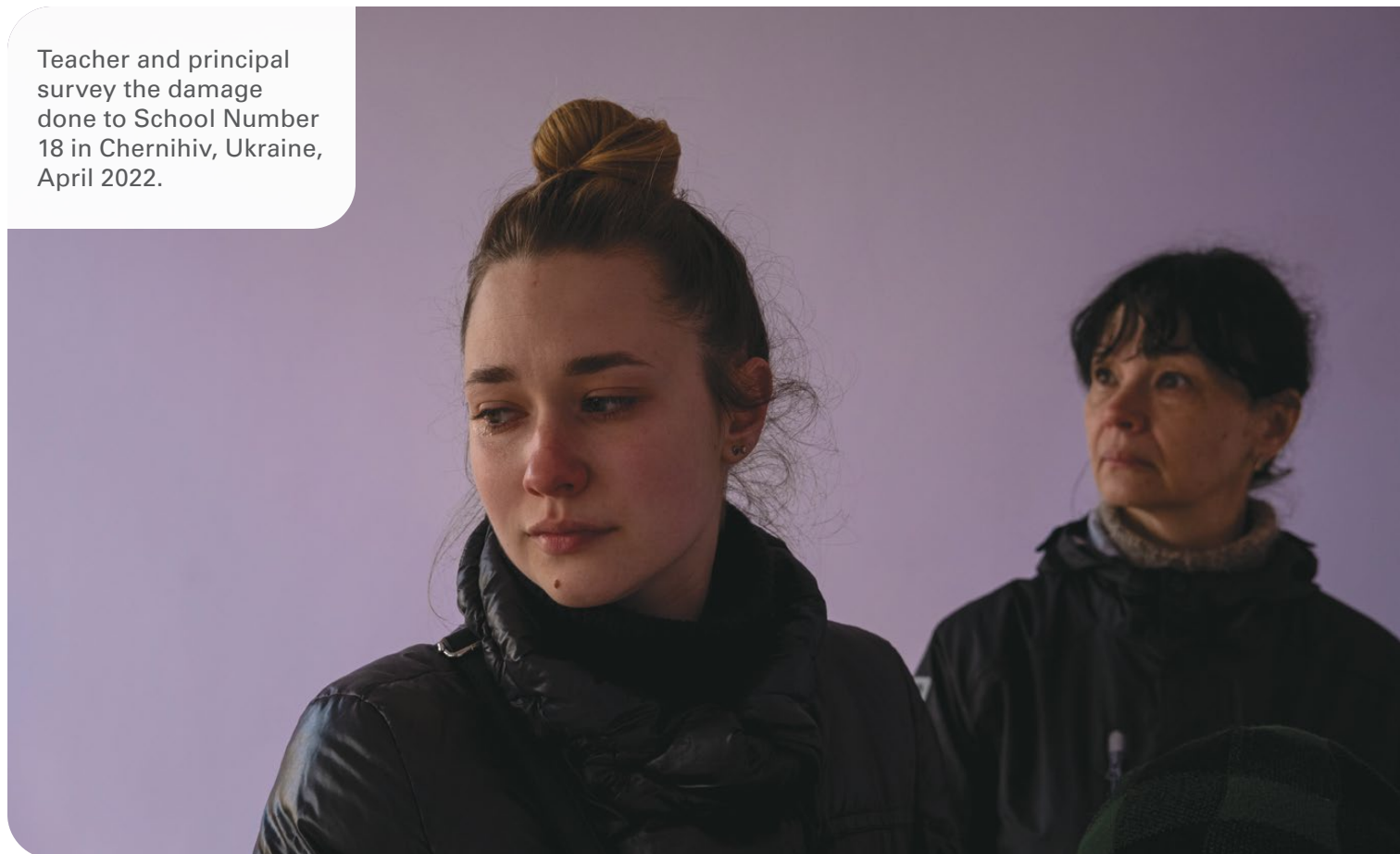
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FOREWORD

We all experience mental health. Mental health is inherently positive and, put simply, it helps to shape how we think, feel and behave. Mental health challenges in childhood and adolescence can prevent children from fulfilling their rights and achieving their full potential and is consistently and strongly associated with a range of negative academic, social and emotional outcomes later in life. The societal and economic costs of inaction are substantial.

Globally, mental health disorders among children and adolescents are far more prevalent than previously thought. Diagnosable mental health conditions affect about one in seven children and adolescents aged 10–19 years. Tragically, suicide is the fourth leading cause of death among young people aged 15–19, and children and young people increasingly bear the brunt of mental health problems worldwide: half of all mental health conditions originate by the age of 14 and three quarters by 25. While many conditions are preventable and treatable, most remain undetected and unmanaged.

UNICEF has elevated mental health as a global priority and set a new goal to secure investment and action to support and protect the mental health of children and young people. Research and innovation lie at the heart of this commitment and vision – all policy and practice must be grounded in evidence to ensure quality, timely and appropriate mental health and psychosocial support (MHPSS) interventions.

UNICEF's evidence and gap map (EGM) is a game-changer for evidence-based programming, impactful advocacy and successful resource mobilization in the field of child and adolescent mental health.

The EGM seeks to identify evidence on MHPSS interventions for children and adolescents in low- and middle-income countries (LMICs), to support policymakers and practitioners in transferring knowledge into practice. The sad fact is that most children do not have access to any type of mental health care. Well-conducted, relevant and innovative mental health research is therefore essential to help prioritize resources, particularly in LMICs.

It is encouraging to see that researchers and practitioners are rising to the challenge, with global MHPSS research increasing at a steady rate. However, the evidence is unevenly distributed – with over 80 per cent of evidence coming from high-income countries and no evidence coming from 60 LMICs. It is clear from the EGM that mental health research for children and adolescents lacks diversity, with fewer than a third of studies and reviews covering or focused on specific population sub-groups. This includes ethnic and racial minorities or LGBTQIA+ communities, who we know are more likely to experience poor mental health and have less access to mental health care.

Similarly, the EGM identifies that more research focusing on early childhood mental health, as well as the specific challenges of humanitarian settings, is needed. This is critical given that risks for mental health conditions and psychosocial problems among children and adolescents are exacerbated when they are exposed to early adversity and outside emergencies.

The EGM also importantly makes the case that MHPSS research should not just be reactive, and that research on promotion and prevention interventions is needed to drive down the need for mental health care and help bridge the global treatment gap.

Lastly, as children and adolescents become increasingly well versed in and reliant on digital technologies, it is important for researchers and practitioners to take advantage of this and develop, test and evaluate scalable digital tools that can ensure equitable and safe access to MHPSS.

The COVID-19 pandemic has underscored just how critical mental health and well-being are for all children, adolescents, caregivers and families, in all countries. But the magnitude of the mental health burden the world faces is simply not being matched by the response it demands.

We have seen some governments begin to take mental health seriously in their national plans and strategies, and new donors are driving a small uplift in mental health investments for the general population. But the limited investment that is allocated for children, adolescents and young people's mental health often only addresses surface-level factors through reactive interventions rather than proactive programmes that support a holistic approach to prevention, promotion and care in the field of mental health. This ultimately delivers short-term wins instead of long-term, equitable, systemic change, and often means that support does not become available until young people have reached a point of crisis.

And while we may not know everything just yet, we do know enough to say this: Acting early to support children, adolescents and caregivers is the best investment governments and donors can make to promote good mental health, prevent poor mental health and respond to the complex mental health issues facing our children today.

I hope that this EGM will serve as an invaluable resource for MHPSS practitioners, advocates, fundraisers and researchers in driving much-needed action and investment in support of this goal.

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UNICEF HQ, New York

Girl, 12, sits with her father in their house in the Kutupalong camp in Cox's Bazar, Bangladesh, June 2019.

BACKGROUND

All children have the right to survive, grow and develop, within the context of physical, emotional and social well-being, to achieve their full potential (UN Committee on the Rights of the Child, 2013). Mental health has been defined as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (World Health Organization (WHO) 2004, p. 11). While this definition moves away from the conceptualization of mental health as solely the absence of illness, most research and prevalence studies on children and adolescents focus on the mental health conditions that affect mood, thinking and behaviour.

It is estimated that, globally, mental disorders affect about one in seven children and adolescents aged 10–19 (UNICEF 2021). The magnitude and nature of child and adolescent mental health conditions can be illustrated through several key figures. First, and despite significant variation, the worldwide pooled prevalence of mental health conditions among children aged 10–19 years is estimated at 27.5 per cent for anxiety disorders and 12.7 per cent for depression, which are often comorbid (UNICEF 2021). Second, depression is one of the

leading causes of disability among young people while suicide is a major cause of death among children and adolescents worldwide, aged 10–19 (UNICEF 2021). Although behavioural problems among younger age groups are prevalent and vary in intensity, there are limited data on global rates and insufficient understanding of their long-term consequences (Hong et al. 2015). Finally, most mental health conditions originate early in life, with 50 per cent arising before the age of 14 and 75 per cent by the mid-20s (Kessler et al. 2010; Solmi et al. 2021). The evidence on effective interventions addressing the mental health and psychosocial well-being of children and adolescents has not been consistently gathered and mapped, despite the prevalence of these conditions.

Across the phases of life, experiences and environment present potential risks and opportunities for children and adolescents. Mounting evidence has shown that the first 1,000 days represent a unique opportunity for cognitive growth and early stimulation which are central to healthy mental and emotional lives (Erskine et al. 2017; Klasen and Crombag 2013; Patel et al.

THE FIRST 1,000 DAYS REPRESENT **A UNIQUE OPPORTUNITY FOR COGNITIVE GROWTH AND EARLY STIMULATION,** CENTRAL TO HEALTHY MENTAL AND EMOTIONAL LIVES.

Child plays with toys at a child-friendly space in Darién, Panama, October 2021.

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2018). During the early years of a child's life, parents and caregivers are instrumental in shaping child development and behaviour through adequate nutrition, education and a nurturing and safe home environment. The middle childhood years (5–9) are school-going years that provide the context for early peer support and nurturing care through positive interactions as well as providing opportunities for building important life skills (Kieling et al. 2011).

Adolescence offers a second window of opportunity, representing a critical period in brain development where adolescents adopt and maintain social and emotional habits and engage in identity formation.
This period is characterized by a heightened salience of relationships with peers, as key to shaping and directing young people's psychological development (Mitic et al. 2021). The onset of puberty

at this stage brings unique mental health challenges compounded by physiological and emotional transitions, as well as sexual and risk-taking behaviours. Late adolescence (15–19 years) is shaped by community and social and cultural expectations of acceptable behaviour, gender norms and roles, and the upper end of adolescence comes with pressure to secure employment and gain social and economic independence.

Although most children can adequately recover and adapt using their own resources, childhood and adolescence are also vulnerable periods during which adverse experiences can have a negative impact on cognitive, emotional and behavioural development. Without care and support, some children and adolescents can carry the mental and emotional costs of exposure to adverse experiences during earlier years to adulthood (Haahr-Pedersen et al. 2020). Indeed, research shows that in low-resource settings, multiple, overlapping childhood adversities (e.g., violence, neglect, abuse, parental separation or substance use) are consistently associated with poor mental health (Jokinen et al. 2021; Kieling et al. 2011; Reed et al. 2012). At the same time, evidence highlights that adolescence is a time when young people harness skills and traits that can foster resilience, or the learned capacity to deal more effectively with ongoing adversity (Lansford

and Banati 2018). Effective positive coping strategies and behaviours adopted and learned during these years can reap benefits into adulthood. Throughout childhood and adolescence, children can be helped to develop resilience by, for example, helping parents to be more responsive to their children's emotional and material needs, building community cohesion and providing them with high-quality learning opportunities.

Despite the high burden and early onset, most mental health conditions remain unrecognized and untreated. A global systematic review of survey data in 2004 estimated that 70 per cent of people aged 15 and older who were living with mental health conditions lacked access to adequate care (Kohn et al. 2004) and that this gap is higher in low- and middle-income countries (LMICs), where most (90 per cent) children and young people live (Kieling et al. 2011). It is important to assess the evidence and treatment gaps in LMICs in more recent years, as this estimate may have changed in the last decade. Additionally, there is growing evidence of effective, affordable and culturally acceptable interventions from high-income settings for preventing and treating mental health conditions that can be implemented in LMICs (Das et al. 2016). School-based programmes can have significant positive effects on children and adolescents' well-being, including reduced depression

and anxiety and improved coping skills (Barry et al. 2013). Various promotion and prevention approaches have been successfully implemented and rolled out in community settings (Bradshaw et al. 2021; Das et al. 2016; Klasen and Crombag 2013; Skeen et al. 2019). Parent and family-focused interventions (i.e., psycho-education; parent and family-skills training; behavioural, psychosocial and trauma-focused cognitive behavioural therapy) may be beneficial to child and youth mental health and well-being, as well as parenting behaviours and family functioning (Pedersen et al. 2019).

WHY IT IS IMPORTANT TO DEVELOP A MAP

Investment in child and adolescent mental health prevention, promotion and care is essential but the evidence from this field is yet to be systematically collected and mapped. An EGM generates a clearer picture of the available evidence on interventions to improve child and adolescent mental health in low-resource settings, thereby informing future research, policy and practice.

