IPPO The International Public Policy Observatory

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TECHNICAL REPORT

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Contributions

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EXECUTIVE SUMMARY

BACKGROUND

The COVID-19 pandemic and related mitigation responses have impacted social, financial, and economic spheres globally. An increase in the incidence of mental health problems at population level has been reported against this backdrop, with studies suggesting that the prevalence of mental health problems during the COVID-19 pandemic is greater than pre-pandemic estimates (Nochaiwong et al., 2021). Population-level initiatives to mitigate the mental health problems arisen from the COVID-19 pandemic and other crises have been described in the literature but have not always been collated in a way that can directly inform policy decision-making (Kola, 2021). Consequently, policy calls to identify effective interventions to address poor mental health exacerbated by the pandemic continue to be made (Santomauro et al., 2021). However, identifying effective interventions and planning feasible and sustainable scale-up remains a challenge.

REVIEW AIMS AND QUESTIONS:

To meet policy demand for collated evidence on population-level initiatives to mitigate the mental health problems arisen from the COVID-19 pandemic, IPPO is conducting a systematic review of international evidence to answer the following question:

What are the most effective, scalable interventions to address widespread mental health issues that have surfaced during the COVID-19 pandemic?

This will entail conducting a multi-component systematic review to answer review questions (RQ) on the:

1) nature and extent of mental health issues arising during covid-19, to inform the focus on
2) the effectiveness of population-level mental health interventions and
3) the factors potentially influencing scale-up of mental health interventions

REVIEW APPROACH AND SCOPE

Initial scoping for this review highlighted that an overview of reviews design was most appropriate for RQ1 and RQ2. Firstly, the IPPO map indicated that a number of systematic reviews on the prevalence of mental health issues had been published since the start of the pandemic, and secondly during initial searching and screening for question two and three, we identified a number of systematic reviews focused on the effectiveness of mental health interventions delivered to whole populations. Using similar transparent methods to a systematic review, an overview of reviews (meta-review) also aims to make best use of existing research literature, in this case evidence syntheses. For RQ3, process and contextual detail about the range of factors to consider when scaling-up interventions, was more readily available in primary studies. To answer RQ1 we included systematic reviews published from 2021 that had critically appraised and statistically combined data on prevalence of, anxiety, depression, and PTSD in the general population. To answer RQ2 reviews, we also prioritised reviews that had conducted a risk of bias of included studies and evaluated the effectiveness of mental health and psychosocial interventions (MHPSS) on anxiety, depression and PTSD using meta-analysis. For RQ3 we included primary studies with data on scale up of MHPSS interventions. It should be noted that while a range of social, systemic and pharmacological interventions can support mental health of whole populations, this review focuses on psychological approaches. Further methodological details are provided in chapter two and the appendices of this report.

KEY FINDINGS

RQ1: What is the nature and extent of mental health issues in the general population?

Since 2021, a total of 19 reviews have provided pooled estimate of effects for anxiety (N=15), depression (N=14) and post-traumatic stress (N=6) amongst the general population.

- **Anxiety**: when comparing with pre-pandemic data two reviews found an **increase in anxiety**. Pooled prevalence varied between the remaining meta-analysis, ranging from 21.0% to 52.6%.
- **Depression**: when comparing with pre-pandemic data two reviews found a **moderate increase** in depression. The pooled prevalence of the remaining reviews ranged from 21.3% to 34.3%.
- **PTSD/PTSS** The pooled prevalence of post-traumatic stress in the general population ranged from 9% (CI: not reported) to 27% (95% CI: 20.0–35.6%).

RQ2: Are population-level MHPSS interventions effective for reducing anxiety, depression and PTSD?

Seventeen reviews, nine investigating children and young people and eight investigating adults, were judged to be of high and medium quality and included findings from meta-analysis of outcome data. Overall, there is review-level evidence that psychological interventions, delivered at population-level, can have a positive impact on preventing and treating depression, anxiety, and PTSD. A summary of the findings is below:

Children and young people

- Reviews of **school-based interventions** report **evidence of positive effect** on:
  - CBT for the universal and targeted prevention of anxiety at primary schools
  - CBT and CBT with psychoeducation for universal prevention of anxiety and depression in secondary schools
  - Mindfulness/relaxation for universal prevention of anxiety in secondary schools
  - Cognitive–behavioural with IPT for universal prevention of depression in secondary schools
  - Third wave (e.g., acceptance and commitment therapy) for universal prevention of depression
  - Psychological therapies for indicated prevention of anxiety and depression in secondary schools
- **No evidence of difference** was found between intervention and control groups for
  - Universal or targeted prevention of depression in primary schools
  - Targeted prevention of anxiety or depression in secondary schools
- Reviews of **digital intervention** report **evidence of positive effect** on:
  - CBT-based interventions delivered via the internet, smartphone or mobile apps for treating depression and anxiety
- Reviews of **community-based interventions** report **evidence of positive effect** on
  - CBT for treating anxiety and depression
  - Psychotherapy for treating depression
  - A range of trauma-informed CBT and psychotherapeutic approaches for treating PTSD (see below).
- **No evidence of difference** was found between intervention and control groups for treatment of PTSD when delivering supportive counselling or family therapy

Adults

- Reviews of **workplace interventions** report **evidence of positive effect** on:
  - Mindfulness training intervention for universal prevention of anxiety and depression.
  - Psychoeducation for universal prevention of depression
  - Cognitive behavioural interventions, and self-help interventions combined with exercise for indicated prevention of depression.
- Reviews of **digital intervention** report **evidence of positive effect** on:
  - CBT and ACT based smartphone apps for preventing and treating anxiety
  - Compositive psychological interventions for treatment of anxiety (e.g., mindfulness, iCBT, iACT)
  - Internet-based CBT for treatment of anxiety, depression and PTSD
- They also report ***no evidence of difference*** for
  - CBT and ACT based smartphone apps for treatment of PTSD when comparted to control groups
- Reviews of **community-based interventions** report **evidence of positive effect** on:
  - Stress Control Programmes for preventing anxiety and depression
  - IAPT and CBT based psychological therapies for treating anxiety and depression

RQ3: What factors potentially influencing scale-up of mental health interventions?

A total of 87 primary studies provided evidence on scaling up of mental health and psychosocial interventions. Scale parameters: (e.g., intended reach) included:

- **Transnational**: e.g.not being limited within physical or political spatial boundaries
- **System wide**: e.g., the integration of services, such as integrating new mental health care services into general health care systems or integrating services into primary care.
- **Place-based** e.g., within the boundaries of a community, nation or state or smaller place-based communities such as schools, universities, or workplaces.

The **factors** presented below suggest that **programmes may be more likely to achieve scale-up** if they:

- **Intervention characteristics:**
  - Increase access to services across time and place by digitising interventions and making them available online
  - Expand the workforce by task shifting or task sharing from specialists to non-specialists
  - Use technology and online provision to train non specialists and speed up workforce availability
  - Enable self-referral and make mental health interventions more open access
- **Resource related factors:**
  - Secure policy support and government funding for scaling by demonstrating evidence of impact
  - Identify when additional resource is needed for scale-up to support greater implementation success
  - Match service level to needs by identifying care pathways, signposting, or stepped care
  - Integrate mental health services into primary care to make more efficient use of resources
- **Working together:**
  - Employ effective leaders to gain lasting buy-in from stakeholders on scale-up of services
  - Include knowledgeable local champions to promote new services at set- up and maintenance
  - Gain the buy in of multi-stakeholders, including the implementors of programmes
- **Programme fidelity** (to ensure scale up happens as intended):
  - Provide training fidelity and knowledge transfer to provide skills for consistency in provision
  - Use guidelines, templates, manuals to provide a common shareable framework for delivery

- **Monitoring and Evaluation:**
  - Use benchmarks and indicators to measure progress against and support future investment
  - Include ongoing evaluation of the quality and feasibility of services and track scale-up progress
  - Standardize training and adopt recognised accreditation models to disseminate the programme more widely and implement best practice while seeking greater reach
- **Test the acceptability of an intervention prior to scale-up**
  - Assess acceptability to implementors to anticipate potential organisational changes needed
  - Assess acceptability to service users to ensures services are meeting needs and reach
- **Contextual factors:**
  - Engage with the socio-political context of programme implementation to assess and ensure fit
  - Consider cultural factors and adaption needs by integrating local knowledge and practices with evidence-based programmes to contribute to contextually appropriate service delivery.
- **Combine supply side and demand side approaches**
  - Use resource mapping to identifying population needs and service gaps.
  - Take proactive efforts to raise awareness of the programmes in the target community.
  - Minimising barriers to service use through campaigns to reduce stigma towards mental ill health

Implications for policy and practice

- The evidence-base for the effectiveness of population-mental health and psychosocial interventions continues to gain traction. However, if effective mental health and psychosocial interventions are to be made available at population-level, they need to be scaled appropriately. Policy and practice support for scale-up is critical in this endeavour, and more so when scaling requires intervention, organisational and system-level changes. Government commitment in the form of policy initiatives and resource allocation is key to ensuring the sustainable impact of scaled intervention. Feasibility and cost-effectiveness analysis, prior to scale-up and throughout implementation, could also help inform the success of scale-up strategies.
- There is consistent evidence on the effectiveness of **community-based** population-level mental health services for treating symptoms of anxiety, depression and PTSD. Large-scale nationwide programmes, such as Increasing Access to Psychological Services (IAPT), which provides a stepped-care approach to maximise availability of services to need (e.g., low to high intensity CBT, counselling interpersonal therapy) is now very well established in England and Wales. The rollout of similar public mental health care in other regions would require significant government policy buy-in to enable and maintain any infrastructure changes needed. It would also require an investment in human resource to establish a trained and competent workforce and support and any organisational culture changes identified.
- The review-level evidence for **school-based** prevention interventions is mixed. While findings suggest that universal and targeted prevention can work to delay the onset or worsening of anxiety symptoms in primary schools, replication of results were not found for depression. Similarly, findings for interventions delivered in secondary schools suggested that CBT-based approaches work for universal prevention of anxiety and depression, but not targeted prevention. While there is evidence of effectiveness for indicated prevention in adolescents. To address this, it might be useful to consider taking a stepped care approach in schools. For example, providing universal prevention interventions for all students alongside targeted individualised support for children and young people with elevated symptoms. The school will continue to be a sit in which to reach large numbers of children and young people, but more understanding of how interventions need to be tailored to meet their needs as they develop is required.

