

Editorial

Cite this article: Ceccarelli C *et al* (2022).

Adverse childhood experiences and global mental health: avenues to reduce the burden of child and adolescent mental disorders. *Epidemiology and Psychiatric Sciences* **31**, e75, 1–7. <https://doi.org/10.1017/S2045796022000580>

Received: 28 June 2022

Revised: 9 September 2022

Accepted: 18 September 2022

Key words:








Adolescence; child psychiatry; evidence-based psychiatry; social factors

Author for correspondence:

Caterina Ceccarelli,

E-mail: caterina.ceccarelli@sositalia.it

Adverse childhood experiences and global mental health: avenues to reduce the burden of child and adolescent mental disorders

C. Ceccarelli^{1,2} , E. Prina³, O. Muneghina¹, M. Jordans^{4,5}, E. Barker², K. Miller⁶ , R. Singh⁷, C. Acarturk⁸ , K. Sorsdhal⁹, P. Cuijpers^{10,11,12} , C. Lund^{9,13} , C. Barbui^{3,14}  and M. Purgato^{3,14} 

¹Global Program Expert Group on Mental Health and Psychosocial Support, SOS Children's Villages, Milan, Italy; ²Department of Psychology, King's College London, Institute of Psychiatry, Psychology & Neuroscience, London, UK; ³Department of Neuroscience, Biomedicine and Movement Sciences, WHO Collaborating Centre for Research and Training in Mental Health and Service Evaluation, University of Verona, Verona, Italy; ⁴War Child, Amsterdam, the Netherlands; ⁵University of Amsterdam, Amsterdam, the Netherlands; ⁶Faculty of Education, University of British Columbia, Vancouver, Canada; ⁷Research Department, Transcultural Psychosocial Organization Nepal, Kathmandu, Nepal; ⁸Department of Psychology, College of Social Sciences and Humanities, Koc University, Istanbul, Turkey; ⁹Department of Psychiatry and Mental Health, Alan J Flisher Centre for Public Mental Health, University of Cape Town, Cape Town, South Africa; ¹⁰Department of Clinical, Neuro, and Developmental Psychology, Amsterdam Public Health Institute, Vrije Universiteit, Amsterdam, the Netherlands; ¹¹WHO Collaborating Centre for Research and Dissemination of Psychological Interventions, Vrije Universiteit, Amsterdam, the Netherlands; ¹²Babeş-Bolyai University, International Institute for Psychotherapy, Cluj-Napoca, Romania; ¹³Health Service and Population Research Department, King's Global Health Institute, Centre for Global Mental Health, Institute of Psychiatry, Psychology and Neuroscience, King's College, London, UK and ¹⁴Cochrane Global Mental Health, University of Verona, Verona, Italy

Abstract

Mental disorders are one of the largest contributors to the burden of disease globally, this holds also for children and adolescents, especially in low- and middle-income countries. The prevalence and severity of these disorders are influenced by social determinants, including exposure to adversity. When occurring early in life, these latter events are referred to as adverse childhood experiences (ACEs).

In this editorial, we provide an overview of the literature on the role of ACEs as social determinants of mental health through the lenses of global mental health. While the relation between ACEs and mental health has been extensively explored, most research was centred in higher income contexts. We argue that findings from the realm of global mental health should be integrated into that of ACEs, e.g. through preventative and responsive psychosocial interventions for children, adolescents and their caregivers. The field of global mental health should also undertake active efforts to better address ACEs in its initiatives, all with the goal of reducing the burden of mental disorders among children and adolescents globally.

Introduction

According to the recently published Global Burden of Diseases report, in 2019 mental disorders represented one of the top ten causes of disease burden worldwide (Global Burden of Disease Collaborative Network, 2022). Specifically, mental disorders represented the second largest worldwide contributor for years lived with disability and the seventh for disability-adjusted life years. This trend is consistent for children and adolescents aged 0–20. It is estimated that more than 225 million children and adolescents globally live with a mental disorder. Of these, 197 million live in low- and middle-income countries (LMICs) (88%) (Global Burden of Disease Collaborative Network, 2022). This already dire situation has been further exacerbated by the COVID-19 pandemic and the implementation of related public health and social measures, especially among younger people living in LMICs (Santomauro *et al.*, 2021; WHO, 2022).

A growing body of evidence indicates that the prevalence and severity of these mental disorders are influenced by several social and economic conditions. These are referred to as social determinants of mental health and include adverse social and economic circumstances such as exposure to violence, extreme poverty and forced migration (Lund *et al.*, 2018). Among social determinants of mental health, those affecting children and adolescents are of particular relevance. The first two decades of life are a vulnerable period during which exposure to adverse experiences can negatively impact emotional, behavioural and cognitive development (Lund *et al.*, 2018; Patel *et al.*, 2018; The Lancet Public Health, 2021). These occurrences are referred to as adverse childhood experiences (ACEs) and include exposure to sexual, physical or

emotional violence, childhood neglect, household dysfunction (such as parental common mental disorders), deprivations and poverty, as well as traumatic shocks (such as parental death) (The Lancet Public Health, 2021). Again, data indicate that many of these ACEs have become more relevant since the beginning of the COVID-19 pandemic, for example, through increased rates of gender-based violence as well as violence against children (Bhatia *et al.*, 2021; UN Women, 2021).