Promoting, protecting and caring for children and young people's mental health plays a key role in
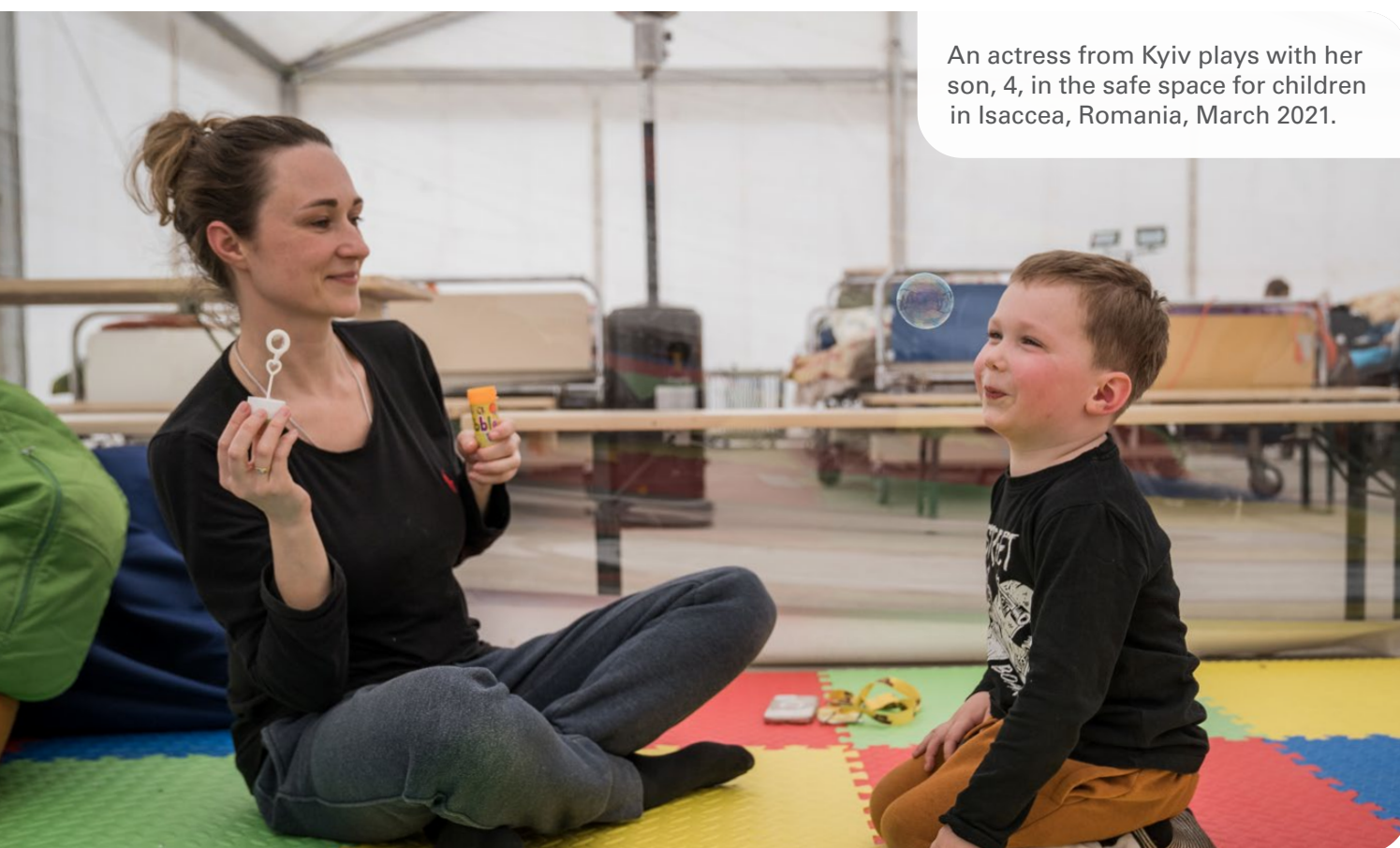
An actress from Kyiv plays with her son, 4, in the safe space for children in Isaccea, Romania, March 2021.

achieving all of the 17 Sustainable Development Goals (SDGs). More specifically, Goal 3 calls on Member States to ensure healthy lives and encourage well-being for all *at all ages*. SDG target 3.4 aims to reduce premature mortality from non-communicable diseases and promote mental health and well-being. Effective mental health interventions can act as potential development goal accelerators (Sherr et al. 2020) – with provisions that lead to progress across the domains of a child's life, and impact upon multiple SDGs (Patel et al. 2018). However, mental health care is chronically under-prioritized and under-funded, representing only up to 1 per cent of national health budgets in LMICs (Patel et al. 2018). In the context of meeting these global goals, there is an urgent need to identify *what works* in the field of mental health and psychosocial support (MHPSS) in low-resource settings and map potential areas of investment for future research and programming.

Early evidence from the COVID-19 crisis indicates exacerbated mental health problems during the pandemic, with children and young people globally at risk of psychosocial distress, including anxiety, depression and externalizing behaviours, due to lockdowns, school closures and economic recession (UNICEF Office of Research – Innocenti 2021). The need for greater investment in mental health interventions emerged

MENTAL HEALTH CARE IS CHRONICALLY **UNDER-PRIORITIZED AND UNDER-FUNDED,** REPRESENTING ONLY UP TO **1%** OF NATIONAL HEALTH BUDGETS IN LOW- AND MIDDLE-INCOME COUNTRIES.

as a key finding in a recent rapid review on the topic (UNICEF Office of Research – Innocenti 2021), as well as the importance of targeting specific risk and protective factors across age groups in LMICs, where the research is most limited. A lack of understanding of what works acts as a barrier to increasing investment in mental health care (McDaid et al. 2008). More research is needed to examine the state of the evidence regarding programmatic interventions on children's mental health in the first and second decades of life. Yet, no unified resource exists that provides an overview of the evidence on child and adolescent mental health interventions in these settings.

Against this backdrop, UNICEF has renewed its commitment by setting a new goal to secure investment and action to support and protect the mental health of children and young people. It is estimated that 90 per cent of research on child and adolescent mental health has been conducted in high-income countries and evidence from low-resource settings is sparse (Kieling et al. 2011). An EGM identifies where the evidence

is abundant, but also where limited research and absolute gaps exist and increases the visibility of the available evidence (Saran et al. 2020). This resource enables us to identify under-researched areas, countries and population subgroups and to inform the decisions of international donors, policymakers, practitioners and researchers as well as UNICEF's research priorities and programmatic actions. A visual representation of the evidence, in the form of a matrix of interventions, allows decision-makers to identify and focus on the areas of research that are more likely to inform their work.

CONCEPTUAL FRAMEWORK

The conceptual framework guiding this EGM builds upon the mental health research and evidence generation framework proposed by UNICEF Office of Research – Innocenti *(see Figure 1)*, which was developed through a series of internal expert consultations to guide evidence and data generation efforts and to support UNICEF's Global Mental Health and Psychosocial Support Framework and programming strategy. The framework recognizes that, as children and adolescents grow through the life course, their interactions and influences also widen. Their mental health is thus determined by a myriad of dynamic risk and protective factors at different layers of the

social environment across their developmental stages – individual, interpersonal, community, and structural and policy levels. Different factors have a greater impact at different ages and across these levels.

This framework incorporates elements of other existing ones, including: a) the socio-ecological model (Bronfenbrenner 1979), which posits that a child's psychosocial well-being depends on a myriad of factors nested within their broader social environment ranging from the household through to the community and society levels and the wider socio-cultural and policy environment, and can be understood as the different delivery platforms by which interventions are deployed; b) the social determinants of health approach (Marmot and Wilkinson 2005), which emphasizes the role of circumstances in which people are born and grow up, as well as the systems in place to deal with illness; and c) the life course epidemiology approach (Kuh et al. 2003), which highlights the factors and experiences over the life course and across generations that impact health outcomes at different ages and life stages.

The EGM utilizes this framework by organizing interventions according to delivery platforms that correspond to the levels in a child's social ecology. Further, the outcomes will be sensitive to the child's life stage and social determinants of health,

FIGURE 1: Child and adolescent mental health and psychosocial well-being: A conceptual framework for research and evidence generation use

		Prenatal and birth	Early childhood (0–4 years)	Middle childhood (5–9 years)	Early adolescence (10–14 years)	Late adolescence (15–19 years)
Individual Level	**Early Childhood Development**	■ Perinatal and antenatal care ■ Intergenerational effects from parents ■ Nutrition	■ Parenting care and support ■ Nutrition ■ Disability	■ Parenting care and support ■ Nutrition ■ Learning environment ■ Disability	■ Nutrition ■ Disability ■ Violence in the home, school or community	■ Nutrition ■ Disability ■ Violence in the home, school or community
	Puberty and Self-concept	■ Disability	■ Violence in the home or community	■ Violence in the home, school or community	■ Social networks in the school or community	■ Social networks in the school or community
Interpersonal Level	**Caregiving and Living Environment**	■ Violence in the home or community	■ Play in the home or community	■ Play in the home or community	■ Poverty and social deprivation	■ Poverty and social deprivation
	Peer Relationships	■ Poverty and social deprivation	■ Poverty and social deprivation	■ Poverty and social deprivation	■ Nutrition ■ Learning environment	■ Nutrition ■ Learning environment
Community Level	**Community Caregiving Programmes**	■ Gender and social norms	■ Gender and social norms	■ Gender and social norms	■ Digital and technology use ■ Gender and social norms	■ Digital and technology use ■ Gender and social norms
	Neighbourhood and School Environment	■ Physical, psychological or sexual violence	■ Physical, psychological or sexual violence	■ Physical, psychological or sexual violence	■ Physical, psychological or sexual violence	■ Physical, psychological or sexual violence
Structural and Policy Level	**Family-Friendly Policies**	■ Exposure to humanitarian health crises	■ Exposure to humanitarian health crises	■ Exposure to humanitarian health crises	■ Exposure to humanitarian health crises	■ Vocational opportunities ■ Exposure to humanitarian health crises
	Social Protection and Mental Health Programmes, Policies and Laws	■ Enabling environment (national policies, programmes, funding allocation, instutional frameworks)	■ Enabling environment (national policies, programmes, funding allocation, instutional frameworks)	■ Enabling environment (national policies, programmes, funding allocation, instutional frameworks)	■ Enabling environment (national policies, programmes, funding allocation, instutional frameworks)	■ Enabling environment (national policies, programmes, funding allocation, instutional frameworks)

Source: Idele et al. (2022).

FIGURE 2: Mental health intervention spectrum
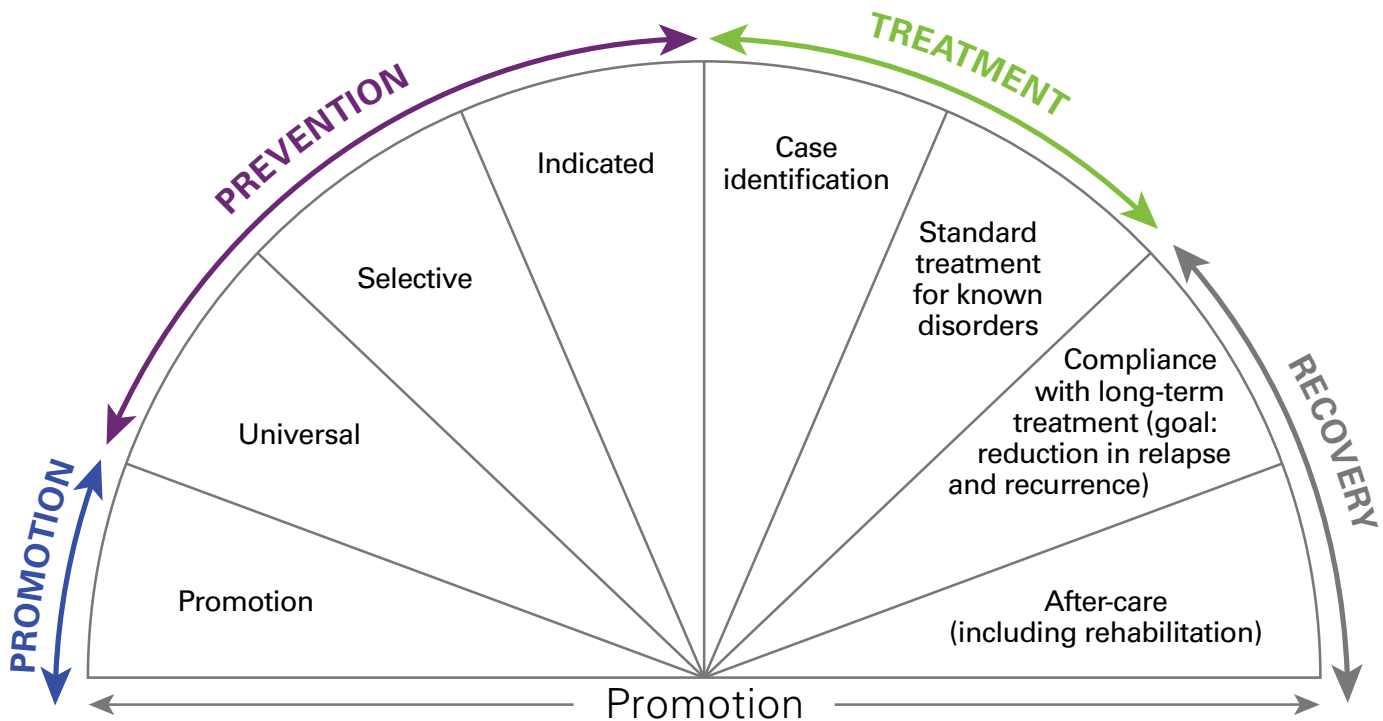
Source: Adapted from Institute of Medicine (1994).

thereby including child development outcomes as well. Child and adolescent mental health is complex and changes over time according to individual characteristics, relationships, context and experiences. Therefore, it is hereby understood to encompass both negative and positive mental health outcomes including well-being and functioning as well as symptoms of distress or sadness and mental health conditions that may require specialized care.

Building on this, we apply the continuum of care model to categorize mental health interventions as prevention, promotion or treatment, (see Figure 2 — Institute of Medicine

1994). Mental health promotion interventions aim to enhance well-being and create supportive and protective environments for all children and adolescents. Prevention interventions focus on preventing or reducing the risk of developing a mental health condition by targeting modifiable risk factors and can be universal (delivered to the general population, for example primary prevention), selective (population subgroups deemed to be at risk of mental health conditions developing) or indicated (populations identified at heightened risk of mental health conditions). Treatment interventions are for populations diagnosed with a mental health condition. The framework also includes recovery

interventions; however, these will be excluded from the EGM.

WHAT IS INCLUDED IN THE MAP

We mapped evidence on the effectiveness of child and adolescent (ages 0–19) MHPSS interventions in LMICs within the last 12 years. A description of these criteria is provided below, and an overview of search methods and sources used is presented in Appendix 2.

Types of populations

Children and adolescents are defined as any person from 0 to 19 years of age and classified according to UNICEF's age criteria stated as follows: early childhood (0–4 years), middle childhood (5–9 years), early adolescence (10–14 years) and late adolescence (15–19 years). Primary studies where less than 50 per cent of the sample fall within the 0–19 age range or that do not provide sufficient information on age composition will be excluded.

Population subgroups of interest include children in alternative care, children with disabilities, LGBTQIA+ children, ethnic or racial minorities, child workers, married children, street children, children with chronic health conditions, pregnant adolescents and adolescent parents, and forcibly displaced children. We will also note whether studies or

Children from Nagorno-Karabakh temporarily residing at a parenting school participate in an art session in Yerevan, Armenia, December 2020.

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reviews focus on girls/females, boys/males and/or other.

LMICs are defined according to the World Bank's regional classification by country gross national income as: low-income, lower-middle-income or upper-middle-income economies (World Bank 2021).

Types of interventions

MHPSS is defined as "any type of local or outside support that aims to protect or promote psychosocial well-being and/or prevent or treat mental disorders" (Inter-agency Standing Committee 2007, p. 1). While there is no universally agreed-upon categorization of

MHPSS interventions, they are hereby organized according to the levels of the socio-ecological model and UNICEF Office of Research – Innocenti's conceptual framework, based on the platform of delivery:

■ Individual and family-based interventions

■ School-based interventions

■ Community-based interventions

■ Digital interventions.

The EGM includes filters for individual, dyad and group-based interventions. Under each of these categories, they were further categorized as mental health promotion, prevention of mental health conditions or treatment interventions. This categorization is based on the continuum of interventions highlighted in the conceptual framework section above, and on the description of these types of interventions provided in the systematic review of MHPSS interventions for conflict-affected children in LMICs (Jordans et al. 2016).