- There are a variety of effective universal and indicated **workplace prevention** interventions for depression and anxiety. Sustained, long-term investment in occupation-based mental health interventions by employers, ensuring they are both acceptable and accessible to employees, continues to be an important route when seeking to reach a large proportion of the adult population and support ongoing mental health efforts in light of the pandemic. The workplace also provides an opportunity to implement key scale up-strategies, such as: adopting effective leadership and deploying champions to promote mental health initiatives, engaging with multi-sectorial partners to provide on and off-site services (e.g., employee assistance programmes), using benchmarks and indicators to measure progress against and incorporating ongoing evaluation of the quality and feasibility of services to track effectiveness and scale-up progress.

- Although the evidence-base for the effectiveness of **digital and mobile app interventions** is currently modest, with greater effect sizes for internet-delivered interventions with professional input, the potential scale-up of specialist and non-specialist online psychological support and increasing transnational reach of mental health provision remains. Thus further consideration of the role of digital mental health, in the prevention and treatment of mental health symptoms as part of a stepped-care approach to service delivery is warranted. Online platforms also provide a resource efficient way to reach and train a workforce necessary for the delivery of mental health services, on and offline, including provision of supervision and cascading of best practice to ensure fidelity. This of course, is particularly salient in the context of COVID-19 and any future infectious disease crises, as many mental health services remain virtual as we continue to use a hybrid model of working.

- As highlighted, there is consistent evidence of improving intervention reach and scale-up of mental health services through **stepped care models** of provision. That is, where low intensity and brief interventions are offered as a first-line approach, with more intensive interventions made available for those with more severe needs. Taking a stepped care approach can be supported by **task-shifting**, where lower severity mental health needs can be shifted to non-specialists, (with referral to specialists at higher level of needs if required), enabling greater access to metal health services that would otherwise be the case if providers needed extensive training.

- However, in most scale-up scenarios, there will be a need to substantially enlarge the mental health workforce to scale interventions to effectively target large population with prevention needs and smaller populations of people who require more intensive treatments. This can be supported by **using guidelines, templates, manuals** to provide a common intervention framework and ensure intervention fidelity, as stated, by utilising digital platforms to support and train the workforce and speed up their availability.

- In the aftermath of COVID-19, the key to the scale up of mental health provision is being aware of and meeting demand needs. National and regional policy and practice initiatives can achieve scale-up by setting up strategic partnerships, with multi-stakeholders, which integrates local knowledge alongside knowledge of evidence-based mental health intervention. Doing so, can inform the maximisation of resources, how best to adapt interventions, and build a strong leadership team and trained workforce to implement services, as closely as intended to achieve intended reach. In the long-term, these mental health strategic partnerships can contribute knowledge on how to scale and deliver mental health programmes at population level and support best practice for similar initiatives in the future.

1. BACKGROUND

1.1 The Impact of COVID-19 on the Mental Health of General Populations

The COVID-19 pandemic and related mitigation responses have impacted the social, financial, and economic spheres at a global level. An increase in the incidence of mental health problems at population-level has been reported against this backdrop with initial findings from primary studies suggesting that the prevalence of mental health problems during the COVID-19 pandemic may be greater than pre-pandemic estimates (Nochaiwong et al., 2021). Substantial increases in the prevalence of anxiety and depression in the general population have been the most notably reported (Chekole et al., 2021; Santomauro et al., 2021). Not surprisingly, children and adolescents have also been severely affected; with estimates of anxiety and depression in youth having doubled in comparison to pre-pandemic times (Racine et al., 2021).

It is now widely recognised that the measures put in place to limit the spread of the virus, such as quarantine and physical distancing, negatively affected the economy, employment, and public health, and increased risks to the mental health and psychosocial wellbeing of whole populations. Social determinants are known to shape mental health outcomes globally. Unemployment, precarious employment, lack of access to good quality housing, discrimination based on ethnicity, sexual orientation, immigration and occupational status and exposure to community violence are associated with exacerbation of anxiety, depression and PTSD symptoms. All of which were compromised during and after the height of COVID-19 (see figure 1.1). Furthermore, poor individual mental health is found to have a cumulative impact on socioeconomic status (Alegria et al, 2017; Bell et al, 2013). Alegria et al (2017) provide a helpful summary of programmes targeting the social determinants of mental health (table here). To address these concerns a recent meta-review of population level interventions addressing the social determinants of mental health was conducted (Shah et al. 2021)