In this editorial, we aim to provide a roadmap on the literature on ACEs as social determinants of health through the lenses of global mental health. We then utilise this overview of the current state of the evidence-base in these two related fields, as a basis to highlight key avenues to reduce the burden of ACEs on mental health globally.

ACEs as social determinants of mental health

Research highlights how exposure to ACEs is associated with a higher prevalence of mental disorders (e.g. PTSD, anxiety, depressive and conduct disorders) in childhood and adolescence that may persist into adulthood (Hughes *et al.*, 2017; Baldwin *et al.*, 2021; Rod *et al.*, 2021). A systematic review and meta-analysis on the effects of multiple ACEs on health including 37 studies and a total of 253 719 participants, for example, reported how having multiple ACEs (up to age 16–18) is a major risk factor for several health conditions. With respect to mental health, among those exposed to at least four ACEs, associations were reported as strong for mental disorders, such as anxiety: odds ratio 3.70 (95% confidence interval 2.62–5.22) or depression: 4.40 (3.54–5.46), as well as problematic alcohol use 5.84 (3.99–8.56), and strongest for problematic drug use 10.22 (7.62–13.71) (Hughes *et al.*, 2017). However, all included studies in the review used retrospective, self-reported ACEs, and may therefore be influenced by recall bias. To overcome these limitations, several registry linkage cohort studies have been carried out. Rod *et al.*, for instance, performed a cohort study including 500 000 children and youth born between 1994 and 2001 in Denmark, analysing hospital admission patterns among those exposed to adversities in childhood (Rod *et al.*, 2021). Their results are in line with those reported by Hughes *et al.* (2017). Exposure to deprivation, family loss and negative family dynamics was strongly associated with adverse health outcomes, including mental and behavioural problems across ages, hazard ratio 5.17 (4.23–6.31) among those aged 0–2, 5.33 (4.84–5.87) among those 3–15 and 4.30 (3.99–4.65) among those older than 16 (Rod *et al.*, 2021).

In addition to negative consequences on mental health, the literature highlights how ACEs have a strong impact on wider domains, including increased overall societal costs. A systematic review and meta-analysis analysing data from 28 European countries reported associations between individual ACEs and major overall health and financial costs on a population level. In all included countries, the ACE-attributable costs exceeded 1% of the national gross domestic product, with a median proportion of 2.6% (Hughes *et al.*, 2017). This can be explained by the fact that adults exposed to ACEs are more likely to engage in health-risk behaviours and develop physical and mental illnesses that reduce their years of healthy and productive life (Hughes *et al.*, 2017). In turn, this impacts the wider society, with countries suffering from a loss of productivity due to reduced workforce participation, lower revenues from taxation as well as direct healthcare costs (Schofield *et al.*, 2011).

This array of negative outcomes can themselves represent ACEs for the next generations, resulting in the intergenerational transmission of adversity (Hughes *et al.*, 2017). For example, mental and substance use disorders and violent behaviours arising among people exposed to adverse events in childhood can act as ACEs for their children. This could be in the form of exposure to violence, and household dysfunction due to parental mental and substance use disorders (Hughes *et al.*, 2017). A rapidly expanding body of evidence focusing on the drivers of intergenerational transmission highlights the interplay of psychosocial, environmental and biological factors in this process (Bowers and Yehuda, 2016). In particular, epigenetic changes have been increasingly recognised as possible mechanisms driving the transmission of trauma effects future generations. This is thought to happen both through developmentally programmed mechanisms, resulting from stress exposure *in-utero* and in early post-natal care, as well as through pre-conception mechanisms, in which previous exposure to trauma affects the germline as well as feto-placental interactions (Yehuda and Lehrner, 2018). Breaking the vicious intergenerational cycle is therefore of central importance (Lorenc *et al.*, 2020; Gondek *et al.*, 2021). This can be approached, among others, also through the prevention or mitigation of the negative outcomes of ACEs as well as providing support for children and adolescents who have experienced ACEs (Sara and Lappin, 2017; Linden and LeMoult, 2022).

ACEs research and global mental health

Although most children and adolescents live in LMICs (UN, 2022) research on ACEs is strongly centred in high-income countries (HICs). This is exemplified in the paragraphs above and particularly in the systematic review carried out by Hughes *et al.* on the effects of ACEs on health. Here, only nine out of the 44 distinct population analysed in the 37 studies included, reported samples from middle-income countries and none in low-income countries (Hughes *et al.*, 2017). While results from these nine populations were overall comparable with those reported for the studies carried out in HICs, they presented proportionally more methodological shortcomings. Namely, the majority of studies focusing on LMICs assessed only a small subset of outcomes and analysed samples considered not representative (i.e. did not use a random-sample or whole-population approach) (Hughes *et al.*, 2017).