■ **Promotion:** activities and programmes focusing on strengthening positive aspects of mental health and child well-being.

■ **Prevention:** activities and programmes that aim to stop mental health conditions from developing, by acting on the social determinants of mental health that may be known risk factors for certain mental disorders.

■ **Treatment:** activities to reduce symptoms and improve functioning in people with identified mental disorders. We excluded studies investigating solely pharmacological treatment.

The distinction between interventions that enhance mental health and those that lower the risk of or ameliorate mental health conditions is not always clear (Appendix 1; Tol et al. 2015). Therefore, although we include examples of interventions for each intervention type, it should be noted that there may be overlaps, for example, a cognitive behavioural therapy intervention can be classified (depending on its objectives and modules) as promotion if it is focused on building life skills, or treatment if it teaches children how to cope with and overcome anxiety. Recovery interventions concentrated on compliance with long-term treatment with the goal of reducing relapse and recurrence as well as after-care and rehabilitation were excluded from the EGM. We excluded studies investigating the effectiveness of neurofeedback.

TABLE 1. Interventions

Intervention platform	Intervention type	Examples
Individual and family-based	Prevention	■ Life skills, maternal and paternal stimulation
	Promotion	■ Psycho-education, parenting education, exercise
	Treatment	■ Cognitive behavioural therapy, interpersonal psychotherapy, psychological first aid
School-based	Prevention	■ Peer support, life skills training
	Promotion	■ School-based mental health promotion, peer support, life skills education
	Treatment	■ School counselling, group cognitive behavioural therapy
Community-based	Prevention	■ Primary prevention, child-friendly spaces
	Promotion	■ Stigma reduction, community-based mental health advocacy
	Treatment	■ Task shifting and task sharing interventions, psychological first aid in the community
Digital	Prevention	■ Online mindfulness-based cognitive behavioural therapy
	Promotion	■ Online mental health promotion, online psycho-education
	Treatment	■ Computerized cognitive behavioural therapy

Table 1 lists the intervention categories and subcategories. They cover all key MHPSS interventions across different contexts and levels of the child's social ecology, organized by platform of delivery (i.e., individual and family, school, community and digital).

Types of outcome measures

The main outcome categories are listed in *Table 2*. Systematic reviews and primary studies investigating the impact of MHPSS interventions on violence prevention outcomes (addressed in the violence against children EGM; Pundir et al. 2020) were excluded.

We used the International Classification of Diseases (ICD-11) criteria for including mental health conditions. The terms 'internalizing' and 'externalizing' refer to internally and externally focused symptoms of mental health conditions respectively. These well-established and widely used groupings are

TABLE 2. Outcomes

Outcome domains	Subdomains	
Mental health conditions	**Internalizing conditions**	Depression
		Anxiety disorders
		Post-traumatic stress disorder
		Suicidal behaviour, attempt and self-harm
		Eating disorders
	Externalizing conditions	Oppositional defiant disorder
		Conduct disorder
		Attention deficit hyperactivity disorder
		Alcohol and substance use
		Other mental health conditions and symptoms (e.g., hopelessness, anger, risk-taking behaviours, cultural symptoms of distress)
Mental well-being	Well-being	
	Functioning	
	Ability to cope	
	Social behaviour	
	Social connectedness	
	Other well-being outcomes (e.g., resilience, quality of life)	
Early childhood development outcomes	Social emotional learning	
	Cognitive development	
	Executive function	
	Emotional regulation	
	Behaviour problems	

derived from factor analyses of psychological problems identified by clinically referred children and describe behavioural, emotional and social problems. They encompass a broad range of mental health issues and are not mutually exclusive. The mental health conditions listed under each of these are based on what emerged as the most

relevant categories from our recent rapid review on the impact of child and adolescent mental health outcomes (UNICEF Office of Research – Innocenti 2021). Further, while the medicalization and science around mental health conditions has favoured development of discrete outcomes and measures, positive mental health outcomes are yet to be standardized across the literature, with a high variability across approaches. Although positive mental health is a well-recognized aspect of mental health, there is no established classification of its outcomes. In this EGM, we classify positive mental health outcomes according to Inter-agency Standing Committee Reference Group for Mental Health and Psychosocial Support in Emergency Settings' Common Monitoring and Evaluation Framework (Inter-agency Standing Committee 2021). In addition, we have also included 'other' categories for relevant outcomes that may emerge from the included studies and relate directly to the outcomes described above (e.g., sadness or hopelessness as outcomes related to depression, or self-efficacy and prosocial behaviours related to mental well-being). To capture key early childhood indicators, we will also be looking at child development outcomes such as socio-emotional learning and cognitive development. These are critical processes through which children acquire and apply knowledge and skills to cope with challenges, manage interpersonal

> **SOCIO-EMOTIONAL LEARNING AND COGNITIVE DEVELOPMENT ARE CRITICAL** FOR CHILDREN TO COPE WITH CHALLENGES, MANAGE RELATIONSHIPS AND EMOTIONS, SOLVE PROBLEMS AND MAKE INFORMED DECISIONS.

relationships and emotions, solve problems and make informed decisions. These indicators are also linked to later-life mental health outcomes (Black et al. 2017; Patel et al. 2018).

Types of study designs

The study designs included in the EGM are systematic reviews and effectiveness studies in the form of randomized controlled trials and quasi-experimental studies. Mixed-methods studies with a focus on intervention effectiveness are also included. These types of study designs match the focus on intervention effectiveness.

We did not include purely qualitative studies in the EGM or quantitative and mixed-methods studies focused on topics beyond intervention effectiveness (such as training and capacity building of practitioners and providers), studies solely focused on detection and diagnosis of mental health conditions, single-case reports of treatments, other EGMs, systematic reviews of reviews, natural experiments or research on mental health policy or legislation.

Types of settings

Interventions delivered solely in hospital settings such as in-patient and out-patient psychiatric care are considered beyond the scope of the map's delivery platforms and were not included in the EGM.

Languages, publication period and types

Searches were conducted in English, but studies and reviews written in any language were considered for inclusion. Studies in languages that could not be interpreted by any members of the review team (i.e., Arabic, Farsi, Serbian and Turkish, N=119) were excluded.

Studies published from the year 2010 onwards were included to consider the most updated and relevant search results. This date coincides with the publication of WHO's Mental Health Global Action Programme (mhGAP) intervention guidelines, providing recommendations for the treatment of mental health conditions in non-specialist health settings (World Health Organization 2010). However, systematic reviews included in this EGM may include studies from before 2010.

Peer-reviewed reports and academic papers were included. Protocols of systematic reviews and primary studies were also included and removed if the review or primary study was identified. Pilots of randomized controlled trials were excluded. Co-registered reports were treated as duplicate reviews with data extracted from the most detailed version. Similarly, if multiple versions of the same systematic review were identified, the latest and most comprehensive version was considered for inclusion. Commentaries, conceptual or theoretical papers, editorials, conference proceedings and clinical cases were excluded.

A detailed description of search methods and source is provided in Appendix 2.

STAKEHOLDER ENGAGEMENT

This EGM was guided by the feedback and input of an Advisory Group composed of experts, researchers, practitioners and advocates from the field of global child and adolescent mental health. Age, gender, field of expertise and geographic focus were considered when inviting members to join the Advisory Group. The group was engaged at all stages of the EGM process providing comments on the protocol, EGM online tool, in identifying ongoing primary studies and systematic reviews, reviewing the final report and providing advice on dissemination channels.

President of the Addis Ababa Children's Parliament, Kalkidan, 15, shares how she spends her time at home during the COVID-19 school closures, April 2020.

RESULTS

Upon screening completion, 697 records were included in the EGM. The EGM linked to this report can be accessed here. Appendix 3 presents a flowchart of identification of studies and databases. There are many more entries in the map than there are studies. This is because the studies were coded and mapped for all the intervention categories and subcategories that they included. This also applies to the figures presented throughout this section. One intervention can be coded as more than one platform or type (promotion, prevention and treatment), based on the nature of intervention. Similarly, one primary study or systematic review can focus on or cover more than one type of intervention platform as well. Also, more than one outcome domain and subdomain can be measured in one primary study or systematic review. Various records are counted more than once, which is necessary to provide an overview of the EGM's results.

INTERVENTIONS

Most research on MHPSS interventions (61 per cent, N=425) conducted in LMICs, regardless of whether they focus on promotion, prevention or treatment, has been conducted in school settings (*see*

TABLE 3. Studies and reviews by intervention platform and outcome domains

Intervention platform	Intervention type	Mental health condition outcomes	Mental health outcomes	Early childhood development outcomes
Individual and family-based interventions	Promotion	44	44	40
	Prevention	61	36	13
	Treatment	147	55	15
School-based interventions	Promotion	103	129	22
	Prevention	140	65	10
	Treatment	232	91	13
Community-based interventions	Promotion	48	62	29
	Prevention	58	32	9
	Treatment	165	81	11
Digital interventions	Promotion	19	21	4
	Prevention	31	15	0
	Treatment	39	13	3

Table 3). For instance, El-Khodary and Samara (2020) investigated the effectiveness of a school-based counselling programme after exposure to traumatic events among Palestinian children and adolescents in the Gaza Strip. Post-traumatic stress disorder, anxiety and depression symptoms of 572 students aged 12–18 were measured before the application of this treatment intervention and two months later.

This is followed by community-based (37 per cent, N=261), individual and family-based (34 per cent, N=237) and digital (11 per cent, N=78) interventions. A total of 59 per cent of records (N=409) investigated treatment interventions, while 37 per cent (N=258) and 28 per cent (N=192) investigated promotion and prevention ones respectively.

MOST RESEARCH ON MENTAL HEALTH AND PSYCHOSOCIAL SUPPORT INTERVENTIONS IN LOW- AND MIDDLE-INCOME COUNTRIES HAS BEEN CONDUCTED IN SCHOOL SETTINGS.

FIGURE 3. Intervention platform by intervention type
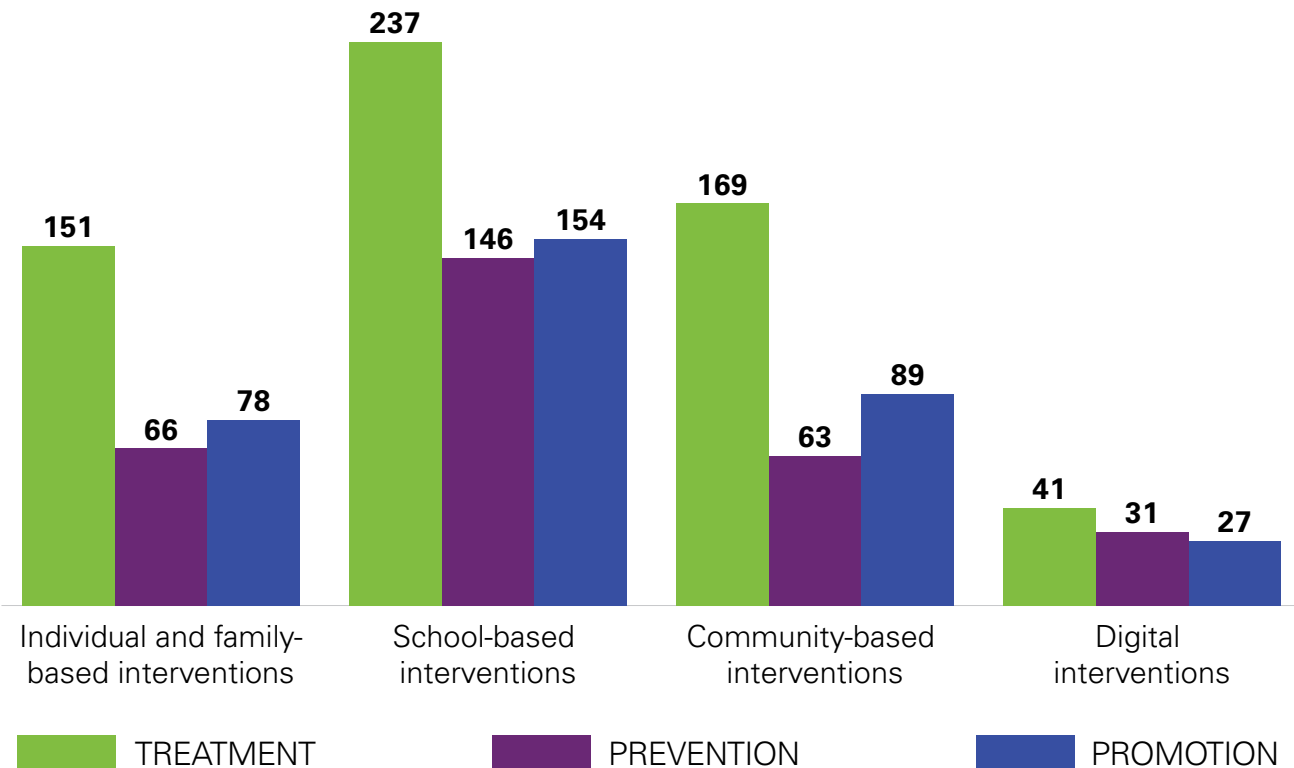
Figure 3 shows treatment interventions are the most commonly researched intervention platform. Additionally, more promotion than prevention interventions are found in school-based, community-based, and individual and family-based interventions. For example, based on a cluster randomized controlled trial, Zheng and colleagues (2021) assessed a peer-to-peer digital intervention aimed at promoting physical activity and measured whether this treatment intervention could reduce symptoms of anxiety among 954 children aged 12–14 during the COVID-19 pandemic. However, prevention rather than promotion interventions tend to be slightly more common among digital platforms. For instance, Yap

and colleagues (2020) evaluated the effectiveness of a digital game based on cognitive behavioural therapy to prevent alcohol use among 140 adolescents in the Philippines.

Most interventions covered in studies and reviews were designed for groups (79 per cent, N=553), followed by individuals (34 per cent, N=239) with just 9 per cent directed to dyads (N=62). For example, Baumgartner and colleagues (2021) conducted a cluster randomized controlled trial and measured the socio-emotional early childhood development outcome after 374 mothers with their children received a group-based integrated maternal mental health and early childhood development programme in their

A Warao family in Nabasanuka, an indigenous community supported by UNICEF, Delta Amacuro state, Venezuela, July 2021.

community in Ghana. A total of 26 per cent of records (N=184) covered interventions with more than one format. The map indicates that 24 per cent (N=166) of studies and reviews investigated both individuals and groups, compared with 5 per cent (N=39) researching both dyads and groups and 4 per cent (N=31) both individual and dyads. For instance, Anttila and colleagues (2019) investigated the effectiveness of a digital web programme, which was conducted in both small groups and individually, on the well-being of 180 Thai adolescents. Four per cent of records (N=26), which are all systematic reviews, researched all three formats. Eight per cent of studies and reviews (N=53) did not report the format of provision.