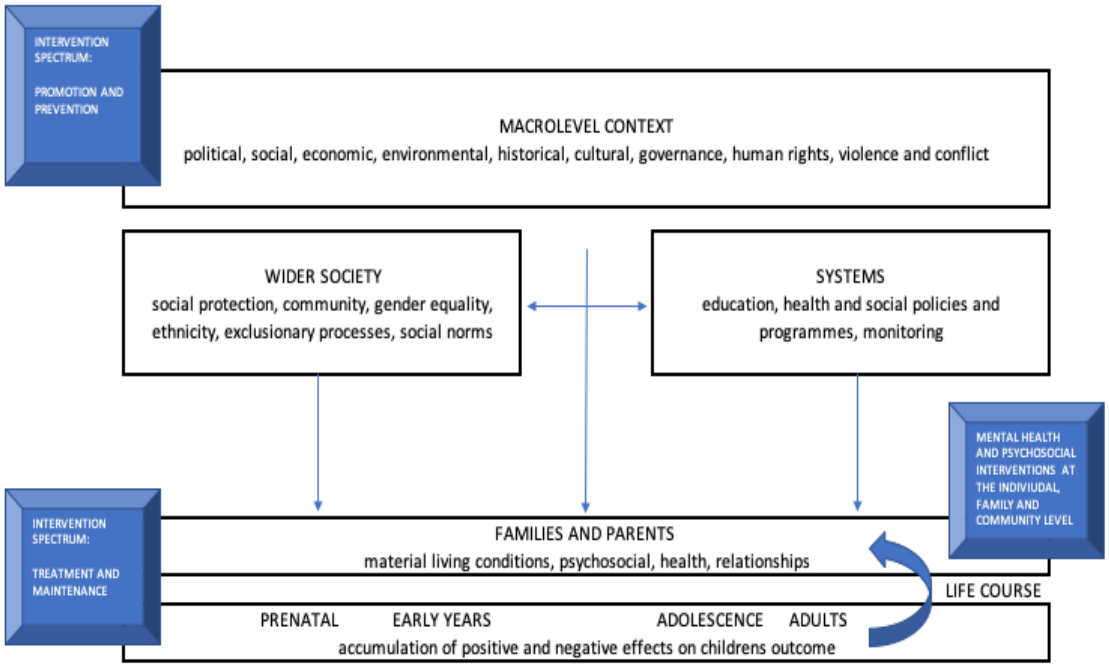


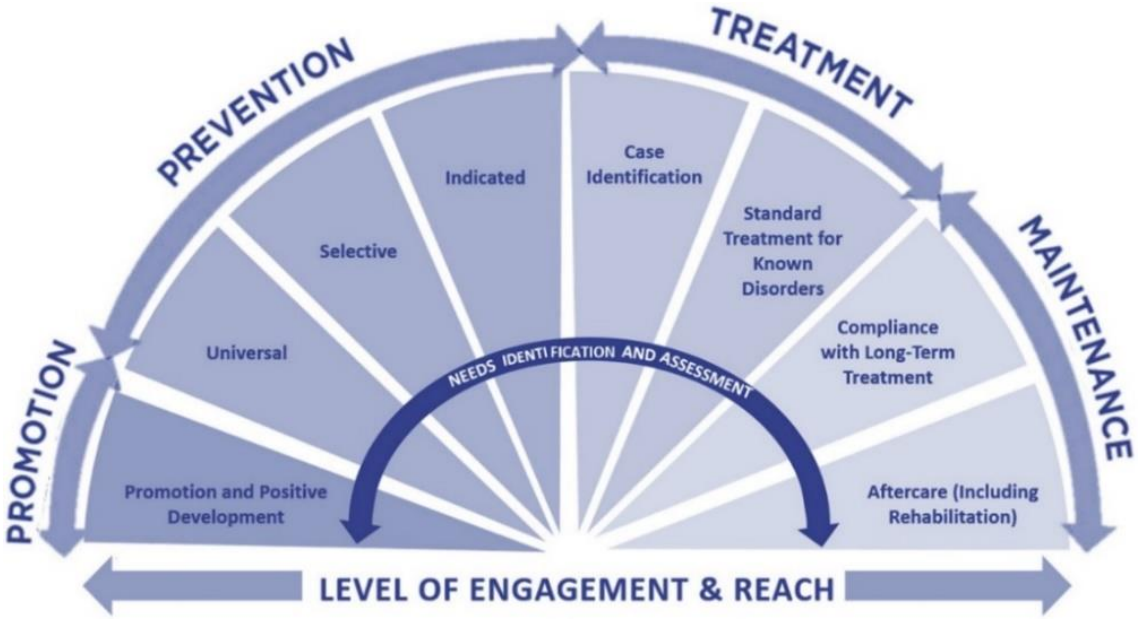
Figure 1.1 adapted from Bell et al, 2013

As the ongoing exposure to economic and environmental stressors continues to contribute to adverse impacts at the individual and community level, there is a need to increase access to services that support the prevention and treatment of mental health problems such as depression and anxiety (Ankin et al. 2022). Although many people can draw on protective factors to buffer the psychological and social effects resulting from COVID-19, many others cannot. Thus, the mental health consequences of COVID-19 remain a global health priority (World Health Organisation, 2022). Navigating such a prolonged crisis requires greater strengthening of mental health responses, and to make efficient use of resources to maximise intervention reach (Adiukwu et al. 2022).

1.2 Population-level mental health interventions: pathway levels

Population mental health interventions can be defined by the scale of population-need they target and seek to address. Mental health prevention, treatment and recovery strategies can cover a range of aims from preventing the onset of mental ill health through to treatment, recovery and maintaining the need for ongoing services (see figure 1.2). Prevention-focused interventions are classified as either universal (i.e., aimed at an entire population), selective (i.e., targeting specific higher risk sub-populations) or indicated (i.e., those already with mental health issues) (Public Health England 2015). In the context of COVID-19, universal mental health prevention interventions could address widespread mental health issues emerging across entire populations, whereby selective prevention focuses on populations showing elevated pandemic-related mental health risks, compared to 'indicated' and treatment-orientated approaches for populations with known mental health issues.

Figure 1.2: Spectrum of intervention pathways (Institute of Medicine 2009)



However, identifying which mental health interventions are most effective and planning appropriate and sustainable scale-up to target whole populations continues to remain a challenge (Patel et al. 2018, Keynejad et al. 2021).

1.3 Scalability

Sustainable scale-up has been defined as "the effort to magnify the impact of health service innovations successfully tested in pilot or experimental projects, so as to benefit more people and to foster policy and programme development on a lasting basis" (Simmons et al., 2007 p.1). Existing scalability frameworks of healthcare interventions include the World Health Organisation ExpandNet Scaling-Up Framework, the Intervention Scalability Assessment Tool (ISAT), the Assess, Innovate, Develop, Engage, Devolve (AIDED) model and the Non-adoption, Abandonment, Scale-up, Spread, Sustainability (NASSS) framework. Consideration of the political context to support scale-up and resources to support and sustain the scale-up process were described as commonalities across the frameworks (Klaic et al. 2022).

Using Theory of Change (ToC) Hamdani and colleagues (2021) described the process of scaling-up school mental health services in low resource public schools of rural Pakistan, whilst Fuhr et al. (2020) explored pathways for scaling up brief psychological interventions in conflict-affected populations. Both projects involved sustained engagement with stakeholders through a series of workshops. ToC maps, described as "theory-supported hypothetical visual pathway which demonstrates how a public health intervention can bring about specific long-term change through a logical sequence of intermediate outcomes" (Hamdani, 2021) resulted in practical guidance on how to implement the intervention at scale. In line with other frameworks, consideration of the socio-ecological context was seen as key within the process.

Woodward and colleagues (2021) suggest that the scalability of psychological interventions might be challenging and slow; they suggest that an assessment of the "scalability" at systems level is necessary to understand the suitability and potential of taking interventions to scale. Along the same lines, assessing "readiness" for scaling up interventions has been defined as fundamental for sustained change (Nguyen et al., 2020). The Scale-up Readiness Assessment Framework by Nyugen and colleagues describes a process to inform scale-up success for population health interventions (PHI). This process encompasses three progressive phases: ground-work preparation phase; implementing scale-up phase; and sustained the scaled-up PHI phase. Given that mental health interventions might be given lesser priorities compared to other healthcare interventions, identifying successful strategies for scaling up interventions within mental health and psychosocial support is key. In the context of humanitarian crises in low and middle-income countries, results from a recent systematic review suggest that integrating mental health services into primary health care and/or community services with appropriate training is feasible (Troup et al, 2021). Prior to consideration of delivery mechanisms to support scale-up, however, is the need to establish the effectiveness of interventions, delivered to address population-level mental health.

1.4 Review aims and rationale

Population-level initiatives to mitigate the mental health problems arisen from the COVID-19 pandemic and other public health emergencies have been described in the literature but are not always been collated in a way that can directly inform policy decision-making (Kola, 2021). Consequently, policy calls to identify effective mental health interventions to address poor mental health exacerbated by the pandemic at population level continue to be made (Santomauro et al., 2021). To meet policy demand for collated review-level evidence on a wide range of population-level mental health interventions to mitigate the mental health problems arisen from the COVID-19 pandemic, we aim to conduct a systematic review of international evidence to answer the following question: *What are the most effective, scalable interventions to address widespread mental health issues that have surfaced during the COVID-19 pandemic?*

This entailed conducting a multi-component systematic review examining the:

- nature and extent of mental health issues arising during covid-19 (RQ1) to inform the focus on
- the evidence on the effectiveness of population-level mental health and psychosocial interventions (RQ2)
- exploration of factors potentially influencing scale-up of mental health and psychosocial interventions (RQ3)

Details of the approach to review and methods are provided in the next chapter.

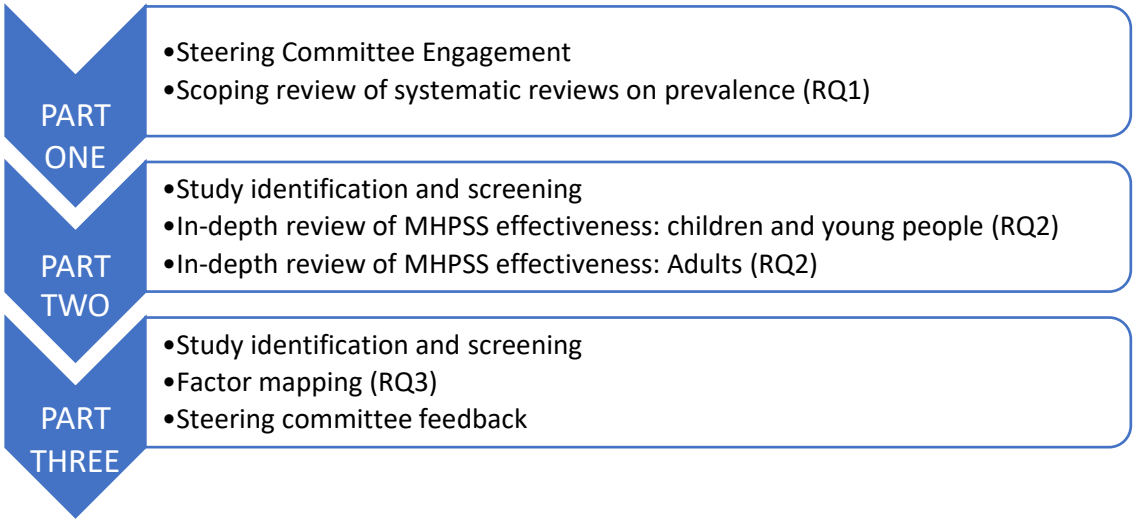
2. METHOD

This review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance (Moher et al. 2009) reported in Appendix 2.

2.1 Review approach

We conducted a multi-component systematic review (see Figure 2.1). The aims of the research indicated that an overview of reviews design was most appropriate for RQ1 and RQ2. Firstly, the IPPO map indicated that a number of systematic reviews on the prevalence of mental health issues had emerged since the start of the pandemic, and secondly initial searching and screening identified systematic reviews focused on the effectiveness of mental health interventions delivered to whole populations. Using systematic and transparent methods, an overview of reviews makes best use of existing evidence syntheses. Whereas contextual detail about the possible range of factors to consider when scaling-up interventions was more readily available in primary studies to answer RQ3.