This HIC-centred approach is known to be a common trend, especially in child and adolescent mental health research, that should be acknowledged, and its possible implications considered (Kieling *et al.*, 2011; Fisher, 2021). Contextual elements, including culture, strongly influence many elements related to mental health, including experiences of illness and perception of symptoms and suffering, patterns of coping and help-seeking, as well as strategies for healing and intervention (Kirmayer and Swartz, 2014). This occurs with ACEs as well. Cultural institutions and practices mark the social arrangements that determine the exposure to social determinants of health (Kirmayer and Swartz, 2014), including ACEs. Looking at interpersonal violence as an example, norms relating to the perpetration and response to violence vary greatly across contexts, with some subcultures providing greater support to violent practices, in name of shared values such as that of honour (Donnelly and Ward, 2015). Generalising a knowledge base created in higher-income contexts globally, without considering local practices and knowledge, has the potential of

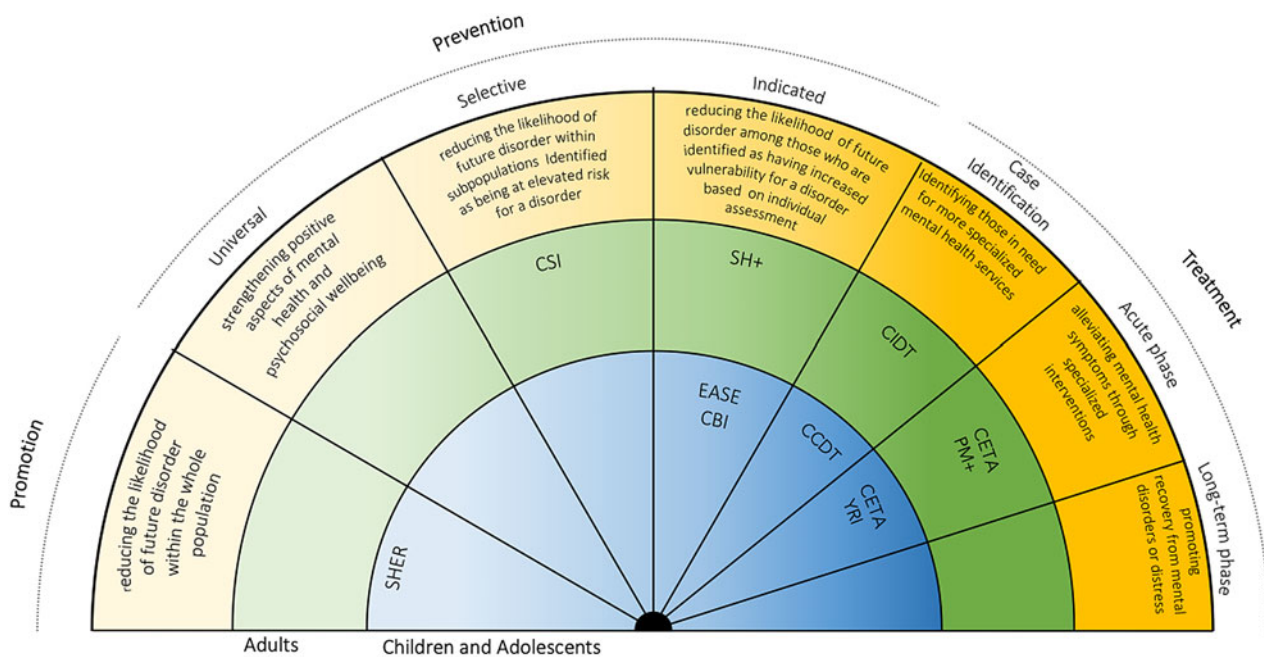


Fig. 1. Mental health interventions continuum with a selection of psychosocial evidence-based interventions (Institute of Medicine Committee on Prevention of Mental Disorders, 1994). SEHER, strengthening the evidence base on school-based interventions for promoting adolescent health programme; CBI, classroom-based intervention; EASE, Early Adolescent Skills for Emotions; CCDT, Community Case Detection Tool; CDT, Community Informant Detection Tool; YRI, Youth Readiness Intervention; CETA, Common Elements Treatment Approach; CSI, Caregiver Support Intervention; SH+, Self Help Plus; PM+, Problem Management Plus.

hindering our ability to advance in research and also, in turn, of preventing access from effective care (Heim and Kohrt, 2019).

An increased focus on ACEs research in LMIC is therefore essential to shed light on the nature, impact and possible strategies to prevent and respond to these adverse events (Hughes *et al.*, 2017; Purgato *et al.*, 2020a; Wood *et al.*, 2020), with the potential of relieving the global burden of mental disorders (Sara and Lappin, 2017; The Lancet Public Health, 2021). To try to bridge this research gap on ACEs in LMICs, we could capitalise on some of the knowledge gained in the field of global mental health. While research on ACEs and global mental health has developed largely independently of each other (Wood *et al.*, 2020), it could be beneficial to incorporate some of the lessons learned in the latter to promote global advances in the former, and *vice versa*.

Psychosocial interventions in ACEs prevention and response

The 2020 World Health Organization (WHO) guidelines for the promotion of mental health and prevention of mental disorders among adolescents recommend the adoption of psychosocial interventions to prevent mental disorders including those exposed to adversities such as humanitarian emergencies (WHO, 2020). These interventions have been evaluated across diverse contexts in the field of global mental health and could find application in the prevention of ACEs and treatment of their impacts.