A total of 82 studies and reviews included interventions consisting of physical activities. Most of them were designed in school-based settings (N=66) and for treatment (N=51). For example, Cocca and colleagues (2020) measured psychological well-being, self-esteem, stress and anxiety among 252 Mexican schoolchildren aged 10–12 before and after they attended a six-month game-based physical education programme at school. This type of intervention was more frequently delivered to early (N=67) and late adolescents (N=55) than early (N=11) and middle childhood (N=45) and most were delivered in groups (N=69).

OUTCOMES

Most studies investigated mental health conditions (83 per cent, N=578), followed by mental health (46 per cent, N=320) and early childhood development outcomes

FIGURE 4. Top ten most common outcome subdomains
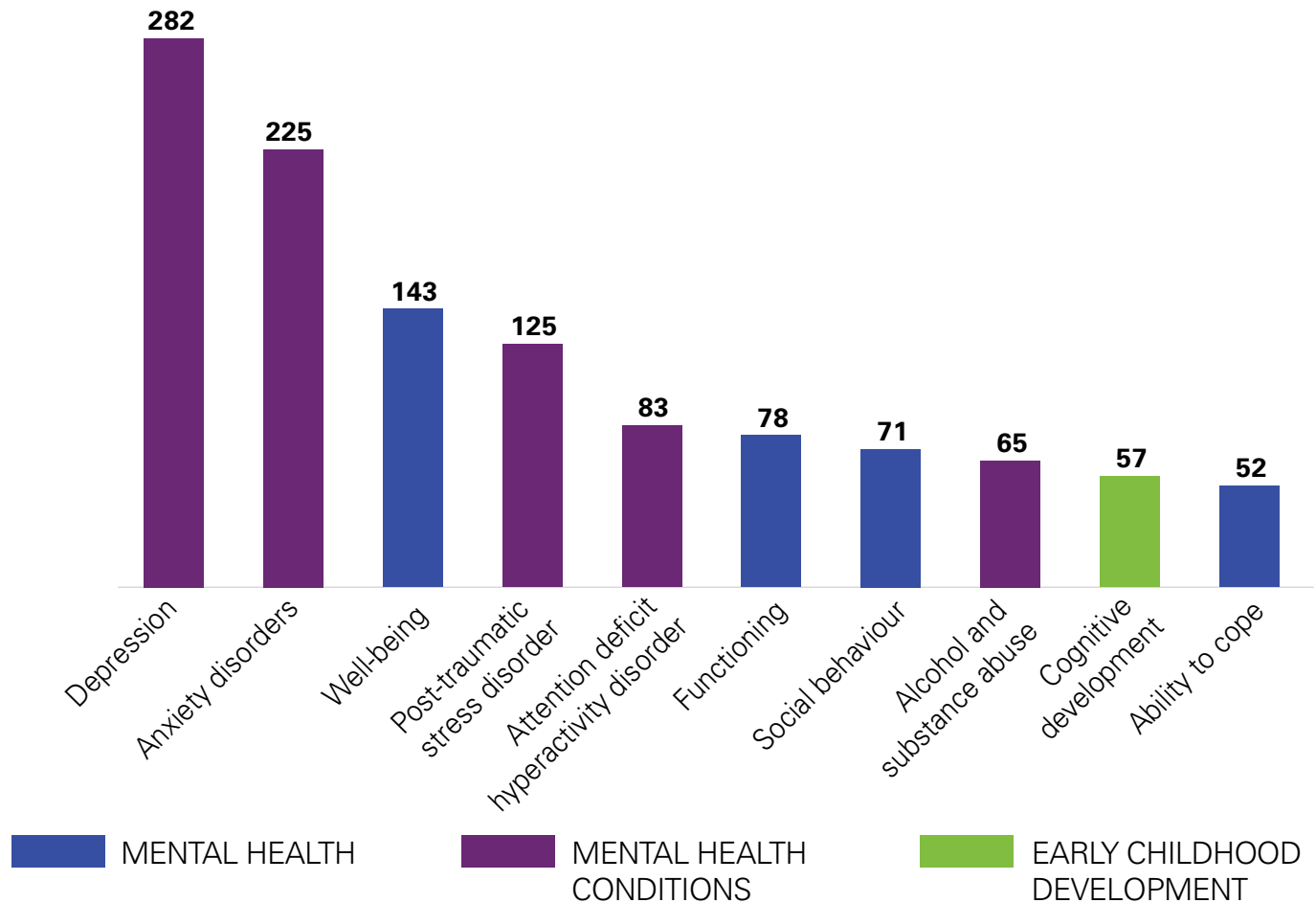
Note: This figure only shows the top ten most common subdomains, which represent 83 per cent of all coded outcomes, and excludes the other nine less common subdomains.

(11 per cent, N=76). *Figure 4* presents the top ten most common outcome subdomains.

As presented in *Table 4*, depression (40 per cent, N=282) was the most frequently analysed outcome subdomain, followed by anxiety disorders (32 per cent, N=225), well-being (21 per cent, N=143) and post-traumatic stress disorder (18 per cent, N=125). It is also notable that 'other mental health problems and symptoms' and 'other mental well-being outcomes'

are among the most frequently measured subdomains. For example, in a randomized controlled trial, Barron and colleagues (2016) measured the effectiveness of teaching recovery techniques on dissociation, war stressors, post-traumatic stress and depression among 154 adolescents in Palestine.

All five subdomains in early childhood development outcomes were covered by less than 10 per cent of studies and reviews. Within mental health outcomes,

TABLE 4. Studies and reviews by outcome domains and subdomains

Outcome domains	Subdomains	Number of studies and reviews	Frequency
Mental health conditions	Depression	282	40%
	Other mental health problems and symptoms	264	38%
	Anxiety disorders	225	32%
	Post-traumatic stress disorder	125	18%
	Attention deficit hyperactivity disorder	83	12%
	Alcohol and substance abuse	65	9%
	Conduct disorder	32	5%
	Suicidal behaviour, attempt and self-harm	31	4%
	Oppositional defiant disorder	27	4%
	Eating disorders	15	2%
Mental health	Other mental well-being outcomes	201	29%
	Well-being	143	21%
	Functioning	78	11%
	Social behaviour	71	10%
	Ability to cope	52	7%
	Social connectedness	48	7%
Early childhood development outcomes	Cognitive development	57	8%
	Behaviour problems	30	4%
	Social emotional learning	20	3%
	Executive function	20	3%
	Emotional regulation	19	3%

FIGURE 5. Number of studies by outcome and type of intervention
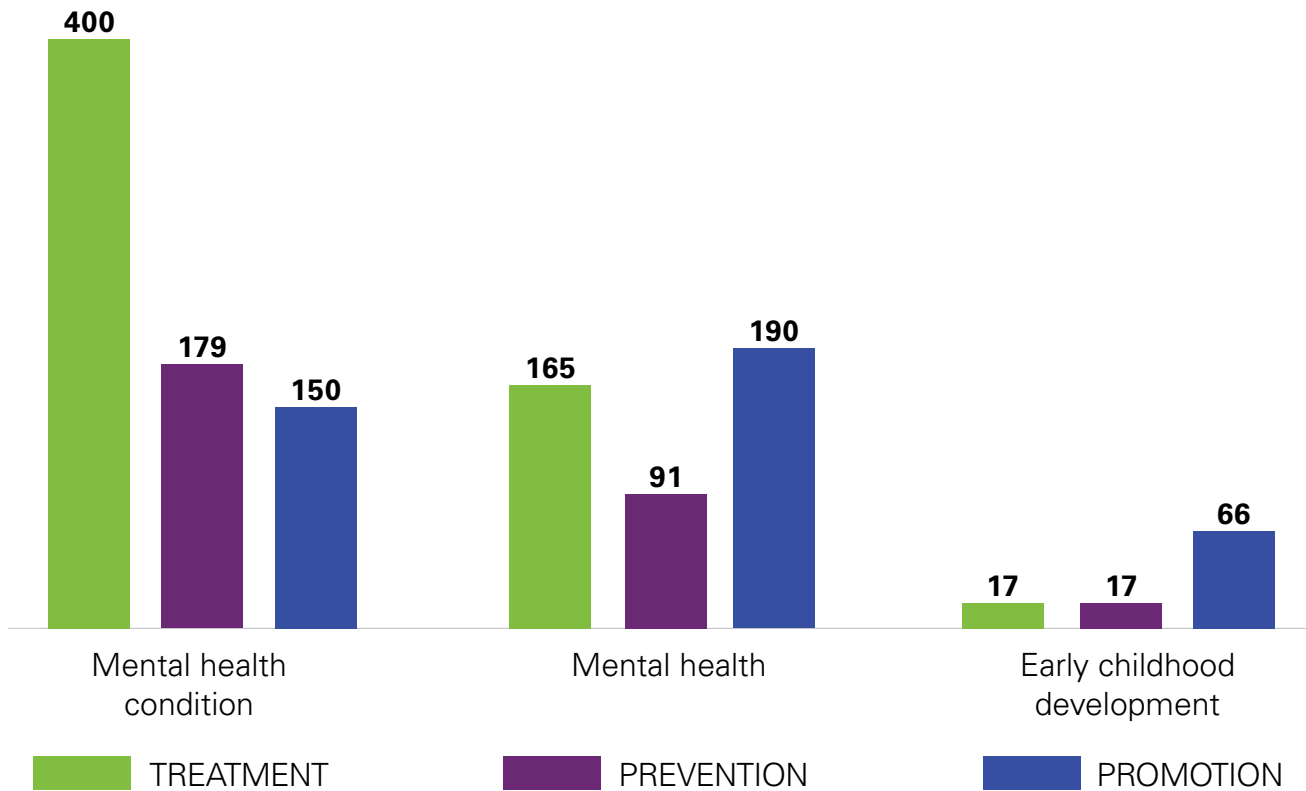
two of six subdomains were measured by less than 10 per cent of studies and reviews, which were ability to cope or social connectedness. Five subdomains in mental health conditions outcomes – eating disorders, oppositional defiant disorder, suicidal and self-harm behaviour, conduct disorder, and alcohol and substance abuse — were also covered by less than 10 per cent of studies and reviews.

The most measured combinations of subdomains were depression and anxiety disorders (24 per cent, N=165) and depression and post-traumatic stress disorder (12 per cent, N=85). Post-traumatic stress disorder, depression and anxiety

disorders are another common combination of subdomains, included in 50 (7 per cent) studies and reviews.

Figure 5 shows the number of results by outcome groups and intervention type. Most studies of interventions addressing mental health conditions, whether they concentrate on internalizing, externalizing or other mental health problems, focus on treatment. For instance, Nayeri and colleagues (2021) investigated the efficacy of a group reality therapy in attention deficit hyperactivity disorder and oppositional defiant disorder among 40 Iranian adolescents aged 12–18.

AGE GROUPS

Most included studies and reviews investigated the effectiveness of MHPSS interventions in early (75 per cent, N=525) and late adolescence (64 per cent, N=448), followed by 45 per cent (N=317) that investigated middle childhood and 22 per cent (N=150) early childhood (*see Figure 6*). Most studies looked into treatment interventions across all age groups with the exception of early childhood, for which a similar number of studies investigated treatment (10 per cent, N=73) and promotion (12 per cent, N=85) interventions respectively (*see Figure 7*).

FIGURE 6. Distribution of studies and reviews by age
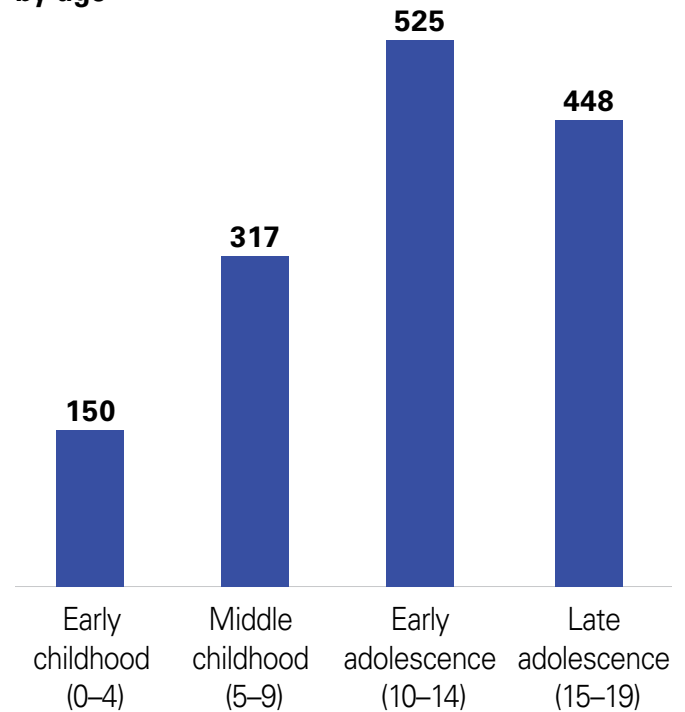
FIGURE 7. Distribution of studies and reviews by intervention type and age
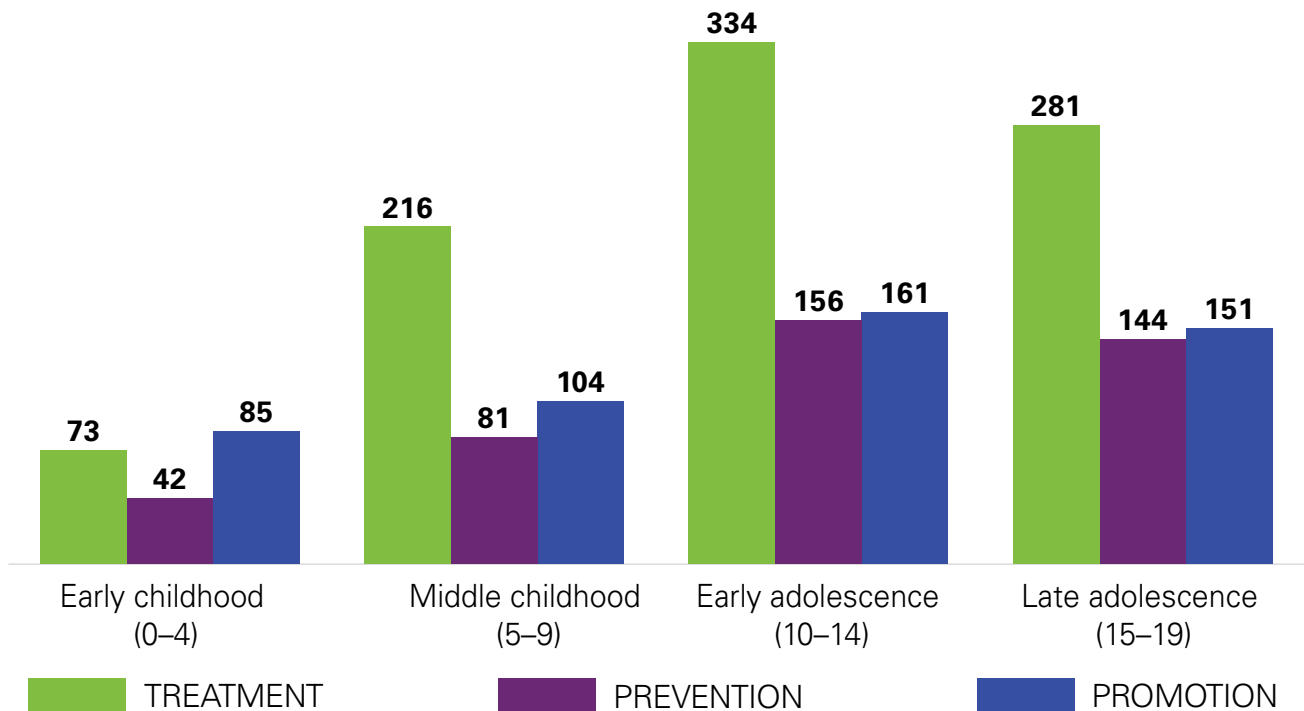
FIGURE 8. Number of studies and reviews by subgroup