Figure 2.1: Multi-Component Review Stages



2.2 Stakeholder Engagement

Involving stakeholders to support the research process by ensuring that the scope and findings of the review are relevant and accessible and reach appropriate audiences is a key objective of IPPO. As part of the scoping exercise, we contacted a range of possible stakeholders and invited them to join a steering group committee. Their role was to provide policy and practice perspectives to ensure that the review remained contextually relevant, and to advise on its scope and identify any relevant research (particularly unpublished reports not easily available in the public domain). Further stakeholder engagement activities were also scheduled through the review process to support reach and relevance.

2.3 Part one: scoping review of reviews on prevalence

We identified systematic reviews from the IPPO Living map version 12 (February 2022). The methods for identifying and including reviews in the living map can be found on the EPPI-Centre website (available on request). Reviews were re-screened for eligibility and coded according to the following dimensions: date, population, aims, methods and outcomes. We produced a narrative overview of prevalence findings from systematic reviews published from 2021 onwards, which have appraised the quality of their included

studies and statistically combined data on general populations, using statistical meta-analysis. We also critically appraised this sub-set of reviews using a modified version of the AMSTAR tool (Shea et al. 2007), to accommodate prevalence reviews rather than reviews on intervention effectiveness.

2.4 Part two: meta-review of effective interventions

2.4.1 Key concepts and definitions

Population

We focused on children and young people aged 0-24 years old and adults from the general population. Population groups excluded included those with long-term physical health conditions or specific sub-groups of populations needing specialist clinical interventions.

Population-Level Mental Health and Psychosocial Interventions

This review is concerned with interventions that address psychological and/or psychosocial processes to prevent and/or treat depression, anxiety, and PTSD. Population level refers to interventions which are delivered to groups of people e.g., an entire community, or a large part of a community This means intervention could be:

- **Universal**: e.g., offered to whole populations regardless of mental health status
- **Targeted selective**: e.g., implemented with populations considered at risk of developing MH problems
- **Targeted indicated**: e.g., aimed at populations with symptoms of depression, anxiety, or post-traumatic stress but below clinical thresholds.
- **Treatment**: e.g., populations diagnosed with mental health issues.

Excluded interventions: Population-level interventions seeking to support the prevention and treatment of depression, anxiety, and PTSD but excluded from this review include: policies and programmes addressing the wider social determinants of mental health (e.g., housing, employment, education); pharmacological interventions (e.g., anti-depressants, anti-convulsants); standalone cardio-based physical health interventions (e.g., different types of exercise); nature-based interventions (e.g., gardening, community allotments, green spaces); and evaluations of referral pathways to services, rather than direct evaluations of mental health and psychosocial interventions (e.g. social prescribing). Although such interventions are highly relevant and important as part of a whole-person and systems-based approach to supporting the mental health and psychosocial wellbeing of individuals and communities, the scope of the review would have been too broad and unmanageable in the time available. Furthermore, some of these interventions have recently been subject to meta-review and therefore would have resulted in duplication of research effort.

Outcomes

Based on the findings outlined in part one, we focused on the most prominent mental health symptoms reported in systematic reviews of prevalence, during the COVID-19 pandemic. These included: depression, anxiety and post-traumatic stress disorder. The following definitions outlined below were used to identify and guide the review in part two (see table 2.1). The focus on these outcomes was discussed and agreed with the steering committee. Based on this discussion it is important to note the adult-centric bias of these outcomes and that other mental health issues also relevant to children and young people, such as

emotional and behavioural difficulties, resilience, and wellbeing did not fall within the direct scope of this review (Sadler et al. 2017).

Table 2.1 Outcome definitions and measurement tool examples

OUTCOMES:	
Depression (National Institute of Mental Health, 2022)	
Definition and description:	**Examples of measurement tools include:**
Depression: also called major depressive disorder or clinical depression, is a common but serious mood disorder that affects how individuals feel, think, and handle daily activities, such as sleeping, eating, or working. **Signs and symptoms of depression** include**:** ○ Persistent sad, anxious, or "empty" mood ○ Feelings of hopelessness, or pessimism ○ Feelings of irritability, frustration, or restlessness ○ Feelings of guilt, worthlessness, or helplessness ○ Loss of interest or pleasure in hobbies and activities ○ Decreased energy, fatigue, or feeling "slowed down" ○ Difficulty concentrating, remembering, or making decisions ○ Difficulty sleeping, early morning awakening, or oversleeping ○ Changes in appetite or unplanned weight changes ○ Thoughts of death or suicide, or suicide attempts ○ Aches or pains, headaches, cramps, or digestive problems without a clear physical cause that do not ease even with treatment ○ Suicide attempts or thoughts of death or suicide	● **The Beck Depression Inventory-II** (BDI-II) is a 21-item self-report measure that taps major depression symptoms according to diagnostic criteria listed in the Diagnostic and Statistical Manual for Mental Disorders. Items are summed to create a total score, with higher scores indicating higher levels of depression (Beck et al., 1996). ● **The Hospital Anxiety and Depression Scale (HADS)** is a 14-item self-report measure developed to assess psychological distress in non-psychiatric patients. It consists of two subscales, Anxiety and Depression and takes 2–5min to complete. HADS focuses on non-physical symptoms so that it can be used to diagnose depression in people with significant physical ill-health (Zigmond & Snaith, 1983). ● **The Children's Depression Inventory (CDI**) is a 27-item self-report measure designed to assess cognitive, affective and behavioural signs of depression in children and adolescents. The assessment is now in its second edition and rates the severity of symptoms related to depression or dysthymic disorder in children and adolescents (Kovacs, 1985).
Anxiety Disorders (National Institute of Mental Health, 2022)	
Anxiety Disorders: Occasional anxiety is a normal part of life. However, anxiety disorders involve more than temporary worry or fear. For people with an anxiety disorder, the anxiety does not go away and can get worse over time. Different types of anxiety include: **Social Anxiety**: Social anxiety disorder is a type of anxiety disorder that involves an intense, persistent fear of being watched and judged by others. For people with social anxiety disorder, the fear of social situations may feel so intense that it seems beyond their control. For some people, this fear may get in the way of doing everyday things. **Generalised Anxiety Disorder**: Generalised anxiety disorder (GAD) is a type of anxiety disorder that usually involves a persistent feeling of anxiety or dread, which can interfere with daily life. It is not the same as occasional worrying or experiencing anxiety due to stressful life events. People living	● **The Spence Children's Anxiety Scale** (SCAS-Child) is a 45-item self-report measure used to assess severity of anxiety symptoms in children aged 8-15 years. SCAS-Child evaluates symptoms relating to separation anxiety, social phobia, obsessive-compulsive disorder, panic-agoraphobia, generalized anxiety and fears of physical injury (Spence, 1998). ● **The Beck Anxiety Inventory** (BAI) is a 21-item self-report measure used to assess the intensity of physical and cognitive anxiety symptoms in adolescents and adults (Beck & Steer, 1993). ● **The Generalized Anxiety Disorder** 7-item scale (GAD-7) was developed for the clear purpose of screening for and assessing the severity of generalized anxiety disorder (GAD) (Spitzer et al., 2006).

OUTCOMES:	
with GAD experience frequent anxiety for months, if not years.	
Post-Traumatic Stress Disorder (National Institute of Mental Health, 2022)	
Post-Traumatic Stress Disorder: It is natural to feel afraid during and after a traumatic situation. Nearly everyone will experience a range of reactions after trauma, yet most people recover from initial symptoms naturally. Those who continue to experience problems may be diagnosed with post-traumatic stress disorder (PTSD). People who have PTSD may feel stressed or frightened, even when they are not in danger. **Symptoms**: usually begin early, within 3 months of the traumatic incident, but sometimes they begin years afterward. Symptoms must last more than a month and be severe enough to interfere with relationships or work to be considered PTSD. The course of the illness varies. Some people recover within 6 months, while others have symptoms that last much longer. In some people, the condition becomes chronic.	• **The Davidson Trauma Scale (DTS**) is a 17-item, Likert-scale, self-report instrument that assesses the 17 DSM-IV symptoms of PTSD. Both a frequency and a severity score can be determined. The DTS can be used to make a preliminary determination about whether the symptoms meet DSM-IV criteria for PTSD (Davidson et al., 1997). • **The PCL-5** is a 20-item self-report measure that assesses the 20 DSM-5 symptoms of PTSD. The PCL-5 has a variety of purposes, including monitoring symptom change during and after treatment, screening individuals for PTSD, and making a provisional PTSD diagnosis. The PCL was recently revised to reflect DSM-5 changes to the PTSD criteria (Blevins et al., 2015).

Study Designs: we included the following study designs:

- **Systematic reviews**, where two or more databases had been searched, eligibility criteria applied, and studies had been critically appraised (RQ 1 and 2).
- **Primary studies** conducing impact or process evaluations on scaling up of mental health and psychosocial interventions. This could include mixed designs studies whose primary focus may not have been on impact of interventions, but also reported quantitative and/or qualitative data on intervention implementation, or characteristics of programmes relevant to scale-up.

These concepts and definitions informed the eligibility criteria which can be found in appendix 2.