Figure 1 displays some examples of evidence-based psychosocial interventions ranging in type, target group and specific aim. These, described in Table 1, have been selected referring to findings of systematic reviews that explored the mental health promotion, prevention and treatment continuum (Tol *et al.*, 2011; Purgato *et al.*, 2018, 2020b; Barbui *et al.*, 2020; Papola *et al.*, 2020; Uphoff *et al.*, 2020; van Ginneken *et al.*, 2021) as

well as guidelines by the World Health Organization and by international non-governmental organisations working with children and adolescents (McBride *et al.*, 2021; Nemiro, Hof and Constant, 2021; World Health Organization and UNICEF, 2021). The interventions, developed and tested in LMICs, share the goal of either directly improving the well-being of children and adolescents who may have been exposed to ACEs (e.g. Common Elements Treatment Approach) or preventing their occurrence altogether, by for example fostering the well-being of adult parents or caregivers (e.g. Problem Management Plus), through scalable approaches aiming to overcome several of the challenges common in low-resource settings, such as paucity of human and financial resources.

Further avenues

The aforementioned considerations on psychosocial interventions in relation to ACEs only refer to some of the gaps in ACE research, and the overlapping areas of growth for global mental health. An important gap is epidemiological evidence, which is lacking for the population of children and adolescents exposed to ACEs living in LMICs but even more generally for the portion of children and adolescents living in LMICs. An analysis of the 2010 GBD report indicated that the representativeness of the included data was scarce. More specifically, the proportion of the target population (ages 5–17 years) represented by the available data referred to as ‘prevalence coverage’ was only 6.7%. This was particularly true for LMICs, with mean prevalence coverage of 4.5%, i.e. only one-sixth of the coverage found for HICs (Erskine *et al.*, 2016). While authors of the updated 2019 GBD highlight the incorporation of a considerable amount of new epidemiological data compared to the previous report, to date no analyses on its prevalence coverage have been published;

Table 1. A selection of psychosocial evidence-based interventions (by name, type, population and aim) with the potential of improving the well-being of children and adolescents exposed to adverse childhood experiences (ACEs)

Intervention name	Intervention classification	Target population	Aim	Manual availability
Strengthening the evidence base on school-based interventions for promoting adolescent health programme (SEHER) (Shinde <i>et al.</i> , 2020)	Promotion	Adolescents	To improve positive school climate as well as the mental health of adolescents through a multi-component school health promotion intervention.	Not available
Classroom-based intervention (CBI) (Tol <i>et al.</i> , 2014)	Indicated prevention	Children	To decrease psychological symptoms and strengthen protective factors in children displaying heightened psychological symptoms.	Not available
Early Adolescent Skills for Emotions (EASE) (Dawson <i>et al.</i> , 2019)	Treatment	Young adolescents	To reduce symptoms of internalising disorders, such as depression and anxiety. The intervention also includes sessions with caregivers, to build on existing strengths and improve the caregiver–child relationship.	Not available ^a
Community Case Detection Tool (CCDT) Community Informant Detection Tool (CIDT) (Jordans <i>et al.</i> , 2015; van den Broek <i>et al.</i> , 2021)	From promotion and universal prevention/ selective prevention to indicated prevention or treatment	Children and adolescents, adults ^b	To identify children and adolescents (CCDT) or adults (CIDT) in need of mental health support and to encourage help-seeking.	CCDT available upon request to developers, CIDT available free for use
Youth Readiness Intervention (YRI) (Betancourt <i>et al.</i> , 2014)	Treatment	Adolescents	To address co-morbid difficulties with externalising and internalising problems among youth facing adversity (e.g. war-affected youth).	Not available
Common Elements Treatment Approach (CETA) (Murray <i>et al.</i> , 2018, 2020)	Treatment	Children, adolescents, adults ^b	To address mental health challenges (incl. CMDs, SUDs) among those who experience and/or witnessed trauma or violence, and conflict.	Not available
Caregiver Support Intervention (CSI) (Miller <i>et al.</i> , 2020)	Selective prevention	Adults ^b	To improve caregiver well-being and strengthen parenting practices. In turn, this can decrease the impact of caregiver distress as an ACE, to improve the well-being of children.	Available upon request
Self Help Plus (SH+) (Acarturk <i>et al.</i> , 2022)	Indicated prevention	Adults ^b	To improve well-being and prevent the development of mental disorders among adults experiencing some level of psychological distress. Decrease the impact of caregiver mental disorders as an ACE.	Available online and free for use
Problem Management Plus (PM+) (Rahman <i>et al.</i> , 2019; Bryant <i>et al.</i> , 2022)	Treatment	Adults ^b	To improve well-being among adults experiencing some levels of distress and living in communities affected by adversities. Decrease the impact of caregiver mental disorders as an ACE.	Available online and free for use

^aWill be made available after effectiveness has been established.

^bIn light of improving the mental health of children, these interventions are especially relevant for parents and caregivers.

concerns regarding the quality of epidemiological data available for mental disorders remain therefore relevant (Global Burden of Disease Collaborative Network, 2022).