Subgroup	Count
LGBTQIA+ children	1
Street children	4
Child labourer	8
Pregnant adolescents and adolescent parents	8
Children with chronic health conditions	18
Children with disabilities	24
Ethnic or racial minorities	25
Children in alternative care	36
Other subgroups	62
Migrant and forcibly displaced children	66
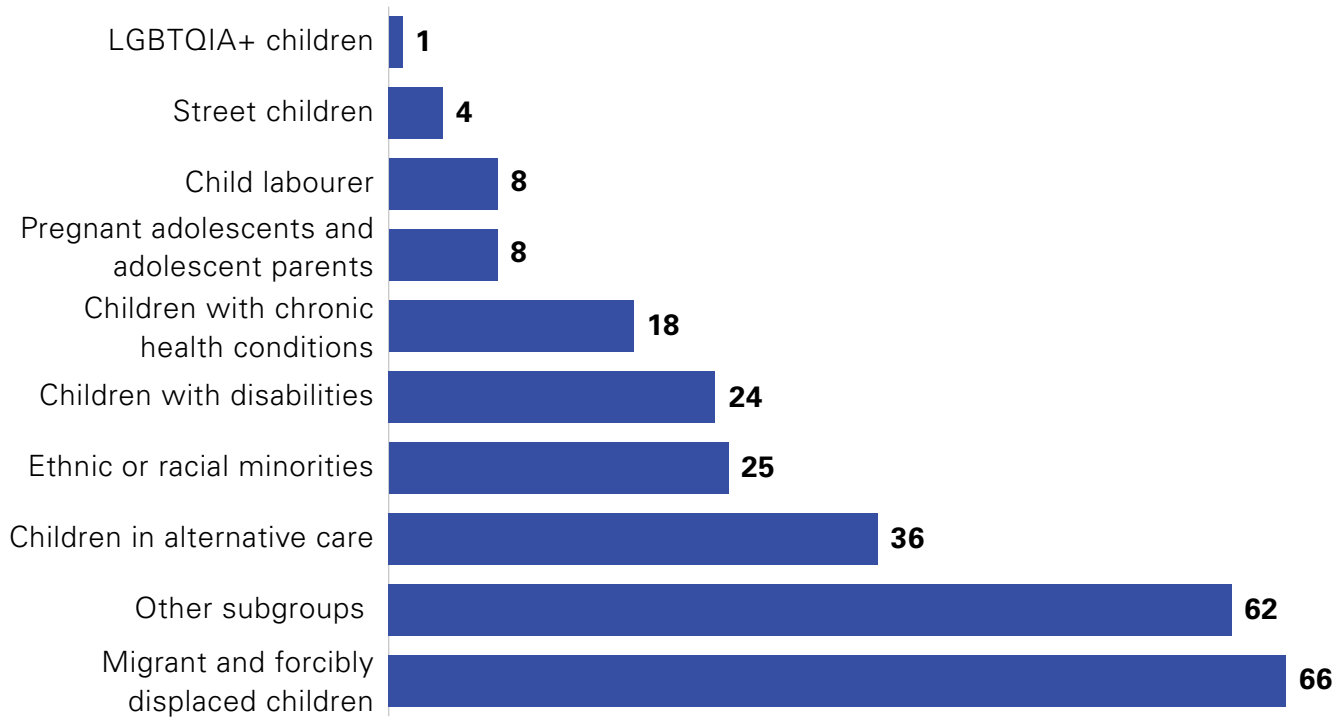
POPULATIONS

As presented in *Figure 8*, less than a third of studies and reviews (31 per cent, N=213) covered or focused on specific populations. The most explicitly included or targeted subgroups were migrants and forcibly displaced children (10 per cent, N=66), children in alternative care (5 per cent, N=36), ethnic and racial minorities (4 per cent, N=25), and children with disabilities (4 per cent, N=24). No studies focused on child marriage and only one on non-binary gender identities (Damanpak-Rizi et al. 2021). Using a randomized controlled study design, Damanpak-Rizi and colleagues (2021) investigated the effectiveness of a cognitive behavioural online family-based intervention on family violence against transgender youth in the Islamic Republic of Iran and analysed depression, anxiety, suicidal thoughts and attempts, and self-esteem among 50 participants as secondary outcomes. A few studies and reviews focused on pregnant adolescents/adolescent parents, children living on the streets and child labourers. For instance, Watters and O'Callaghan (2016) synthesized evidence on MHPSS interventions for children and adolescents in street situations in LMICs from five studies.

There were 62 studies and reviews investigating other subgroups such as children of parents with severe

FIGURE 9. Number of studies by sample size
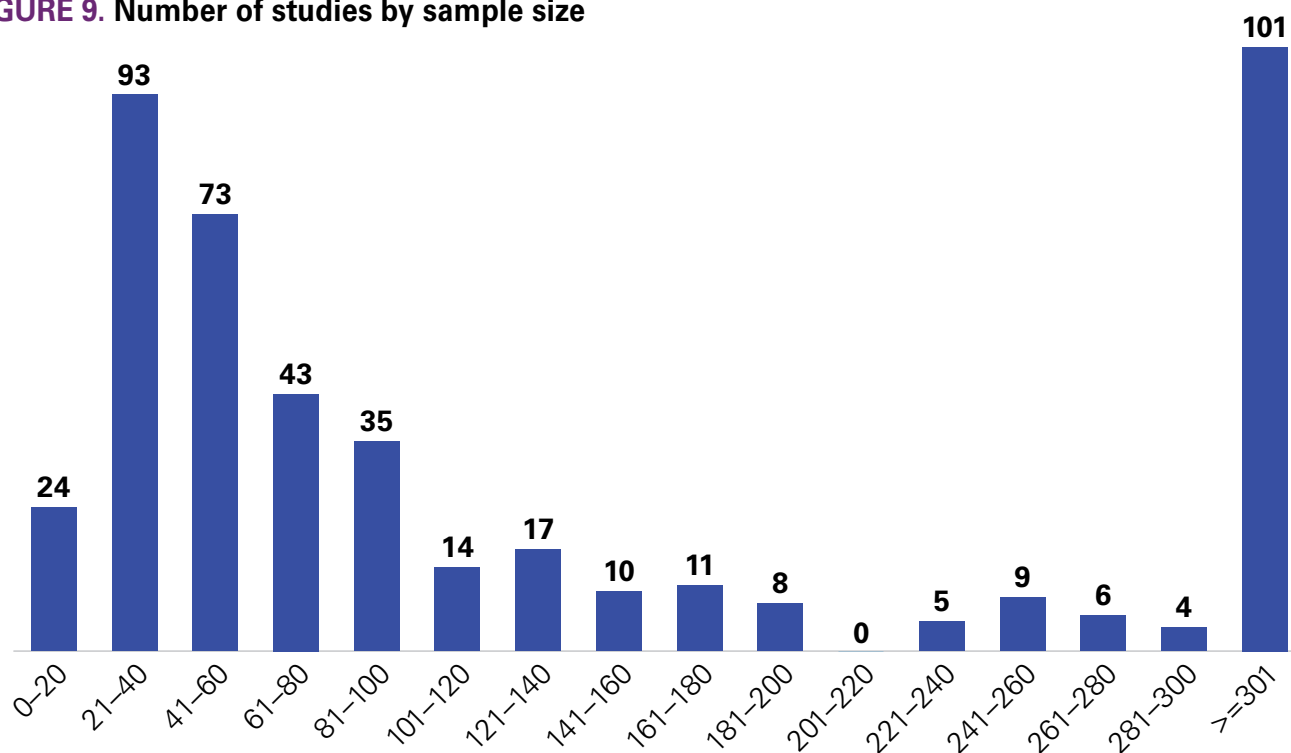
mental illness, victims of sexual abuse and other forms of violence and youth offenders. For example, Wannachaiyakul and colleagues (2017) looked at the effectiveness of a computerized cognitive behavioural therapy programme for reducing depression among 84 adolescents with delinquency problems in Thailand, while Robjant and colleagues (2019) researched the effectiveness of an adapted narrative exposure therapy treatment on post-traumatic stress symptoms and aggression among 92 former female child soldiers in the Democratic Republic of the Congo.

Most studies focused on both girls/female and boys/male (84 per cent, N=586). There were 55 studies

and reviews (8 per cent) that only concentrated on girls, with 37 studies and reviews (5 per cent) only on boys.

Among all primary studies, about two thirds are quasi-experimental (67 per cent, N=307), followed by 31 per cent randomized controlled trials (N=140) and 2 per cent mixed-methods studies (N=11). As presented in *Figure 9*, 5 per cent of primary studies (N=24) consist of a sample size of fewer than 20 participants, and 41 per cent of primary studies (N=190) have equal or fewer than 60 participants. This finding suggests a large number of studies rely on small sample sizes, which might not accurately reflect the characteristics of the larger group.

FIGURE 10. **Number of reviews by included primary studies**
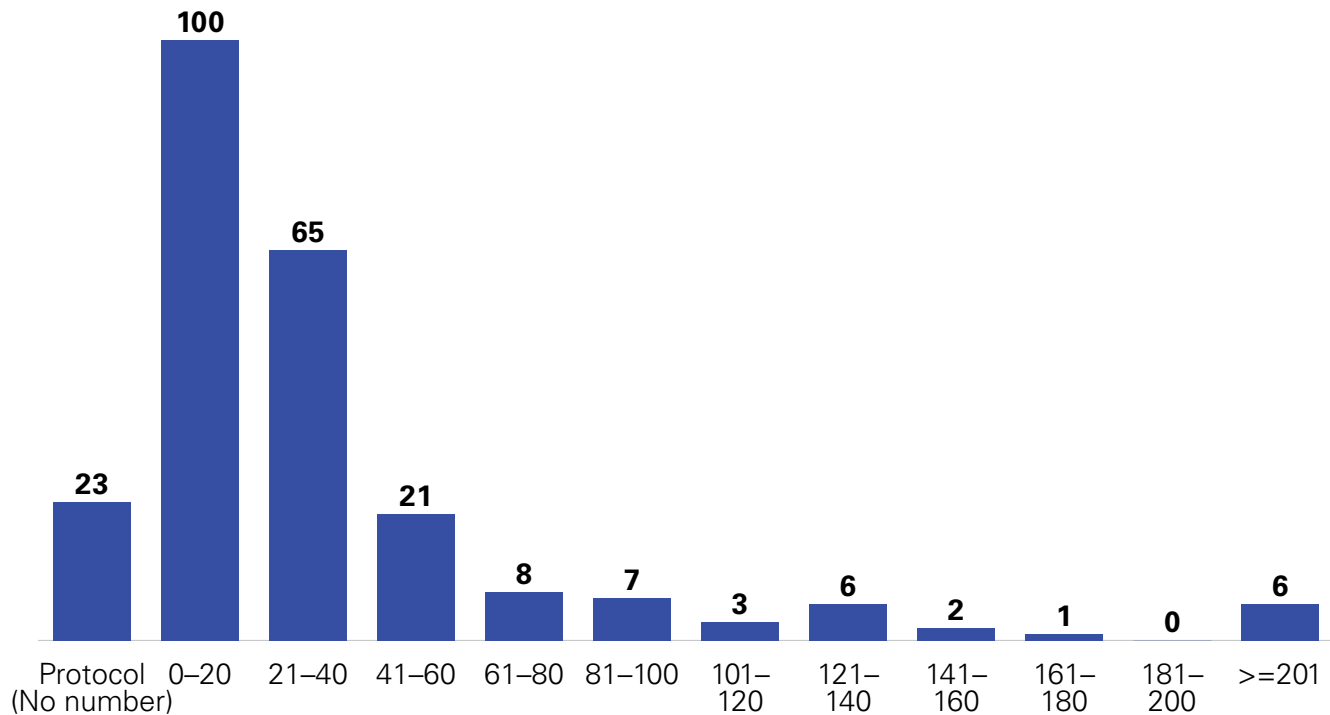
About 22 per cent of primary studies (N=101) have more than 300 participants. Most of these primary studies (86 per cent, N=87) focus on group-based interventions, compared with 13 looking at individual-based ones and 10 dyad ones. By intervention platform, nearly 60 per cent of these primary studies (59 per cent, N=60) focus on school-based interventions, compared with 30 community-based interventions, 22 individual and family-based ones, and 4 digital ones. There are 58 studies (57 per cent) that look at group-based interventions in school settings with a sample size larger than 300.

As presented in *Figure 10*, among all reviews except protocols (N=216),

46 per cent (N=100) contain equal to or fewer than 20 primary studies. Less than a quarter of reviews (24 per cent, N=51) have equal to or more than 40 primary studies.

SETTINGS

This map covered 78 of 138 LMICs (57 per cent), including 12 low-income countries (44 per cent of all low-income countries), 31 lower-middle-income countries (56 per cent of all lower-middle-income countries) and 35 upper-middle-income countries (64 per cent of all upper-middle-income countries). Various studies (mostly systematic reviews) covered both high-income countries and LMICs and were classified as global (31 per cent, N=219).