2.4.2 Literature search methods

We aimed to identify an extensive range of research literature across a range of geographical populations. The following databases were searched that collectively cover areas of healthcare, mental health, social policy, social science and education research: 3ie Evidence Hub (3ie), CENTRAL (Cochrane Library), Cumulative Index to Nursing and Allied Health (EBSCO), Cochrane Database of Systematic Reviews (Cochrane Library), Education Resource Information Center (EBSCO), Global Health database (OVID), Global Index Medicus (WHO), Health Management Information Consortium (OVID), Medline (OVID), Psycinfo (OVID), PTSDpubs (Proquest), Social Policy and Practice (OVID), Social Sciences Citation Index, and Emerging Sources Citation Index (WoS), Trial Register of Promoting Health Interventions (EPPI-Centre).

The searches were undertaken between 19 and 25 May 2022 for literature published in English since 1980. This was based on three concepts which needed to be present in the title, abstracts, keywords or database controlled vocabulary: 1) mental health, in terms of anxiety, depression and post-traumatic stress; 2) terms for upscaling interventions, population and universal interventions, including capacity building, psychological support, treatment and increasing access and reach; 3) terms for effectiveness, trials, acceptability or feasibility studies. Appendix 2 provides the search strategy for the Psycinfo database,

which was used as the basis for searches of the other resources and simplified where necessary. Details of other searches are available on request. The searches were developed by an information specialist (CS) in conjunction with the lead reviewer (KD) and were informed from a preliminary searching and screening exercise using PTSDpubs, Psychinfo and Pubmed to identify relevant references and develop eligibility criteria. This exercise identified 37 potentially relevant references on which to test and inform the search. We also drew on previous EPPI-Centre reviews to inform search terms.

2.4.3 Data extraction and quality appraisal of reviews

Drawing on previous meta-reviews conducted by the EPPI-Centre (e.g., Dickson et al. 2017, Sutcliffe et al. 2012), a tool was devised to extract information on the aims, intervention details and findings of included reviews. Reviewers extracted review authors findings as reported, in the form of numerical and narrative summary statements. Summary statements were captured for three outcomes of interest: anxiety, depression and PTSD. Data extraction was conducted independently by two reviewers, who met to compare their work. Risk of bias of was assessed independently using the AMSTAR-2 tool (Shea et al. 2017). Discrepancies between the reviewers were also resolved through discussion and consensus.

2.4.4 Narrative overview of effectiveness reviews

A narrative synthesis of the findings was conducted by organising reviews according to the spectrum of intervention pathways and examining the direction of effects based on statistical meta-analysis conducted. Statistical difference was our primary consideration when interpreting and synthesising results as studies not reaching statistical significance may not have been insufficiently powered to detect a small, but operationally significant effect. The findings were categorised as follows: (i) evidence of positive impact: when the direction of positive effect was statistically significant; (ii) no evidence of difference: when it was not possible to detect any statistically significant differences in the direction of effect between those receiving interventions and those in control or comparison groups for particular outcomes. To reiterate, this lack of difference may be because the study was not large enough to detect any differences that there might have been between groups or that the intervention actually had no effect. The statement does not indicate an absence of evidence, nor does it indicate equivalence between comparison groups; (iii) evidence of harm: when the direction of effect was negative, statistically or non-statistically; (iv) inconsistent evidence: when there were conflicting findings among studies; and (v) insufficient evidence: findings were based on a single study. The final stage of synthesis involved bringing together the findings of reviews for each intervention and outcome combinations.

2.5 Part three: configurative review on factors potentially influencing scale-up of mental health and psychosocial interventions

Primary studies on scale-up were identified from the search conducted to answer RQ2, as previously outlined in section 2.4.2. Studies were included if they examined factors to inform scale-up of mental health and psychosocial interventions in high- or low-income country contexts, to maximise the use of evidence to inform high and low-resource settings, globally. In line with the previous questions, we were limited to studies published in English, however, we did not apply a date filer. A framework synthesis approach was taken to analyse findings. (Brunton et al. 2020). This enabled the use of deductive and inductive coding of primary studies. This supported the use of pre-defined codes and the identification of new descriptive and analytical themes to emerge from the literature. Based on the codes, data figures and tables were generated to support the narrative review of findings. The findings were organised thematically, according to their frequency and relevance to answering the review question.

2.6 Data management and quality assurance process

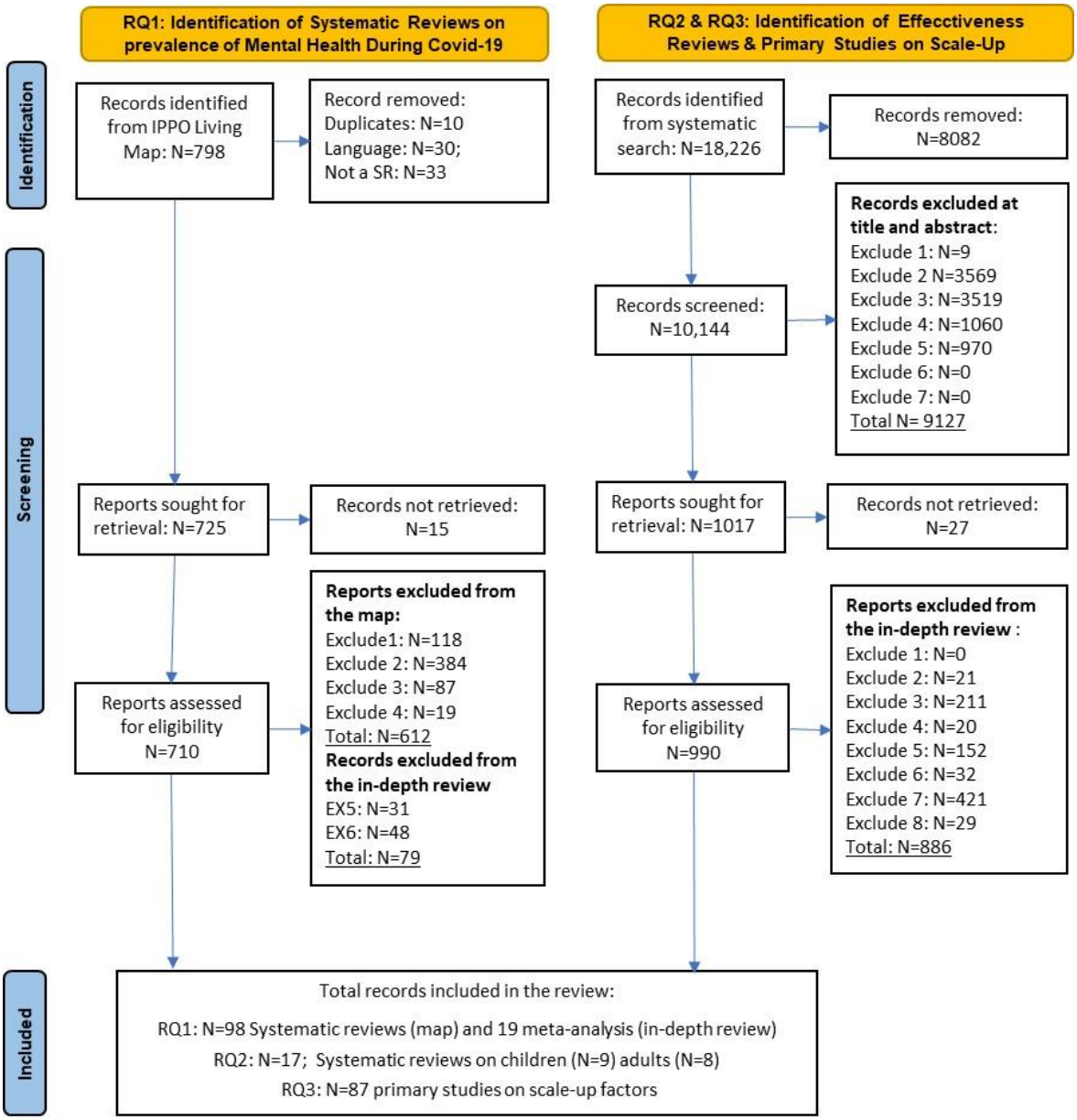
Search results were imported into the systematic review software, EPPI-Reviewer web. Using the software, we piloted the eligibility criteria and coding tools by comparing decisions in groups of two reviewers. Citations identified by the IPPO systematic map and additional complimentary searches were initially screened on titles and abstracts. Full reports were obtained for those citations judged as meeting the eligibility criteria or where there was insufficient information from the title and abstract to assess relevance. At each coding stage (e.g., screening titles and abstracts, screening full reports and double coding) an initial sample of citations was coded by reviewers independently and differences resolved by discussion. If agreement was adequate for this initial sample, the remaining citations were screened or coded by a single reviewer. If differences or concerns arose about final judgements, they were resolved by seeking guidance from a second or third review author (e.g., KD, RM, CV).

3. Search results

3.1 Flow of studies through the review

A total of 798 citations were identified from the IPPO Living map to inform review question one. After applying the exclusion criteria on 710 full text reports, 98 met the inclusion for the map and 19 for the in-depth review**.** The searches for review question two and three, identified 18,226 unique references, of which 10,144 remained after de-duplication in EPPI-Reviewer. Following screening of titles and abstracts 990 studies were screened at full text, of which 17 met the eligibility criteria for review question 2 and 87 met the eligibility criteria for review question 3.