Furthermore, in the field of global mental health, there is consensus also on the need to further increase the magnitude and quality of evidence for psychosocial interventions in the treatment and prevention of mental disorders and promotion of mental health in children and adolescents. This applies to the general population, and is even more relevant for those exposed to unfavourable social determinants of mental health (Purgato *et al.*, 2018; Papola *et al.*, 2020). The 2020 WHO guidelines for the promotion of mental health among adolescents especially

highlight the scarcity of evidence for interventions specifically designed for adolescents exposed to adverse events and circumstances such as violence and poverty (WHO, 2020). It is fundamental to ensure the compatibility of such interventions and assessments, with the local context and cultural factors, in their design and through adaptation (Chowdhary *et al.*, 2014; Skivington *et al.*, 2021). For this, developing a core set of outcomes for interventions, particularly for young populations in LMICs, could be beneficial for reducing inequity in global adolescent mental health (Kieling *et al.*, 2011).

In addition to these considerations that aim to address questions related to the relevance and effectiveness of interventions,

there is also a need to understand if these can be impactful in everyday practice, through considerations regarding the implementation sphere. To achieve this, Jordans and Kohrt have proposed a systematic assessment that considers alongside relevance, effectiveness and feasibility, the domain of quality of care (Jordans and Kohrt, 2020). In this model, quality of care can be assessed to understand the extent to which (a) a provider has the knowledge and skills required to deliver the intervention to the standard needed to achieve its expected goals, (b) the intervention was delivered well enough to achieve its expected goals, and (c) the participants received enough of the intended intervention content to achieve its expected goals (Jordans and Kohrt, 2020).

Finally, while thus far we focused only on psychosocial interventions, that work on response and preventive actions for ACEs, interventions modulating other social determinants of mental health, that span across the wider demographic, economic, neighbourhood and environmental domains, have gained extensive traction in the global mental health research field. Acting in the economic domain, for example, through cash transfers, has shown to be effective in increasing financial security, and playing a role in improving the mental health of adult as well as child and adolescent recipients (Zimmerman *et al.*, 2021; McGuire *et al.*, 2022). Along the same lines, in relation to the demographic domain, paid maternity leave has beneficial effects on the physical as well as mental health of mothers and their children (Van Niel *et al.*, 2020; Shah *et al.*, 2021). For a multi-domain approach to the prevention and response to ACEs to be effectively implemented, an integrated inter-sectoral approach involving coordinated and simultaneous efforts by public and private actors (e.g. judiciary, social welfare, education, health and other relevant sectors) is therefore imperative (Tol *et al.*, 2014; World Health Organization, 2019).

Conclusion

This editorial has attempted to explore the theme of ACEs in relation to child and adolescent mental health, with a focus on LMICs. We have highlighted how, despite the relevant burden of disease of mental disorders in childhood and adolescence and a consistent body of evidence suggesting the importance of early-life social determinants for their development, little research on ACEs has been carried out in LMICs. We, therefore, argue for the integration of findings from the realm of global mental health into that of ACEs by presenting a set of psychosocial interventions, for children, adolescents and their caregivers, that can act as preventative and responsive means to reduce ACEs and the overall burden of mental disorders.

While this may be a first step in the direction of overcoming the current shortcomings of the highly Western-centric nature of ACEs research, we acknowledge that the field of global mental health should also undertake active efforts to better address ACEs in its initiatives. These events should be considered as central determinants of mental health and therefore integrated more systematically in the design and implementation of interventions for children and adolescents living in LMICs, posing particular attention, for example, to their detection as well as their transgenerational nature.

Financial support. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflict of interest. None.