FIGURE 11. Number of publications per year
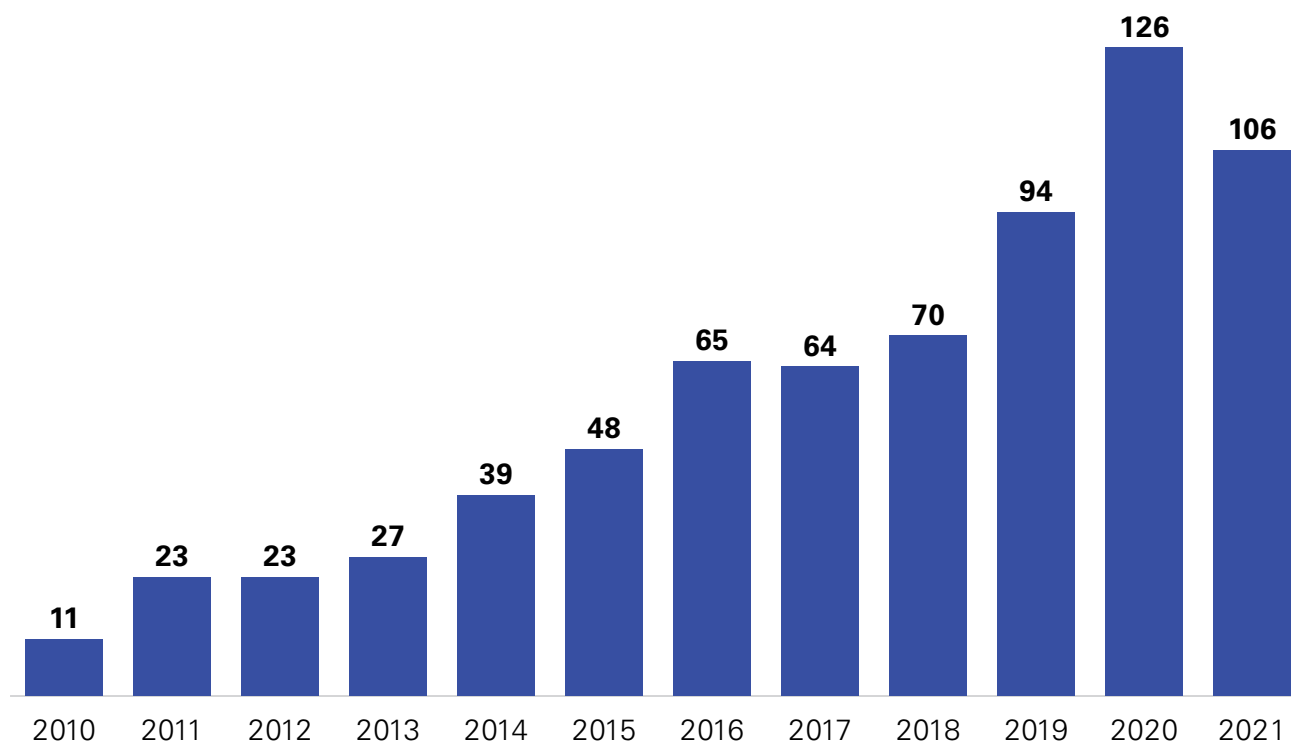
Most studies and reviews were conducted in the Islamic Republic of Iran (21 per cent, N=146), followed by China (16 per cent, N=113) and India (12 per cent, N=81).

With an average of 58 studies and reviews published yearly, showcasing data from LMICs, *Figure 11* indicates that the field of child and adolescent mental health has been expanding progressively during the last 12 years with a 16 per cent average year-on-year increase rate, and a 41 per cent compound annual growth rate in the number of publications.

Table 5 indicates the geographic distribution of identified studies and studies within reviews.

A total of 67 (10 per cent) studies were conducted in humanitarian settings (e.g., natural disaster, armed conflict, complex political emergencies) and we identified 9 (1 per cent) studies with a focus on interventions aimed at tackling the impact of COVID-19 on the mental health of children and adolescents in LMICs. For example, Dhital and colleagues (2019) examined whether a psychosocial support training

THE NUMBER OF PUBLICATIONS ON CHILD AND ADOLESCENT MENTAL HEALTH HAS BEEN EXPANDING OVER THE LAST 12 YEARS WITH **A 41% COMPOUND ANNUAL GROWTH RATE.**

TABLE 5: **Geographic distribution of studies across LMICs**

Country	Number
Iran	146
China	113
India	81
South Africa	53
Turkey	52
Brazil	47
Uganda	44
Indonesia	40
Palestine	37
Mexico	34
Sri Lanka	32
Thailand	30
Nigeria	27
Nepal	25
Pakistan	23
Bosnia and Herzegovina	20
Burundi	20
Democratic Republic of the Congo	19
Kenya	17
Romania	17
Malaysia	15
Kosovo	14
Colombia	13
Lebanon	13
Mauritius	13

Country	Number
Sierra Leone	13
Jordan	12
Tanzania	12
Egypt	11
Jamaica	10
Zambia	10
Bangladesh	9
Argentina	8
Congo	8
Rwanda	8
Serbia	8
Philippines	7
Vietnam	6
Haiti	5
Liberia	5
Afghanistan	4
Guatemala	4
Panama	4
Tunisia	4
Ethiopia	3
Iraq	3
Kazakhstan	3
Nicaragua	3
Peru	3
Swaziland	3
Armenia	2
Bolivia	2

Country	Number
Cambodia	2
El Salvador	2
Honduras	2
Ukraine	2
Venezuela	2
Belarus	1
Botswana	1
Bulgaria	1
Cuba	1
Gambia	1
Georgia	1
Ghana	1
Kyrgyzstan	1
Moldova	1
Mongolia	1
Namibia	1
North Macedonia	1
Russia	1
Somalia	1
St Lucia	1
Sudan	1
Syria	1
Tajikistan	1
Turkmenistan	1
Uzbekistan	1
Zimbabwe	1

FIGURE 12. **Studies and reviews in humanitarian settings and COVID-19 by region**
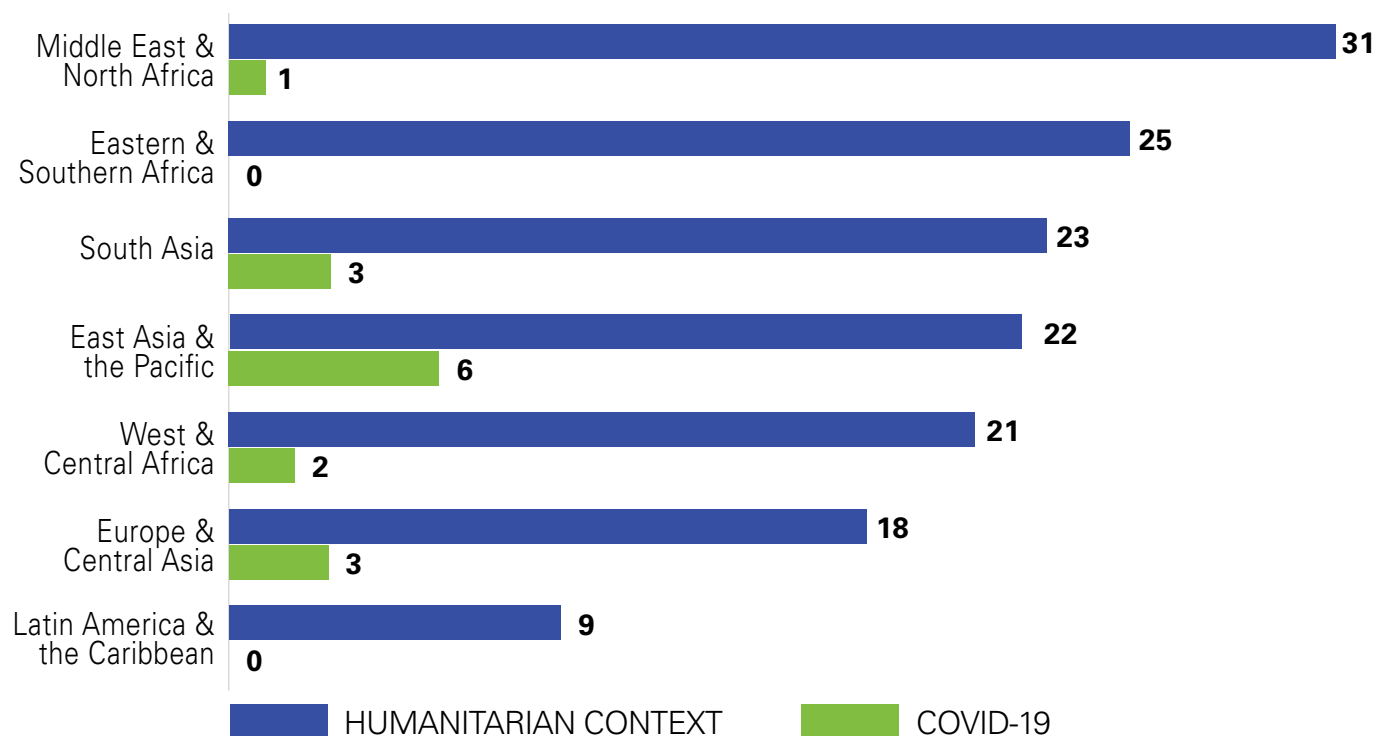
programme for schoolteachers could improve mental health and hope among 1,220 adolescents in an earthquake-affected area in Nepal. As presented in *Figure 12*, studies in humanitarian settings were covered in all regions, while there were no studies including COVID-19 conducted in Eastern and Southern Africa or Latin America and the Caribbean. The Middle East and North Africa region has the most studies in humanitarian settings, but only one in COVID-19. East Asia and the Pacific has the most studies that researched the effectiveness of MHPSS interventions during the pandemic. For instance, Xu and colleagues (2021) explored the effect of an aerobic exercise intervention in combination with acceptance

and commitment therapy on mental health among 90 adolescents aged 12–19 in China during the outbreak of the COVID-19 pandemic.

Region

Most studies were conducted in the Middle East and North Africa (33 per cent, N=228), although this was mainly driven by the large number of studies and reviews focused on the Islamic Republic of Iran. East Asia and the Pacific (31 per cent, N=217) is the second most represented region, followed by Europe and Central Asia (28 per cent, N=198), South Asia (20 per cent, N=139), Latin America and the Caribbean (19 per cent, N=135)

and Eastern and Southern Africa (19 per cent, N=134). Only 9 per cent of research (N=63) identified through this EGM was conducted or focused on West and Central Africa.

The map covered 78 LMICs while we did not identify any studies conducted in 60 LMICs within the last 12 years.

MIDDLE EAST AND NORTH AFRICA

This map covered 10 of 13 LMICs in the region. No studies were identified in Algeria, Djibouti or Morocco. More than half of the studies and reviews in this region included interventions delivered at schools (N=148) and designed for treatment (N=155). School-based treatment interventions alone were included in 102 studies and reviews. Most interventions were delivered in groups (N=185). Digital interventions were the least covered platform (N=23) and prevention interventions were the least covered type of intervention (N=54).

Most studies and reviews measured internalizing problems (N=140), within which post-traumatic stress disorder, depression and anxiety disorders were the most researched conditions and suicidal behaviour and attempt (N=7) and eating disorders (N=1) the least investigated ones. Except for attention deficit hyperactivity disorder and well-being, all the rest of the subdomain outcomes were much less covered. Adolescents were more likely to be in the study

> NO STUDIES WERE IDENTIFIED IN **ALGERIA, DJIBOUTI OR MOROCCO.**

population than those in early and middle childhood. Most studies in this region consisted of a sample of fewer than 60 participants. In the Middle East and North Africa, 39 studies and reviews focused on migrant and forcibly displaced children, which is the most among all regions. The only study that covered LGBTQIA+ children on our map was conducted in this region, while pregnant adolescents/ adolescent parents, and street children were also researched, although only in one study/review.

EAST ASIA AND THE PACIFIC

Only 8 out of 23 LMICs in the region were covered in this map. American Samoa, the Democratic People's Republic of Korea, Fiji, Kiribati, Lao People's Democratic Republic, Marshall Islands, Micronesia (Federated States of), Myanmar, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu were not identified in any studies or reviews.

About half of the studies and reviews focused on this region investigated interventions designed for treatment (N=124) and promotion (N=92). School-based interventions (N=153) were the

most popular intervention platforms, while both individual and family-based (N=89) and community-based interventions (N=97) were frequently studied, in comparison with digital ones (N=36). Most interventions were delivered in groups (N=185). School-based treatment interventions alone were included in 86 studies and reviews. Depression (N=118), anxiety disorders (N=88) and well-being (N=52) were the three most measured outcomes. Half of the studies and reviews in this region focused on school- and community-based interventions for depression (N=103). Most studies and reviews concentrated on late (N=175) and early adolescence (N=169). No studies covered street children, married children or LGBTQIA+ children in this region. Child labourer and pregnant adolescents/adolescent parents were only covered in two reviews.

EUROPE AND CENTRAL ASIA

This map covered 18 of 22 LMICs in this region, leaving Albania, Andorra, Azerbaijan and Montenegro uncovered. More than half of the studies and reviews in this region investigated interventions that were designed for treatment (N=128) and were conducted in school settings (N=133). Individual and family-based interventions (N=96) and community-based ones (N=106) were also frequently studied. Treatment interventions in individual and family settings and community settings were equally commonly researched. Post-traumatic stress disorder, depression, anxiety disorders and well-being were the most frequently measured subdomains. Most studies and reviews focused on early adolescents (N=174). Most interventions were implemented in groups (N=162). No studies covered street children, married children or LGBTQIA+ children in this region.

Goodwill Ambassador Neyma performs with children in Mozambique in June 2022, as part of a TV show where children and young people shared reflections on climate, education and mental health, in the context of COVID-19.

SOUTH ASIA

In this region, six out of eight LMICs were covered, except Bhutan and Maldives. More than half of the studies and reviews in this region investigated interventions that were designed for treatment (N=84) and school-based (N=100). Treatment interventions in school settings were included in 64 studies and reviews. Post-traumatic stress disorder, depression and anxiety disorders were the three most measured subdomain outcomes. Most interventions were provided in groups (N=115). Most studies and reviews focused on early adolescents (N=113). No studies covered married children or LGBTQIA+ children in this region.

LATIN AMERICA AND THE CARIBBEAN

In this region, 16 of 26 LMICs were covered. The following LMICs were not identified in any studies or reviews: Belize, Costa Rica, Dominica, Dominican Republic, Ecuador, Grenada, Guyana, Paraguay, Saint Vincent and the Grenadines, and Suriname.

More than half of the studies and reviews in this region investigated interventions that were designed for prevention (N=72) and were provided at schools (N=93). School-based prevention interventions were included in 61 studies and reviews. Most interventions were delivered in groups (N=112). Depression, anxiety disorders, and alcohol and substance use disorders were the

three most measured subdomain outcomes. Interventions for alcohol and substance use disorders were commonly conducted in school settings, and most of them were prevention interventions. More studies and reviews focused on early adolescents (N=107). No studies covered married children or LGBTQIA+ children in this region.

EASTERN AND SOUTHERN AFRICA

In the region, 14 of 22 LMICs were covered. No studies or reviews were conducted in Angola, Comoros, Eritrea, Lesotho, Madagascar, Malawi, Mozambique or South Sudan. More than half of the studies and reviews in this region investigated interventions that were school- (N=82) and community-based (N=80), and designed for treatment (N=86). Community-based treatment interventions were covered by 53 studies and reviews and 52 studies covered school-based ones. Most interventions were provided in groups (N=113). Depression, post-traumatic stress disorder and anxiety disorders were the three most measured subdomain outcomes. More studies and reviews focused on early (N=115) and late adolescents (N=102). No studies covered married children or LGBTQIA+ children in this region.