Figure 3.1 Flow of studies through the review



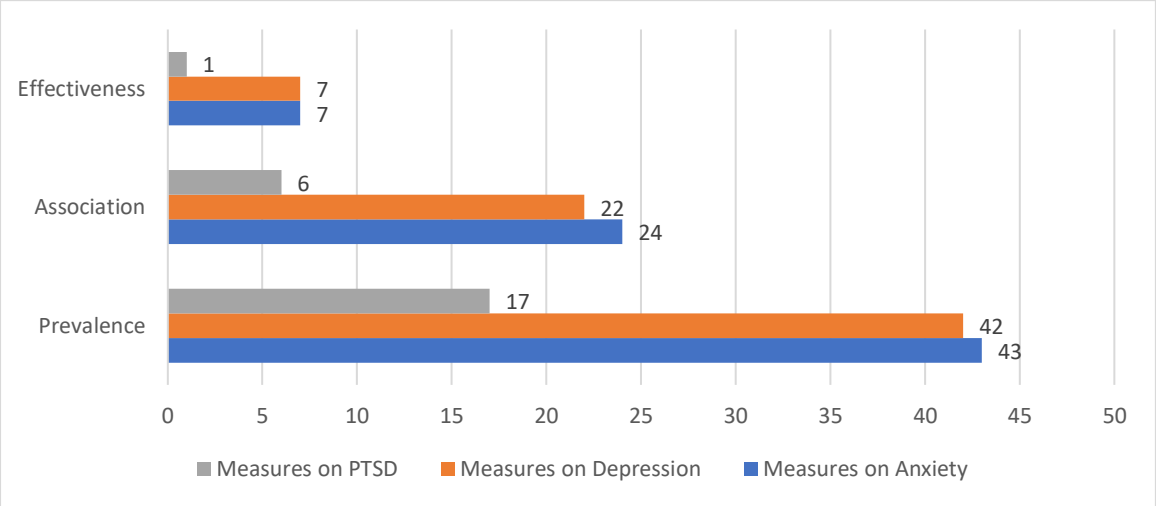
Eligibility criteria: Review question one: EX1: Topic: not about mental health; EX2: Population: not sampling or conducting a sub-group analysis of the general population; EX3: Quality: not using methods to critically appraise studies; EX4: Methods: not synthesising evidence on prevalence (Map) EX5: Date: not published in or after 2021; EX6: Reporting data: not using meta-analysis to report pooled estimates of effects (In-depth Review). Review question 2 and 3: EX1: Language: not published in English; EX2: Population: not on the general population; EX3: Intervention: not investigating a population level mental health or psychosocial intervention; EX4: Outcomes: not investigating depression, anxiety, or post-traumatic distress disorder (PTSD): EX5: Study design: not a) an impact or b) a process evaluation or c) a systematic review; EX6: Date: not a SR published since 2017: EX7: Topic and reporting data: not a) a primary study providing evidence on scale-up of MHPSS programmes or b) a SR using meta-analysis to report effect sizes EX8: Studies with overlap

3.2 Overview of prevalence reviews (RQ1)

A total of 98 systematic reviews investigated issues relevant to mental health and COVID-19.

- Thirty-one reviews were published in 2020, 61 in 2021 and 6 in 2022.
- Most studies (n=69) did not set an age limit on the studies they included, 13 studies focused on adults only and 16 on children and young people.
- The focus of the reviews (which is not mutually exclusive) was on:
    - the prevalence of mental health impacts during COVID-19 (n=61);
    - the association between COVID-19 factors and mental health outcomes (n=34);
    - effectiveness of interventions addressing mental health issues during COVID-19 (n=10);
    - implementation of mental health interventions (n=6);
    - experience of COVID-19 on mental health (n=2) and other impacts (n=13).
- Mental health outcomes were quantitatively measured. Sixty-three reviews (n=68) examined anxiety as an outcome, this was followed by depression (n=65), sleep problems (n=25), stress (n=23), PTSD (n=23), psychological distress (n=16), emotional and behavioural wellbeing (n=14), suicide (n=11), fear (n=8), psychological disorders/problems not specified (n=7), eating disorders (n=3) and obsessive-compulsive disorder (n=3). Many reviews report multiple outcomes.
- The majority of reviews conducted meta-analysis (N=54) or used narrative methods to combine data (N=37). Two reviews use both techniques, combining outcome data statistically where possible and narratively when it was not. The remaining five reviews conducted a synthesis of qualitative data.

Figure: 3.2 Focus of reviews and outcomes measured



3.3 Overview of effectiveness interventions for children, young people, and adults (RQ2)

We identified 17 systematic reviews on the effectiveness of population-level mental health interventions. We focused on recent reviews published between 2017 and 2022 that had critically appraised and meta-analysed studies measuring anxiety, depression or PTSD. Nine reviews focused on children and young people, and seven reviews focused on adults. While the intervention modalities evaluated across reviews were similar (e.g., CBT, IPT, mindfulness, etc), they differed in relation to their pathway level, delivery setting and outcome focus (See table 3.1).

3.3.1 Pathway levels, delivery setting and outcome focus

Systematic reviews of population mental health interventions which aim to prevent or delay the onset of symptoms through universal and targeted or indicated prevention were most likely to focus on anxiety and depression compared to PTSD, which was largely addressed by interventions focused on treatment. Population-level interventions were delivered to children, young people, and adults online and in the wider community, e.g., schools and workplaces.

Table 3.1 Overview of pathway levels, delivery setting, and outcome focus of reviews

PATHWAY LEVELS: CHILDREN			**Outcomes**		
			Anxiety	Depression	PTSD
Prevention	Universal	School-Based	✓	✓	
		Digital		✓	
		Community			
	Targeted (selective)	School-Based	✓	✓	
		Digital			
		Community			
	Indicated	School-Based	✓	✓	
		Digital			
		Community			
Treatment	Case identification / Standard	School-Based			
		Digital	✓	✓	
		Community	✓	✓	✓
PATHWAY LEVELS: ADULTS			**Outcomes**		
			Anxiety	Depression	PTSD
Prevention	Universal	Workplace	✓	✓	
		Digital	✓	✓	
		Community	✓	✓	
	Targeted	Workplace			
		Digital			
		Community			
	Indicated	Workplace		✓	
		Digital	✓	✓	✓
		Community			
Treatment	Case identification	Workplace			
		Digital	✓	✓	✓
		Community	✓	✓	

3.3.2 Types of interventions delivered at population-level

The type of interventions found in the literature include those commonly delivered to people with severe and enduring mental health issues. These types of psychological interventions have now been adapted to reach more people, often with shorter delivery formats, in more accessible settings.

Overall, the key mental health and psychosocial approaches evaluated in reviews included:

Cognitive behavioural therapy (CBT and iCBT): Cognitive behavioural therapy is a psychological treatment for people diagnosed with or at risk of depression, anxiety disorders, alcohol and drug use problems, eating disorders or relationship problems. It is a type of talk therapy where individuals or groups may work with a mental health professional to focus on becoming aware of negative or inaccurate thinking to view challenging situations more clearly and respond to them more effectively. It is also delivered by telephone, online, and via stand-alone 'guided self-help' programmes whereby people work through CBT exercises.

CBT is based on core principles, including i) psychological problems are based, in part, on faulty or unhelpful ways of thinking; ii) psychological problems are based, in part, on learned patterns of unhelpful behaviour; iii) people suffering from psychological problems can learn better ways of coping with them, thereby relieving their symptoms and becoming more effective in their lives. Thus, CBT treatment usually involves efforts to change thinking and/or behavioural patterns.

Box 3.1 Intervention example: FRIENDS For Life (Ahlen et al., 2017)

What is the programme?

FRIENDS for Life is part of a suite of FRIENDS programmes (including Fun FRIENDS and FRIENDS for Youth), which aim to improve resilience or coping skills in children (8-11 years old) and reduce anxiety and improve mental health and wellbeing. The programme is based on CBT and positive psychology.

How is it delivered?

FRIENDS for Life is a **school-based, universal intervention**, which comprises 10–12 weekly sessions of one hour each. The programme is delivered in a group format by teachers to children between the ages of seven and 13. The intervention uses a play-based and experiential learning approach to provide **cognitive behavioural skills** in a developmentally appropriate manner. During each session children are taught skills, aimed at helping them to increase their coping skills through stories, games, videos and activities. The educational materials include workbooks for children, containing exercises to complete during lessons and homework assignments, and group leader manuals for teachers, outlining objectives and strategies and detailed instructions to all exercises.

What is taught in the programme?