References

- Acarturk C, Uygun E, Ilkkursun Z, Carswell K, Tedeschi F, Batu M, Eskici S, Kurt G, Anttila M, Au T, Baumgartner J, Churchill R, Cuijpers P, Becker T, Koesters M, Lantta T, Nosè M, Ostuzzi G, Popa M, Purgato M, Sijbrandij M, Turrini G, Välimäki M, Walker L, Wancata J, Zanini E, White RG, van Ommeren M and Barbui C (2022) Effectiveness of a WHO self-help psychological intervention for preventing mental disorders among Syrian refugees in Turkey: a randomized controlled trial. *World Psychiatry* 21, 88–95.
- Baldwin JR, Caspi A, Meehan AJ, Ambler A, Arseneault L, Fisher HL, Harrington H, Matthews T, Odgers CL, Poulton R, Ramrakha S, Moffitt TE and Danese A (2021) Population vs individual prediction of poor health from results of adverse childhood experiences screening. *JAMA Pediatrics* 175, 385–393.
- Barbui C, Purgato M, Abdulmalik J, Acarturk C, Eaton J, Gastaldon C, Gureje O, Hanlon C, Jordans M, Lund C, Nosè M, Ostuzzi G, Papola D, Tedeschi F, Tol W, Turrini G, Patel V and Thornicroft G (2020) Efficacy of psychosocial interventions for mental health outcomes in low-income and middle-income countries: an umbrella review. *The Lancet Psychiatry* 7, 162–172.
- Betancourt TS, McBain R, Newnham EA, Akinsulure-Smith AM, Brennan RT, Weisz JR and Hansen NB (2014) A behavioral intervention for war-affected youth in Sierra Leone: a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry* 53, 1288–1297.
- Bhatia A, Fabbri C, Cerna-Turoff I, Turner E, Lokot M, Warri A, Tuladhar S, Tanton C, Knight L, Lees S, Cislighi B, Bhabha J, Peterman A, Guedes A and Devries K (2021) Violence against children during the COVID-19 pandemic. *Bulletin of the World Health Organization* 99, 730–738.
- Bowers ME and Yehuda R (2016) Intergenerational transmission of stress in humans. *Neuropsychopharmacology* 41, 232–244.
- Bryant RA, Bawaneh A, Awwad M, Al-Hayek H, Giardinelli L, Whitney C, Jordans MJD, Cuijpers P, Sijbrandij M, Ventevogel P, Dawson K, Akhtar A and STRENGTHS Consortium (2022) Effectiveness of a brief group behavioral intervention for common mental disorders in Syrian refugees in Jordan: a randomized controlled trial. *PLoS Medicine* 19, e1003949.
- Chowdhary N, Jotheeswaran AT, Nadkarni A, Hollon SD, King M, Jordans MJD, Rahman A, Verdelli H, Araya R and Patel V (2014) The methods and outcomes of cultural adaptations of psychological treatments for depressive disorders: a systematic review. *Psychological Medicine* 44, 1131–1146.
- Dawson KS, Watts S, Carswell K, Shehadeh MH, Jordans MJD, Bryant RA, Miller KE, Malik A, Brown FL, Servili C and van Ommeren M (2019) Improving access to evidence-based interventions for young adolescents: early adolescent skills for emotions (EASE). *World Psychiatry* 18, 105–107.
- Donnelly PD and Ward CL (2015) *Google-Books-ID: 0y4DBQAAQBAJ. Oxford Textbook of Violence Prevention: Epidemiology, Evidence, and Policy.* Oxford: Oxford University Press.
- Erskine HE, Baxter AJ, Patton G, Moffitt TE, Patel V, Whiteford HA and Scott JG (2016) The global coverage of prevalence data for mental disorders in children and adolescents. *Epidemiology and Psychiatric Sciences* 26, 395–402.
- Fisher HL (2021) Editorial: ‘The early bird catches the worm’ – the need for even earlier intervention and targeted prevention for mental illnesses. *Journal of Child Psychology and Psychiatry* 62, 369–371.
- Global Burden of Disease Collaborative Network (2022) Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet Psychiatry* 9, 137–150.
- Gondek D, Patalay P and Lacey RE (2021) *Adverse childhood experiences and multiple mental health outcomes through adulthood: a prospective birth cohort study.* 11.
- Heim E and Kohrt BA (2019) Cultural adaptation of scalable psychological interventions: a new conceptual framework. *Clinical Psychology in Europe* 1, 1–22.
- Hughes K, Bellis MA, Hardcastle KA, Sethi D, Butchart A, Mikton C, Jones L and Dunne MP (2017) The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet Public Health* 2, e356–e366.