WEST AND CENTRAL AFRICA

Only 6 of 24 LMICs were covered in this region. The following countries were not identified in any studies or reviews: Benin, Burkina Faso, Cabo Verde, Cameroon, Central African

FIGURE 13. Studies and reviews by intervention platform and study design
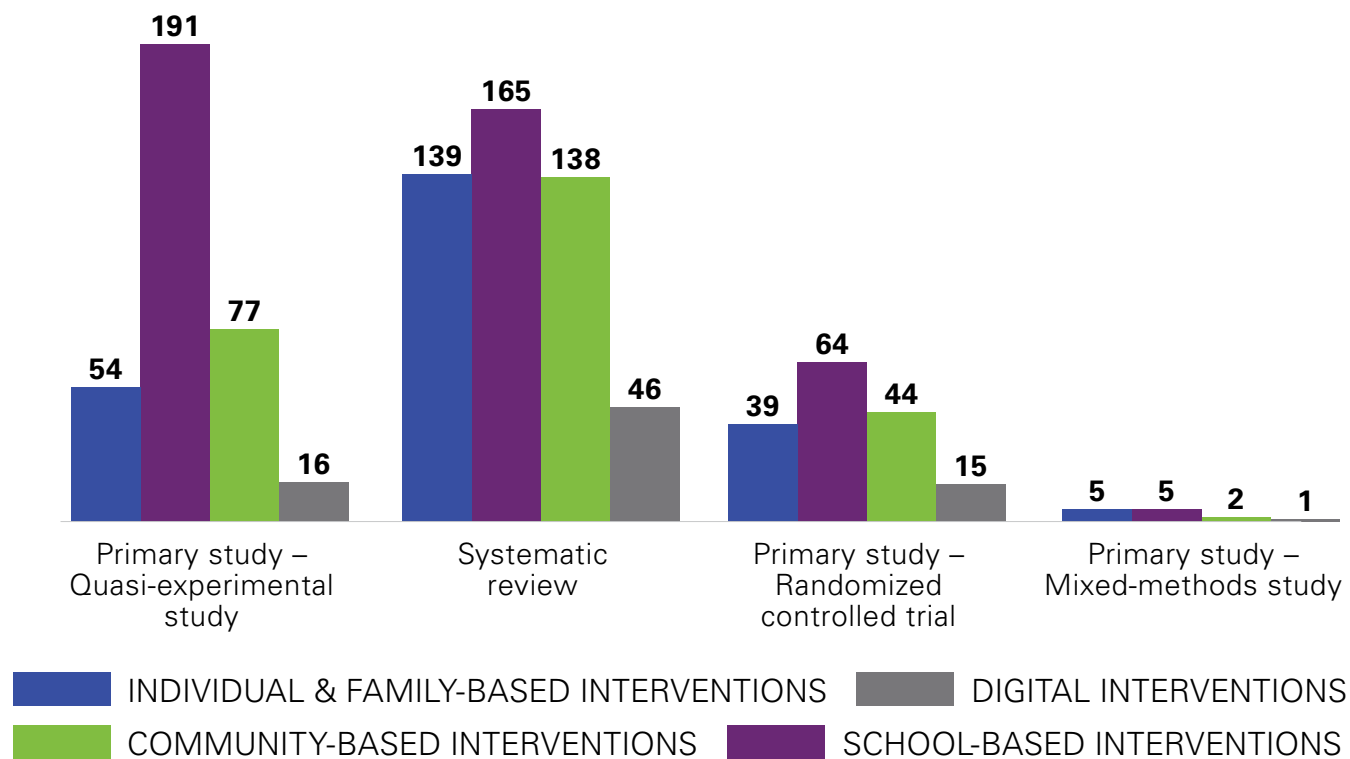
Republic, Chad, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Sao Tome and Principe, Senegal and Togo.

More than half of the studies and reviews in this region investigated interventions that were school- (N=44) and community-based (N=43), and designed for treatment (N=49). Most interventions were provided in groups (N=57). Depression, post-traumatic stress disorder and anxiety disorders were the three most measured subdomain outcomes. No studies or reviews measured eating disorders or oppositional defiant disorder. More studies and reviews

focused on early (N=56) and late adolescence (N=54). No studies covered married children or LGBTQIA+ children in this region.

STUDY DESIGNS

Most records were quasi-experimental studies (44 per cent, N=307), followed by systematic reviews including protocols (34 per cent, N=239) and randomized controlled trials including protocols (20 per cent, N=140). As presented in *Figure 13*, school-based interventions are the most common intervention platform covered across these three publication types, followed by community-based interventions as the second, and individual and family-based ones as the third.

Viktoriia, 9, plays with bubbles in a subway station where she is sheltering with her family in Kharkiv, Ukraine, April 2022.

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DISCUSSION

Child and adolescent mental health in low-resource settings is inadequately understood and developed as a field (Kumar et al. 2021). A lack of understanding of the available evidence to improve child and adolescent mental health in these settings represents a key obstacle to its development. The challenge is thus to identify promising interventions and the most urgent research gaps within this neglected field. In this EGM, we feature evidence from 697 primary studies and systematic reviews conducted within the last 12 years on child and adolescent mental health interventions in LMICs. While we are not able to synthesize the findings from this large pool of studies, we provide an overview of the available evidence, gaps and recommendations.

AREAS OF EVIDENCE CONCENTRATION AND GAPS

Treatment is prioritized over promotion and prevention interventions

A principal finding of this EGM is that most of the evidence on child and adolescent mental health is reactive rather than proactive, with a strong focus on the treatment of mental health conditions over prevention or promotion interventions. This finding is consistent across all regions except for Latin America and the Caribbean. In this region, prevention interventions make up the largest pool of researched interventions and across all age groups, with the exception of studies

and reviews on early childhood, for which a similar number of studies investigated treatment and promotion interventions. While this suggests progress in terms of the availability of knowledge on which treatment intervention to implement (or not), evidence is needed on interventions aimed at strengthening positive aspects of child and adolescent mental health and psychological well-being, empowering children and adolescents to live healthy lives, responding to early signs of distress, and fostering prosocial behaviours, resilience, self-esteem and coping mechanisms. Research is also needed on prevention approaches, including universal, selective and indicative ones, aimed at reducing the likelihood of developing future mental health conditions. Childhood and adolescence are crucial periods for healthy development where interventions aimed at equipping children and adolescents with the necessary skills, support and resources play a fundamental role in preventing the generation of mental health and psychosocial problems later in life. Current evidence is likely insufficient to determine which promotion and prevention interventions provide the best results for child and adolescent mental health in these settings. This finding also reveals a disconnect with practice as most implemented MHPSS interventions are psychosocial ones aiming to strengthen community and family support and promote mental health and which are not regularly provided by clinicians.

Evidence of the large and persistent gap between the number of people that need mental health care and the number of people who receive it, has driven an increased recognition of the importance of mental health globally. However, the solution to this global treatment gap is not solely additional access to treatment interventions. Given the magnitude of the global burden of mental health conditions, treatment alone will not be enough to close this gap (Purgato et al. 2020). In pursuit of reducing the burden of mental health conditions, strategic priority and global mental health research funding need to be directed to research on promotion and prevention interventions that can be feasibly delivered in LMICs. More evidence on these types of interventions is required, especially in crucial developmental stages such as early childhood.

Schools are the most researched platform for mental health interventions

Schools are one of the most important community settings for the provision of mental health interventions. In this EGM, schools emerged as the most researched platform for mental health action. Regardless of the type of intervention (i.e., prevention, promotion or treatment), most mental health research is conducted at educational settings and focuses on early and late adolescence.

Schools are one of the most convenient locations (i.e., for feasibility and cost-effectiveness) for reaching a wide number of children and adolescents and their families (Barry et al. 2013). Evidence from systematic reviews suggests that mental health programmes incorporating life skills and social and emotional learning to address emotional and behavioural problems can improve children's emotional and social functioning, including reduced depression and anxiety and better coping skills (Barry et al. 2013). Although future systematic reviews are needed, considering that nearly 100 per cent of published studies in psychology confirm their initial hypothesis (Haeffel 2022), there is likely evidence supporting the use of MHPSS interventions in school settings. Despite the potential for early intervention in educational settings, a recent review of the effectiveness of universal school-based mental health interventions highlights the lack of evidence supporting the use of preventive interventions (Bradshaw et al. 2021). Gaps remain on the effectiveness of MHPSS interventions during early childhood and for children without school access.

CLOSING THE GAP BETWEEN THE NUMBER OF PEOPLE NEEDING MENTAL HEALTH CARE AND THE NUMBER RECEIVING IT REQUIRES FUNDS FOR PROMOTION AND PREVENTION INTERVENTIONS.

Limited evidence from West and Central Africa

Children and adolescents aged 10–19 constitute 23 per cent of the population in West and Central Africa, making it one of the youngest regions in the world (UNICEF 2019). Children and adolescents in this region are also disproportionally affected by key risk factors for mental health conditions. In these settings, the epidemiology of mental health is determined by a wide range of socio-economic factors including structural inequality, displacement, armed conflict, poor or no implementation of health and social policies, and scarce human and financial resources for mental health care. Only 9 per cent of research identified through this EGM was conducted or focused on West and Central Africa. Lack of data on effective interventions hampers efforts to improve the mental health of children and adolescents in the region.

Moving beyond discrete categorization of outcomes

A large subset of studies and reviews focuses on interventions addressing internalizing problems, such as depression, anxiety disorders and post-traumatic stress disorder, and these conditions are frequently investigated together. The increased prevalence of these conditions and high comorbidity

mean that they are often researched simultaneously and conceptualized as 'common mental health conditions'. Although depression was the most frequently researched mental health outcome, it is followed by 'other mental health conditions' (e.g., hopelessness, anger, risk-taking, aggressive behaviours) and 'other mental health outcomes' (e.g., resilience, quality of life). This could indicate a move towards more nuanced, contextually and culturally relevant manifestations of mental health problems or well-being.

Limited evidence from humanitarian settings

Only 10 per cent of studies and reviews focused on investigating the effectiveness of MHPSS interventions for children and adolescents living in humanitarian settings. Prolonged exposure to conflict, mass displacement, violence and natural disasters put children and adolescents at greater risk of developing mental health and psychosocial problems, threaten children's ability to grow healthily and often prevent parents and caregivers from providing care, protection and support. Meeting these challenges requires building an evidence base of effective MHPSS interventions that considers the different contextual factors of these settings as well as the implementation challenges, which are repeatedly neglected.

Limited evidence on digital interventions

Although the use of digital technologies to educate, facilitate diagnosis and support treatment has been proposed as a future direction for global mental health (Patel et al. 2018), we identified very limited evidence on the effectiveness of digital interventions across all outcomes. Despite the known potential of digital interventions to overcome barriers such as stigma and geographical and time limitations, this field remains under-studied. The COVID-19 pandemic also produced new opportunities for web-based and app-based digital mental health interventions targeting distress. As digital technologies become more embedded in children and adolescents' lives, it is imperative to explore how they can support help-seeking, improve access, address stigma, enhance awareness, and contribute to promoting mental health and seeking support in times of distress or when experiencing mental health problems (Naslund et al. 2019).

Early childhood development is the most under-researched outcome area

During the first years of life, children develop core skills that are crucial to their ability to thrive throughout the life course. This EGM reveals an important research

gap: Early childhood development constitutes the most under-researched outcome area of child global mental health, with critical gaps in research investigating behavioural problems during early childhood (0–4). A possible explanation for this gap could be that many early childhood interventions are integrated into maternal mental health interventions and researched within this literature and not independently. In high-income settings, promotion and prevention interventions such as socio-emotional learning programmes have shown positive outcomes later in life such as enhanced well-being and adjustment (Eisenberg et al. 2010; Geldhof and Little 2011). A recent systematic review of the effects of early parenting interventions on early childhood development outcomes conducted in LMICs found that, although trials supported benefits on a

Mother and son, 6 months (middle), play at their hostel in A Lal village, Hlaing Thar Yar township, Yangon, Myanmar, April 2022.

wide range of outcomes, they also revealed fading effects over time and inconclusive findings on long-term impacts (Jeong et al. 2021). A meta-analysis of parenting interventions conducted in LMICs and encouraging responsive, stimulating and sensitive caregiver–child interactions showed small to moderate effects on children's cognitive and language development and motor skills but no effects on socio-emotional developments, likely due to the lack of research in this area (Zhang et al. 2021).

Research focuses on the general child population

Another important finding of this EGM is the limited evidence on the effectiveness of these interventions for specific subpopulations, including groups that tend to report higher prevalence of mental health conditions. It is crucial to understand whether findings from the general child population can be applied to different groups. This would also shed light on whether equality, diversity and inclusion strategies have been successfully applied.

LIMITATIONS OF THE EGM

Due to the large number of studies included in this EGM, a quality appraisal was not conducted. Instead, we collected data on study design as well as the number of participants included in each primary study or the number

of studies within each review. Including both primary studies and systematic reviews means that some other primary studies are included within systematic reviews, which results in overlap. Although we did not initially establish language constraints throughout the search, we ultimately had to screen out several studies and reviews in languages other than English, Spanish, Portuguese, Chinese and French. We also excluded grey literature and only included peer-reviewed reports, reviews and academic articles. Ultimately, these exclusions could affect the comprehensiveness of this map and result in an over-representation of studies and reviews among countries. Due to the large volume of included studies and reviews, only 5 per cent of records were double-screened by two separate reviewers on titles and abstracts and only 5 per cent of records were double-screened and coded on full text. Efforts were made to secure the quality of independent screening and coding, including random cross-checks among reviewers, and regular reviewer meetings for rectifying coding standards and methods, reflecting concerns and resolving disagreements by consensus.

In this EGM, we found a large proportion of studies and reviews focused on treatment interventions in comparison with prevention and promotion interventions. It is important to note, however, that

LIMITED EVIDENCE EXISTS ON THE EFFECTIVENESS OF INTERVENTIONS FOR SPECIFIC SUBPOPULATIONS, INCLUDING GROUPS THAT TEND TO REPORT A HIGHER PREVALENCE OF MENTAL HEALTH CONDITIONS.

these boundaries are sometimes difficult to draw (Purgato et al. 2020). This EGM excluded large population-level programmes such as mental health policies and legal frameworks. Considering the potential of appropriately formulated and implemented policies to improve child and adolescent mental health and that many countries do not possess any policies on mental health (Zhou et al. 2018), this remains an important area for future research. This EGM focused on the effectiveness of MHPSS interventions on mental health and psychosocial outcomes. However, MHPSS interventions have intended and unintended impacts on social outcomes (e.g., strengths of relations within communities, discrimination, violence) and research is needed within this area (Ubels et al. 2022). Lastly, due to the large number of studies and reviews identified in this EGM, we did not extract other important criteria such as whether studies measured long-term effects of interventions or information on who provided the intervention. We encourage reviewers exploring the effectiveness findings of these interventions to extract and report on the findings of these criteria.