In the **first session**, the teacher introduces FFL, and children learn the importance of recognizing and sharing feelings and being brave. In the **second session**, the first letter is introduced, F = Feelings. Children learn about different feelings, and how to recognize their own and others' feelings by looking at facial expressions and body language. In the **third session**, the second letter is introduced, R = Relax. Children learn to understand bodily signals of different emotions and how different forms of relaxation can help them stay calm and happy. In **sessions four and five**, the third letter is introduced, I = I can do it. Children learn to identify their self-talk and how helpful and unhelpful thoughts affect our feelings and behavior. In the **sixth session**, the fourth letter is introduced, E = Explore solutions. Children learn how to overcome problems by dividing problems into smaller steps and practice one step at a time. In the **seventh and eighth session**, children continue to work on the fourth letter by identifying their social support team and solving problems using a structured problem-solving strategy. In the **ninth session**, the last letters are introduced, N = Now reward yourself, D = Don't forget to practice, and S = Smile. Children learn to reward themselves when doing their best and how to use all these strategies in future situations. In the **last session**, children learn how to maintain the strategies learned in the program.

Mindfulness-based interventions (MBI): Mindfulness-based interventions are therapeutic treatments aimed at reducing negative thinking patterns and reactions. It focuses on changing the patient's relationship to thoughts, emotions, bodily sensations, and associated behaviours through an attitude of non-judgment, curiosity, openness, acceptance, and kindness. Thus, MBIs can help individuals at any stage of treatment and be used in tandem with other therapies.

Acceptance and commitment therapy (ACT therapy): is an action-oriented approach to psychotherapy that helps individuals learn to stop avoiding and struggling with their inner emotions. Instead, individuals learn

to stay focused on the present moment and accept thoughts and feelings without judgment. With the help of a licensed professional, individuals will develop coping mechanisms specifically designed for them, which they can use to approach challenging experiences. The stages of ACT therapy include (1) building rapport with a licensed professional, (2) deeper awareness of negative thoughts or painful memories, (3) exploring core values, (4) creating an action plan, and (5) committing to incorporating the plan into everyday life. ACT therapy can help with the following: stress, anxiety, depression, substance abuse, and phobias (irrational fears).

Box 3.2 Intervention example: Mindfulness at Work (Wolever et al., 2012)

What is the programme?

Mindfulness at Work is a stress management programme based upon the principles and practices of mindfulness meditation.

How is it delivered?

This **workplace, universal intervention** completed over the course of 12-weeks (14 hours) through a one-hour weekly sessions are provided at the workplace, either in-person or online.

What is taught in the programme?

Participants in mindfulness programmes **learn to focus attention on feelings, thoughts, and sensations**. The programme is designed to be delivered at worksites and consists of 12 weekly hour-long classes, and a 2-hr mindfulness practice intensive at week 10. The sessions are provided by an experienced mindfulness meditation teacher either in-person, in a conventional classroom, or through an online virtual classroom. The Mindfulness at Work programme teaches **5 to 15-minutes mindfulness practices targeting work-related stress, work-life balance, and self-care.** Participants in both Mindfulness at Work receive handouts for home and office use and are encouraged to complete home practice assignments.

Trauma-focused Cognitive behavioural therapy (TF-CBT): Trauma-focused CBT is the treatment model for people diagnosed with post-traumatic stress disorder. It focused on; i) grounding and stabilising (e.g. using techniques to manage overwhelming feelings typical of PTSD); ii) processing memories (e.g. verbally or narratively); ii) addressing beliefs (e.g., making sense of what you thought during the trauma, and deciding what is a helpful and fair way to think about yourself and your situation now; iii) reclaiming your life (e.g. trauma can lead to avoidance of experiences that might cause distress, thus TF-CBT focuses on how you can enjoy and build a new life based on your individual values and belief.

Interpersonal therapy (IPT): Interpersonal therapy is a focused and time-limited form of psychotherapy that focuses on relieving symptoms by improving social and interpersonal functioning. IPT is used to treat people diagnosed with anxiety, eating disorders, chronic fatigue, and mood disorders such as bipolar and dysthymic disorders. A central idea in IPT is that psychological symptoms can be understood as a response to current difficulties in everyday relationships with other people. It focuses on i) conflict in relationships that is a source of tension and distress; ii) life changes, such as job loss or the birth of a child, that affect people's feelings about themselves and others; iii) grief and loss; iv) difficulties in starting or sustaining relationships. Thus, IPT focuses on learning effective strategies for dealing with relationship problems.

'Stress Control' (SC): Stress Control is a didactic, group programme that teaches anxiety and depression management skills over six two-hour sessions in community settings. It is delivered for the commonly

occurring and mild-to-moderate mental health problems that are a feature of community and primary care settings.

Box 3.3 Intervention example: Stress Pac (Kellett et al., 2004)

What is the programme?

Stress Pac is a 6-week course which provide clients with tools and techniques to help them understand and manage your stress, anxiety and depression.

How is it delivered?

The **six-session intervention** is delivered by **Psychological Wellbeing Practitioners** through **lecture-style presentations.** Although the sessions are delivered in group, Stress Pac is not group therapy; clients are not asked to share experiences or to speak in front of others. New skills from sessions are put into practice at home.

What is taught in the programme?

Each week covers a different topic**.** The course is based on Cognitive-Behavioural Therapy (CBT) techniques. Information is given on slides and handouts and exercises are suggested to try between sessions. Clients are welcome to bring a member of their family or a friend for support. The number of people in the group can range from 10 to 17 attendees. Topics include: What is Stress? Stress and the body, stress and our thoughts, what we do differently when we feel stressed, panic attacks and depression, improving sleep.

Box 3.4 Intervention Example: Smartphone App Takahashi et al., 2017

What was the programme?

This study examined the feasibility and preliminary efficacy of an app intervention for individuals with subthreshold depression for participants in Japan. The **smartphone app (SPSRS)** used in the study is a free **video playback application**, similar to YouTube, designed such that participants can **receive a positive word stimulus** while watching a video.

How did the programme work?

Using a YouTube application programming interface, participants searched for and watched videos using keywords. The SPSRS was also programmed to **display positive words** such as “nice,” “enjoyable,” and “great” above videos with the aim **to improve self-confidence** in young adults with subthreshold depression. For this study, the app was available in the Japanese language.

How was it delivered?

Participants used the SPSRS app to watch videos that automatically displayed a positive word stimulus for at least 70 minutes per week over 5 weeks. The app focused on increasing the motivation for behavioural activation to increase mood and reduce depression

3.4 Scale-up (RQ3)

A total of eighty-seven primary studies reported on the intention to scale up mental health and psychosocial social intervention. from high and upper middle-income country) low- and middle-income country or a fragile state or both. There were more studies about treatment than prevention, with studies focused on MHPSS delivered to children, young people and adults. Study designs included both impact and process evaluations and provide important contextual details to inform scale-up. Further analysis of these studies are provided in Chapter 7.

4. What is the nature and extent of mental health issues in the general population?

This chapter summarises evidence from the 19 reviews meta-analysing data on the prevalence of depression, anxiety and PTSD using statistical meta-analysis.

4.1 Descriptive overview of reviews

Nineteen reviews provided pooled estimate of effects for anxiety (N=15), depression (N=14) and post-traumatic stress (N=6). Reviews include primary studies published in 2020 and 2021 and conducted analysis of the general public or sub-group analysis (e.g., disaggregating data on the general public from other population groups e.g. frontline workers). Only one review, in this set, limited their study inclusion to focus on children and young people (Racine et al. 2021). Included studies relied on cross-sectional designs to capture data quickly, with few using longitudinal measures. Only two reviews synthesized data from studies with pre-pandemic measures of outcomes to enable comparisons. The size of the evidence-base was difficult to ascertain at the outcome level with most reviews reporting the number of studies rather than the total number of participants.

4.2 Quality of the reviews

All nineteen prevalence reviews were critically appraised using the AMSTAR tool (Shea et al. 2007). The majority of systematic reviews were judged as being of high quality (N=14); and a further four as medium quality. Only one review was judged as low quality. When exploring risk of bias within individual domains most were judged to be of low (10 domains) or moderate (5 domains) risk of bias. Overall, meta-analyses were conducted appropriately, with reviews examining sources of bias, including publication bias. Quality assessment ratings for each of the reviews on prevalence are reported in Appendix 3.1.

4.3 Findings: Anxiety

The prevalence of anxiety was reported in 15 reviews (Racine et al. 2021, Zhao et al. 2022, Castaldelli-Maia et al. 2021, Phiri et al. 2021, Thakur & Pathak 2022, Nochaiwng et al. 2021, Blasco-Belled et al. 2022, Kan et al. 2021, Chekole & Abate 2021, Cheung et al. 2022, Wu et al. 2021, Necho et al. 2021, da Silva et al. 2021, Robinson et al. 2021, Kunzler et al. 2021). Findings varied between meta-analysis, ranging from 21.0% (95% CI, 0.17-0.24%) to 52.6% (95% CI 42.0–63.2%). When excluding the lower quality review by da Silva et (2021) the range is reduced to 21% to 38.1%. The lowest prevalence rate of 21% only included studies sampling children and young people (mean age: 13.0 years, range, 4.1-17.6 years). Two reviews presented a comparison with pre-pandemic data (Robinson et al. 2021, Kunzler et al. 2021) and found an increase in anxiety (SMC=.125 (95% CI: .019 to .23, and SMD: 0.40; (95% CI: 0·15–0·65).