- Institute of Medicine Committee on Prevention of Mental Disorders** (1994) *Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research*, Mrazek PJ and Haggerty RJ (eds). Washington, DC: National Academies Press (US), p. 23. Available at <http://www.ncbi.nlm.nih.gov/books/NBK236319/>.
- Jordans MJD and Kohrt BA** (2020) Scaling up mental health care and psychosocial support in low-resource settings: a roadmap to impact. *Epidemiology and Psychiatric Sciences* **29**, e189.
- Jordans MJD, Kohrt BA, Luitel NP, Komproe IH and Lund C** (2015) Accuracy of proactive case finding for mental disorders by community informants in Nepal. *The British Journal of Psychiatry: The Journal of Mental Science* **207**, 501–506.
- Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, Rohde LA, Srinath S, Ulkuer N and Rahman A** (2011) Child and adolescent mental health worldwide: evidence for action. *The Lancet* **378**, 1515–1525.
- Kirmayer LJ and Swartz L** (2014) Culture and global mental health. In Patel V, Prince M, Minas H and Cohen A (eds), *Global Mental Health: Principles and Practice*. Oxford: Oxford University Press, pp. 41–62. Available at <https://oxfordmedicine.com/view/10.1093/med/9780199920181.001.0001/med-9780199920181-chapter-3>.
- Linden W and LeMoult J** (2022) Editorial perspective: adverse childhood events causally contribute to mental illness – we must act now and intervene early. *Journal of Child Psychology and Psychiatry* **63**, 715–719.
- Lorenc T, Lester S, Sutcliffe K, Stansfield C and Thomas J** (2020) Interventions to support people exposed to adverse childhood experiences: systematic review of systematic reviews. *BMC Public Health* **20**, 657.
- Lund C, Brooke-Sumner C, Baingana F, Baron EC, Breuer E, Chandra P, Haushofer J, Herrman H, Jordans M, Kieling C, Medina-Mora ME, Morgan E, Omigbodun O, Tol W, Patel V and Saxena S** (2018) Social determinants of mental disorders and the sustainable development goals: a systematic review of reviews. *The Lancet Psychiatry* **5**, 357–369.
- McBride KA, Harrison S, Mahata S, Pfeffer K, Cardamone F, Ngigi T, Kohrt BA, Pedersen GA, Greene C, Viljoen D, Muneghina O and Brown AD** (2021) Building mental health and psychosocial support capacity during a pandemic: the process of adapting problem management plus for remote training and implementation during COVID-19 in New York City, Europe and East Africa. *Intervention* **19**, 37.
- McGuire J, Kaiser C and Bach-Mortensen A** (2022) *A systematic review and meta-analysis of the impact of cash transfers on subjective well-being and mental health in low- and middle-income countries*. doi:<https://doi.org/10.1038/s41562-021-01252-z>.
- Miller KE, Koppenol-Gonzalez GV, Arnous M, Tossyeh F, Chen A, Nahas N and Jordans MJD** (2020) Supporting Syrian families displaced by armed conflict: a pilot randomized controlled trial of the caregiver support intervention. *Child Abuse & Neglect* **106**, 104512.
- Murray LK, Hall BJ, Dorsey S, Ugueto AM, Puffer ES, Sim A, Ismael A, Bass J, Akiba C, Lucid L, Harrison J, Erikson A and Bolton PA** (2018) An evaluation of a common elements treatment approach for youth in Somali refugee camps. *Global Mental Health* **5**, e16.
- Murray LK, Kane JC, Glass N, Skavenski van Wyk S, Melendez F, Paul R, Kmett Danielson C, Murray SM, Mayeya J, Simenda F and Bolton P** (2020) Effectiveness of the Common Elements Treatment Approach (CETA) in reducing intimate partner violence and hazardous alcohol use in Zambia (VATU): a randomized controlled trial L. Degenhardt (ed.). *PLoS Medicine* **17**, e1003056.
- Nemiro A, Hof EV and Constant S** (2021) After the randomised controlled trial: implementing problem management plus through humanitarian agencies: three case studies from Ethiopia, Syria and Honduras. *Intervention* **19**, 84.
- Papola D, Purgato M, Gastaldon C, Bovo C, van Ommeren M, Barbui C and Tol WA** (2020) Psychological and social interventions for the prevention of mental disorders in people living in low- and middle-income countries affected by humanitarian crises. *Cochrane Database of Systematic Reviews* **9**(9), 1–75. doi: 10.1002/14651858.CD012417.pub2
- Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, Chisholm D, Collins PY, Cooper JL, Eaton J, Herrman H, Herzallah MM, Huang Y, Jordans MJD, Kleinman A, Medina-Mora ME, Morgan E, Niaz U, Omigbodun O, Prince M, Rahman A, Saraceno B, Sarkar BK, De Silva M, Singh I, Stein DJ, Sunkel C and Unützer J** (2018) The Lancet Commission on global mental health and sustainable development. *The Lancet* **392**, 1553–1598.
- Purgato M, Gastaldon C, Papola D, van Ommeren M, Barbui C and Tol WA** (2018) Psychological therapies for the treatment of mental disorders in low- and middle-income countries affected by humanitarian crises. *The Cochrane Database of Systematic Reviews* **7**, CD011849.
- Purgato M, Tedeschi F, Bonetto C, de Jong J, Jordans MJD, Tol WA and Barbui C** (2020a) Trajectories of psychological symptoms and resilience in conflict-affected children in low- and middle-income countries. *Clinical Psychology Review* **82**, 101935.
- Purgato M, Uphoff E, Singh R, Pachya AT, Abdulmalik J and van Ginneken N** (2020b) Promotion, prevention and treatment interventions for mental health in low- and middle-income countries through a task-shifting approach. *Epidemiology and Psychiatric Sciences* **29**, 1–8. doi: 10.1017/S204579602000061X
- Rahman A, Khan MN, Hamdani SU, Chiumento A, Akhtar P, Nazir H, Nisar A, Masood A, Din IU, Khan NA, Bryant RA, Dawson KS, Sijbrandij M, Wang D and van Ommeren M** (2019) Effectiveness of a brief group psychological intervention for women in a post-conflict setting in Pakistan: a single-blind, cluster, randomised controlled trial. *The Lancet* **393**, 1733–1744.
- Rod NH, Bengtsson J, Elsenburg LK, Taylor-Robinson D and Rieckmann A** (2021) Hospitalisation patterns among children exposed to childhood adversity: a population-based cohort study of half a million children. *The Lancet Public Health* **6**, e826–e835.
- Santomauro DF, Herrera AMM, Shadid J, Zheng P, Ashbaugh C, Pigott DM, Abbafati C, Adolph C, Amlag JO, Aravkin AY, Bang-Jensen BL, Bertolacci GJ, Bloom SS, Castellano R, Castro E, Chakrabarti S, Chattopadhyay J, Cogen RM, Collins JK, Dai X, Dangel WJ, Dapper C, Deen A, Erickson M, Ewald SB, Flaxman AD, Frostad JJ, Fullman N, Giles JR, Giref AZ, Guo G, He J, Helak M, Hulland EN, Idrisov B, Lindstrom A, Linebarger E, Lotufo PA, Lozano R, Magistro B, Malta DC, Månsson JC, Marinho F, Mokdad AH, Monasta L, Naik P, Nomura S, O'Halloran JK, Ostroff SM, Pasovic M, Penberthy L, Jr RCR, Reinke G, Ribeiro ALP, Shalokhov A, Sorensen RJD, Varavikova E, Vo AT, Walcott R, Watson S, Wiyongse CS, Zigler B, Hay SI, Vos T, Murray CJL, Whiteford HA and Ferrari AJ** (2021) Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *The Lancet* **398**, 1700–1712.
- Sara G and Lappin J** (2017) Childhood trauma: psychiatry's greatest public health challenge? *The Lancet Public Health* **2**, e300–e301.
- Schofield DJ, Shrestha RN, Percival R, Passey ME, Callander EJ and Kelly SJ** (2011) The personal and national costs of mental health conditions: impacts on income, taxes, government support payments due to lost labour force participation. *BMC Psychiatry* **11**, 72.
- Shah N, Walker IF, Naik Y, Rajan S, O'Hagan K, Black M, Cartwright C, Tillmann T, Pearce-Smith N and Stansfield J** (2021) National or population level interventions addressing the social determinants of mental health – an umbrella review. *BMC Public Health* **21**, 2118.
- Shinde S, Weiss HA, Khandeparkar P, Pereira B, Sharma A, Gupta R, Ross DA, Patton G and Patel V** (2020) A multicomponent secondary school health promotion intervention and adolescent health: an extension of the SEHER cluster randomised controlled trial in Bihar, India. *PLoS Medicine* **17**, e1003021.
- Skivington K, Matthews L, Simpson SA, Craig P, Baird J, Blazeby JM, Boyd KA, Craig N, French DP, McIntosh E, Petticrew M, Rycroft-Malone J, White M and Moore L** (2021) A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *BMJ* **374**, n2061.
- The Lancet Public Health** (2021) Childhood adversity: a profound determinant of health. *The Lancet Public Health* **6**, e780.
- Tol WA, Barbui C, Galappatti A, Silove D, Betancourt TS, Souza R, Golaz A and van Ommeren M** (2011) Mental health and psychosocial support in humanitarian settings: linking practice and research. *Lancet* **378**, 1581–1591.
- Tol WA, Komproe IH, Jordans MJ, Ndayisaba A, Ntamutumba P, Sipsma H, Smallegange ES, Macy RD and de Jong JT** (2014) School-based mental