IMPLICATIONS FOR RESEARCH, PRACTICE AND POLICY

This EGM aimed to accelerate progress in the field of child and adolescent MHPSS by channelling the available evidence and identifying research gaps for action by funders, researchers and policymakers. The body of evidence on this area is complex and it is expanding progressively. However, research on child and adolescent MHPSS interventions is more reactive than proactive, with most evidence focusing on addressing mental health conditions that have already arisen rather than preventing them or promoting mental health.

Further research should investigate the effectiveness of digital mental health interventions for children and adolescents as well as those to address the mental health and psychosocial needs of children in humanitarian settings. Research on early childhood MHPSS interventions is urgently needed. MHPSS research for children and adolescents lacks diversity. To better understand, support and promote the mental health of *all* children and adolescents, research should go beyond investigating the effectiveness of interventions for the general population and include subpopulations which often report higher prevalence of mental health and psychosocial problems and are less likely to have access to mental

Mother and baby at the Amma site for Internally Displaced People, near Liwa, Chad, 2022.

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health care. As a next step, wider stakeholder consultations at the regional level based on the findings of this EGM can help organizations implement evidence-based MHPSS interventions. These consultations could assist in solving mixed messages about the effectiveness of certain types of interventions for specific mental health outcomes, allow us to do better with the research we already have and address research imbalances.

MHPSS is an institutional priority for the UN and for UNICEF, and is critical to the achievement of the 2030 SDGs. The UNICEF Strategic Plan 2022–2025 identifies MHPSS as a priority area, building upon existing programming through child protection, education and health. Progress on MHPSS is hampered by lack of investment in robust research on which interventions work to improve child

and adolescent mental health, especially considering the global burden of disease attributable to mental health disorders (Patel 2020). Funding for mental health research has been found to be *too inequitable*, with less than 10 per cent of funding being spent in countries that have 90 per cent of global health problems and *too skewed*, with more than 50 per cent devoted to biological research and only about 7 per cent allocated to health services, clinical and prevention research, (Patel et al. 2018).

While new donors are emerging and the COVID-19 pandemic is driving a small uplift in mental health investments for the general population, the limited investment that is allocated for children's, adolescents' and young people's mental health often only addresses surface-level factors through reactive interventions rather than proactive programmes. This delivers short-term wins instead of long-term change or does not become available until young people have reached a point of crisis. This EGM assists MHPSS practitioners to advocate, fund and make child and adolescent MHPSS a global priority.

Girl, 17 months, at her home in El Alto, Bolivia, March 2021.

Children enjoy the Gado site child-friendly space, in Cameroon, implemented to ensure the protection of refugee children and adolescents affected by the Central African crisis, February 2021.

APPENDICES

Appendix 1. Terminology

This protocol reflects the terminology that has been used for the State of the World's Children (SOWC) 2021 report on mental health (UNICEF 2021). As described in the SOWC 2021, the term 'mental health condition' describes a wide range of conditions that can vary in severity from mild and temporary to severe and lifelong. WHO has also used, mental health condition, in some materials to indicate mental, neurological and substance use disorders, suicide risk and associated psychosocial, cognitive and intellectual disabilities. However, the field of mental health uses multiple terms, some of which have more specific meanings. The terms used for negative mental health outcomes collectively include mental disorder, mental ill-health, mental health condition and psychosocial disability. We will be using the term, mental health conditions, in this EGM. We will also be using the terms, mental health, and, psychosocial well-being, to refer to positive mental health outcomes.

Appendix 2. Methods

SEARCH STRUCTURE

The electronic search strategy translated concepts from the population, interventions, outcomes and geography components of our eligibility criteria.

SEARCH PROCESS

A qualified information specialist designed and tested search strategies for each database (Sharma et al. 2022). A draft strategy was shared with the review team and Advisory Board for comments and revisions before finalization. The search was designed according to Chapter 4 of the Cochrane Handbook (Higgins et al. 2022), peer-reviewed using PRESS guidelines (McGowan et al. 2016) and reported based on PRISMA-Search guidelines (Rethlefsen et al. 2021).

DATABASES

A wide range of bibliographic databases, sources of grey literature and websites were searched to cover all the relevant subject areas, geography and study designs. The primary list of databases is as follows:

1. Systematic review repositories
- Campbell Collaboration
- 3ie Systematic Review Database

- Cochrane Library Databases
- Epistemonikos
- EPPI Centre Evaluation Database of Education Research
- Social Systems Evidence

2. Regional sources
- African Index Medicus
- African Journals Online
- Latin American and Caribbean Health Sciences Literature (LILACS)
- SciELO

3. Social science
- Applied Social Sciences Index and Abstracts (ASSIA) via ProQuest
- International Bibliography of Social Sciences (IBSS) via ProQuest
- Social Policy and Practice via Ovid SP
- Social Science Citation Index via Web of Science
- Social Science Database via ProQuest
- Social Science Research Network (SSRN)
- Sociological Abstracts (including Social Services Abstracts and Sociological Abstracts) via ProQuest
- PsycINFO via Ovid SP

4. Web and website searches
- Google Site Search (per website, including grey literature)
- UN-affiliated relevant websites
- Subject-focused websites

5. Health/medical databases
- CINAHL via EBSCOhost
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Embase via Ovid SP
- Global Health via Ovid SP
- Global Index Medicus
- MEDLINE via Ovid SP
- PubMed (excluding MEDLINE)

6. Educational databases
- Child Development & Adolescent Studies via EBSCOhost
- Education Resources Information Center (ERIC) via ProQuest

7. Science databases
- Emerging Sources Citation Index via Web of Science
- Science Citation Index Expanded via Web of Science
- Scopus

8. Grey literature
- Google Scholar (including grey literature)
- ProQuest Dissertations and Theses Global

SCREENING AND STUDY SELECTION

Screening was conducted using EPPI-Reviewer Web (Thomas et al. 2020). Given the large number of retrieved results, 5 per cent of all titles and abstracts (N=1,357) were double-screened by four reviewers and disagreements were solved by consensus. Based on this initial screening, machine-learning functions within EPPI-Reviewer (otherwise known as priority screening) were used to prioritize studies for screening. Those deemed to have a higher probability of meeting the inclusion criteria appear towards the top of the list, and the list was divided into probability groups. After revising the first 100 items within each probability group, those items within the 0–29 per cent probability groups were deemed of very low probability of being included and were excluded *en masse*. The remaining groups (30–100 per cent, N=7,545) were screened independently by three reviewers. Next, 5 per cent of full texts were double-screened by three reviewers and the remaining full texts were screened independently.

DATA EXTRACTION AND MANAGEMENT

Data extraction was conducted using EPPI-Reviewer Web (Thomas et al. 2020). Due to the expected large volume of reviews meeting inclusion criteria, a small sample of studies and reviews were extracted by two reviewers and disagreements were resolved by consensus. The remaining coding was conducted by one reviewer independently, in consultation with other reviewers when necessary.

CRITICAL APPRAISAL

Due to the expected large volume of studies and reviews meeting our inclusion criteria, we did not appraise the quality of included studies and reviews. Instead, we extracted data on study design and type of systematic review as well as the number of participants included in each primary study or the number of studies within each review. In this final report, we discuss the implications and sources of bias introduced by each type of design or review.

METHODS FOR MAPPING

The EPPI-Mapper tool was used to develop the interactive online EGM.

ANALYSIS AND PRESENTATION

Presentation

Each entry in the map is a systematic review or a primary study of effectiveness. The EGM identifies the number of studies covered by the map according to each intervention and outcome dimension. The available evidence is represented across two dimensions: the rows list interventions and the columns list outcome domains. Each cell shows the studies and reviews which contain evidence on that combination of intervention and outcomes or absolute gaps when no evidence exists. The number of included primary studies and reviews is represented by the size of the bubble and the type of design or review is indicated by the colour of each bubble. In addition to the dimensions (i.e., interventions and outcomes), Table A1 presents the filters of the EGM.

TABLE A1. Filters for the EGM

Category	Data items
Context	■ Income level: low income; lower-middle income; upper-middle income; global (with at least one LMIC study included) ■ Countries ■ Region: East Asia & the Pacific, Europe & Central Asia, Latin America & the Caribbean, Middle East & North Africa, North America, South Asia, West and Central Africa, Eastern and Southern Africa ■ Humanitarian context: Study or review explicitly mentions that the MHPSS intervention (as defined by IASC guidelines) was conducted in a humanitarian or conflict-affected region ■ COVID-19: Study or review explicitly mentions having been conducted in the context of the COVID-19 pandemic or including studies conducted in the context of the COVID-19 pandemic ■ Physical activity: Study or review includes physical activity interventions – physical activity is "any body movement that is produced by the contraction of skeletal muscles that increase energy expenditure" whereas exercise is "a subset of physical activity that is planned, structured and deliberate" ■ Format: Individual, dyad and group-based interventions
Population	■ Age group: early childhood (0–4 years); middle childhood (5–9 years); early adolescence (10–14 years); late adolescence (15–19 years) ■ Gender/sex: girl/female; boy/male; other ■ Subgroups: Children in alternative care, children with disabilities, LGBTQIA+ children, ethnic or racial minorities, child labourer, married children, street children, children with chronic health conditions, pregnant adolescents and adolescent parents, and migrant and forcibly displaced children
Study design	■ Systematic review ■ Randomized controlled trial ■ Quasi-experimental study ■ Mixed-methods study ■ Threshold of number of participants or number of studies

Planned analysis

The EGM report provides tabulations and/or graphs of the number of studies, with accompanying narrative description, by:
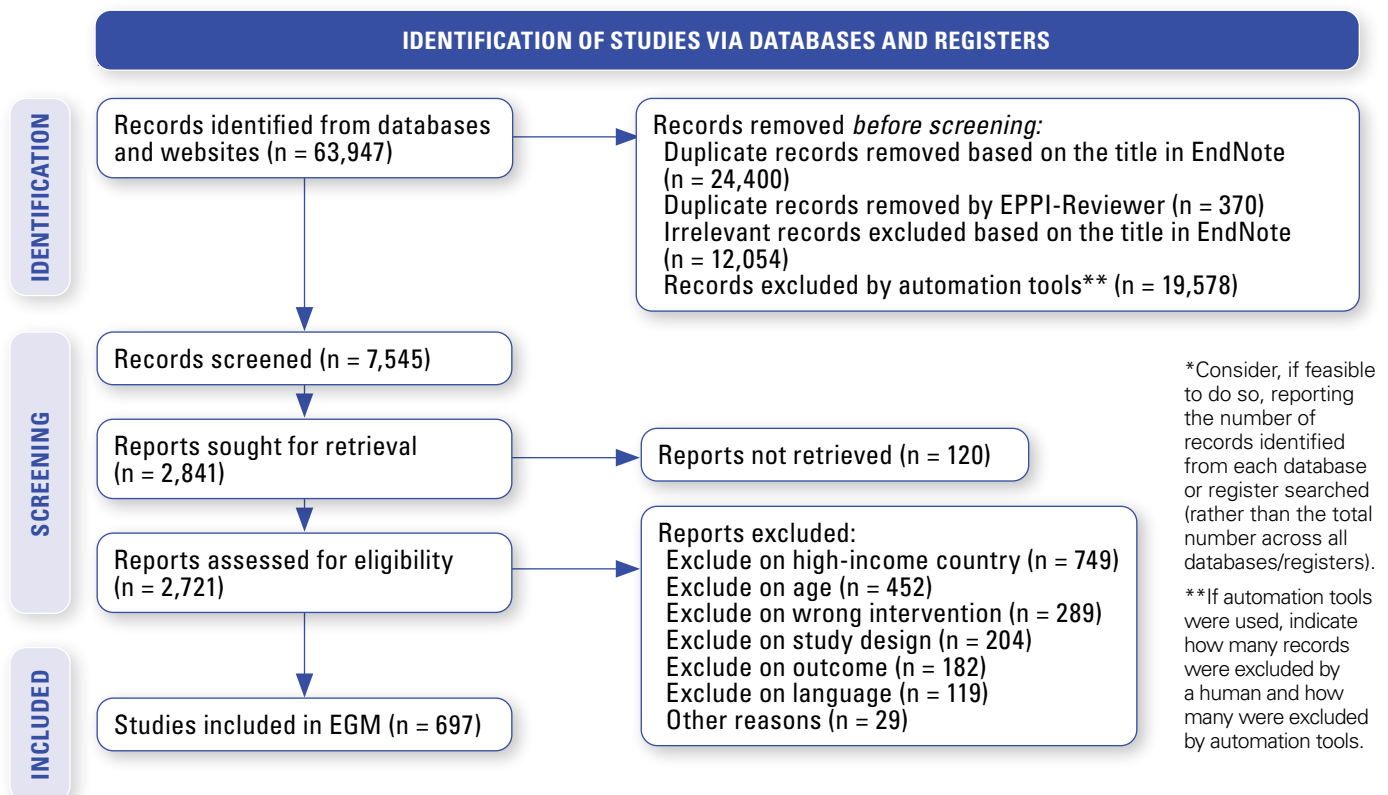
- Intervention category and subcategory

- Outcome domain and subdomain
- Region and country
- Year
- Study type
- Type of intervention
- Population subgroups

Appendix 3.

PRISMA FLOWCHART

Figure A1 presents an overview of the results search and screening process to identify studies and systematic reviews. The original search produced 63,947 records from database and website searches, 19,578 records were removed using machine learning

and 2,721 full texts were assessed for eligibility. Among all records of studies and reviews, we identified 24 (3 per cent) protocols of systematic reviews and primary randomized controlled trial studies. Due to the large number of studies screened at full text, we do not provide a full list of excluded studies, but the list is available upon request.

IDENTIFICATION OF STUDIES VIA DATABASES AND REGISTERS

IDENTIFICATION

Records identified from databases and websites (n = 63,947) → Records removed *before screening:*
Duplicate records removed based on the title in EndNote (n = 24,400)
Duplicate records removed by EPPI-Reviewer (n = 370)
Irrelevant records excluded based on the title in EndNote (n = 12,054)
Records excluded by automation tools** (n = 19,578)

SCREENING

Records screened (n = 7,545)

Reports sought for retrieval (n = 2,841) → Reports not retrieved (n = 120)

Reports assessed for eligibility (n = 2,721) → Reports excluded:
Exclude on high-income country (n = 749)
Exclude on age (n = 452)
Exclude on wrong intervention (n = 289)
Exclude on study design (n = 204)
Exclude on outcome (n = 182)
Exclude on language (n = 119)
Other reasons (n = 29)

INCLUDED

Studies included in EGM (n = 697)

*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

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