- health intervention for children in war-affected Burundi: a cluster randomized trial. *BMC Medicine* **12**, 56.
- UN (2022) World population prospects – population division. Available at <https://population.un.org/wpp/DataQuery/> (Accessed 24 February 2022).
- UN Women (2021) *Measuring the Shadow Pandemic*. New York City, NY: United Nations.
- Uphoff E, Robertson L, Cabieses B, Villalón FJ, Purgato M, Churchill R and Barbui C** (2020) An overview of systematic reviews on mental health promotion, prevention, and treatment of common mental disorders for refugees, asylum seekers, and internally displaced persons. *Cochrane Database of Systematic Reviews* **9**(9), 1–50. doi: 10.1002/14651858.CD013458.pub2
- van den Broek M, Hegazi L, Ghazal N, Hamayel L, Barrett A, Kohrt BA and Jordans MJD** (2021) Accuracy of a proactive case detection tool for internalizing and externalizing problems among children and adolescents. *Journal of Adolescent Health*, 1–8. doi: 10.1016/j.jadohealth.2021.03.011
- van Ginneken N, Chin WY, Lim YC, Ussif A, Singh R, Shahmalak U, Purgato M, Rojas-García A, Uphoff E, McMullen S, Foss HS, Pachya AT, Rashidian L, Borghesani A, Henschke N, Chong L-Y and Lewin S** (2021) Primary-level worker interventions for the care of people living with mental disorders and distress in low- and middle-income countries. *Cochrane Database of Systematic Reviews* **8**(8), 1–642. doi: 10.1002/14651858.CD009149.pub3
- Van Niel MS, Bhatia R, Riano NS, de Faria L, Catapano-Friedman L, Ravven S, Weissman B, Nzodom C, Alexander A, Budde K and Mangurian C** (2020) The impact of paid maternity leave on the mental and physical health of mothers and children: a review of the literature and policy implications. *Harvard Review of Psychiatry* **28**, 113–126.
- WHO** (2020) *Guidelines on Mental Health Promotive and Preventive Interventions for Adolescents*. Geneva. Available at <https://apps.who.int/iris/bitstream/handle/10665/336864/9789240011854-eng.pdf>.
- WHO** (2022) *Mental health and COVID-19: early evidence of the pandemic's impact*. Available at https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-Mental_health-2022.1.
- Wood S, Ford K, Hardcastle K, Hopkins J, Hughes K and Bellis MA** (2020) *Adverse childhood experiences in child refugee and asylum seeking populations*. 44.
- World Health Organization** (2019) *Multisectoral Action for Mental Health*. Copenhagen, Denmark: World Health Organization Regional Office for Europe. Available at https://www.euro.who.int/__data/assets/pdf_file/0014/413015/Multisectoral-action-for-mental-health-Brief.pdf.
- World Health Organization & UNICEF** (2021) *Helping adolescents thrive toolkit*. Available at <https://www.who.int/publications/i/item/9789240025554>.
- Yehuda R and Lehrner A** (2018) Intergenerational transmission of trauma effects: putative role of epigenetic mechanisms. *World Psychiatry* **17**, 243–257.
- Zimmerman A, Garman E, Avendano-Pabon M, Araya R, Evans-Lacko S, McDaid D, Park A-L, Hessel P, Diaz Y, Matijasevich A, Ziebold C, Bauer A, Paula CS and Lund C** (2021) The impact of cash transfers on mental health in children and young people in low-income and middle-income countries: a systematic review and meta-analysis. *BMJ Global Health* **6**, e004661.