Table 5.1: Anxiety

Review Authors	**Size of the Evidence Base:**		**Pooled Prevalence (Average) or Standard Mean Difference / Change**
	Number of studies	Number of participants	
Blasco-Belled et al. 2022	N=84	NR	27% (95% CI 0.23—0.30%)
Castaldelli-Maia et al. (2021)*	N=54	N=193,137	21.3% (95% CI 19.0–23.6%)
Chekole & Abate (2021)	N=14	NR	27.4% (95% CI: 21.7-33.1 %)
Cheung et al. 2022	N=3	NR	29.0% [95% CI 20.8- 37.2%)

Review Authors	Size of the Evidence Base:		Pooled Prevalence (Average) or Standard Mean Difference / Change
	Number of studies	Number of participants	
da Silva et al. (2021)	N=8	N=16,865	52.6% (95% CI 42.0–63.2%)
Kan et al. (2021)	N=49	NR	27.3% (95% CI: 23.7-31.2%)
Kunzler et al. (2021)	N=26	N=132,145	SMD: 0.40; (95% CI: 0·15–0·65)
Nochaiwng et al. (2021)**	N=75	N=284,813	26.9% (95% CI: 24.0–30.0%)
Necho et al. (2021)	N=9	NR	38.1% (95% CI: 18.2-57.9%)
Phiri et al. 2021	N=102	NR	22.4% (95% CI: 19.8-25%)
Racine et al. (2021)*	N=25	NR	21.0% (95% CI, 0.17-0.24%)
Thakur & Pathak (2022)	N=24	NR	25.9% (95% CI: 20.5%-31.2%)
Zhao et al. (2022)	N=10	N=20,599	21.2% (95% CI: 16.6-26.7%)

*Young people only, ** General popn including health care workers

4.4 Findings: Depression

Fourteen reviews conducted meta-analysis of depression (Lee et al. 2021, Cheung et al. 2022, Phiri et al. 2021, Castaldelli-Maia et al. 2021, Zhao et al. (2022, Blasco-Belled et al. 2022, Racine et al. 2021, Thakur & Pathak 2022, Nochaiwong 2021, Wu et al. 2021, Chekole & Abate 2021, Necho et al. 2021, Robinson et al. 2021, Kunzler et al. 2021). The pooled prevalence ranged of depression ranged from 21.3% (95% CI: 19.3–23.4%) to 34.3% (95% CI: 18.4-50.2%). Two reviews presented a comparison with pre-pandemic data (Robinson et al. 2021, Kunzler et al. 2021) and found a moderate increase in depression (SMC=.216 (95% CI: .135 to .296, and SMD 0.67; 95%CI 0.07–1.27).

Table 5.2 Depression

Review Authors	Size of the Evidence Base		Pooled Prevalence (Average) or Standard Mean Change (SMC)
	N. of studies	N. of participants	
Blasco-Belled et al. 2022	N=79	NR	25% (95% CI 0.23-0.27%)
Castaldelli-Maia et al. (2021)**	N=21	N=16,118	23.0% (95% C1: 19.5-26.5%)
Chekole & Abate (2021)	N=16	NR	34.2% (95% CI: 24.9-43.5%)
Cheung et al. 2022	N=4	NR	21.9% (95% CI: 3.4-40.5%)
Kunzler et al. 2021	N=28	N=183,747	SMD 0.67 (95% CI: 0.07–1.27)
Lee et al. 2021**	N=114	N=640,037	21.3% (95% CI: 19.3–23.4%)
Necho et al. (2021)	N=8	NR	34.3% (95% CI: 18.4-50.2%)
Nochaiwong (2021)**	N=75	N=280,607	28.0% (95% CI: 25.0–31.2%)
Phiri et al. 2021	N=102	NR	22.6% (95% CI: 20.0-25.1%)
Racine et al. (2021)*	N=26	NR	25.0% (95% CI: 0.21-0.30%)
Robinson et al. 2021	N=58	NR	SMC=.216 (95% CI: .135 to .296)
Thakur & Pathak (2022)	N=25	NR	25.9% (95% CI: 20.2%-31.5%)
Wu et al. 2021	N=17	N=69,697	31.5% (95% CI:24.2–39.2%)
Zhao et al. (2022)	N=10	N=20,644	23.2% (95% CI: 16.6 -31.4%)

*Young people only, ** General population including health care workers

4.5 Findings: post-traumatic stress disorder and post-traumatic stress symptoms

A total of six systematic reviews summarized the prevalence of post-traumatic stress disorder (N=4: Phiri et al. 2021, Qui et al. 2021, Salehi et al. 2021, Zhang et al. 2021) or post-traumatic stress symptoms (N=2: Nochaiwong, 2021, Zhou et al. 2022). The pooled prevalence of post-traumatic stress in the general

population ranged from 9% (CI: not reported) to 27% (95% CI: 20.0–35.6%). The lowest reported prevalence rate of PTSD was by Salehi et al. (2021) which compared across coronaviruses pandemics with COVID-19 at only 9% compared to SARS (18%) and MERS (36%).

Table 5.3: PTSD/PTSS

Review Authors	Size of the evidence base		Pooled Prevalence (Average)
	N. of studies	N. of participants	
Nochaiwong et al. (2021)*	N=28	N=56,447	24.1% (95% CI: 17.0–32.0%)
Phiri et al. 2021	N=19	NR	23.2% (95% CI: 10.5-35.9%)
Qui et al. 2021	N=39	NR	27.1% (95% CI: 20.0–35.6%)
Salehi et al. (2021)*	N= 11	NR	9.0% (CI: not reported).
Zhang et al. (2021)	N= 12	NR	20.0% (95% CI: 14–25.0%)
Zhao et al. (2022)	N=5	N=3015	19.2% (95% CI: 4.6-54.2%)

*General population including health care workers

5. Effectiveness of population-level MHPSS interventions for children and young people

This chapter reports the findings of our systematic review of reviews on population-level mental health interventions for children and young people. The reviews are organised and reported according to their setting and delivery mode in the following sections: 6.1. School-Based Interventions; 6.2 Digital Interventions; 6.3 Community-based interventions. Each section provides a descriptive overview of the evidence-base, a summary of the quality of the reviews included in that section and a narrative review of the findings.

5.1 School-based interventions

5.1.1 School-Based Interventions: descriptive overview

Two recently published systematic reviews, provide evidence on the effectiveness of school-based interventions for preventing depression and anxiety (Caldwell et al. 2021, Gee et al. 2020). The recently published network meta-analysis (NMA) funded by the National Institute of Health Research in the UK (Caldwell et al. 2021) has conducted a comprehensive review of 109 studies on universal and targeted prevention of depression and anxiety in primary and secondary schools. The review by Gee et al. (2020) provides evidence on indicated prevention of depression and anxiety in secondary schools. Reviews of school-based interventions mainly synthesised evidence on the effectiveness of a range of cognitive behavioural therapy approaches and somatic practices (e.g., mindfulness).

Table 5.1 School-based interventions

Authors	Intervention details	Search	Studies	Countries
Caldwell et al. 2021	**Pathway level**: Prevention **Intervention**: CBT, CBT and psychoeducation; Acceptance and commitment therapy (ACT); Interpersonal therapy (IPT); Mindfulness/relaxation **Delivery**: whole classrooms or small groups **Duration:** 2 to 120 sessions (mean 11.13 sessions). **Population:** 4–18 years	Database inception to May 2019	N=142 and N=109 in the NMA	Australia or New Zealand (N=5); United States (N=3) Europe (N=2); Asia (N=2)
Gee et al. 2020	**Pathway level**: Treatment **Intervention**: CBT, IPT, ACT **Delivery**: Classroom and small groups **Duration:** 3 to 20 sessions, for 20 to 120 minutes. **Population:**	Inception to 4 April 2019	N= 23; 16 in meta-analysis	Australia (N=6); Sweden (N=6); The Netherlands (N=5); 1 each in China, Canada, Denmark, Iran, New Zealand, and the United States.

5.1.2 Quality of reviews

Both reviews were judged to be of high quality when using the AMSTAR 2 tool (Shea et al. 2017). Low risk of bias was found in 13 of the 14 applicable domains. Only one domain: details of the funding sources of included primary studies was not reported. Quality assessment ratings for each of the reviews on school-based intervention are reported in Appendix 3.2.1

5.1.3 School based interventions: findings

Box 5.1: Overall direction of effects

Interventions with evidence of positive effect

- The following **primary school** interventions may be effective in **preventing anxiety**:
  - **Universal**: cognitive–behavioural interventions (SMD –0.07, 95% CrI –0.23 to 0.05)
  - **Targeted**: cognitive–behavioural interventions (SMD –0.38, 95% CrI –0.84 to 0.07)
- The following **universal secondary school** interventions may be effective in **preventing anxiety**:
  - Mindfulness/relaxation interventions [SMD –0.65, 95% CrI –1.14 to –0.19]
  - Cognitive–behavioural interventions (SMD –0.15, 95% CrI –0.34 to 0.04)
  - Cognitive–behavioural interventions with psychoeducation (SMD –0.30, 95% CrI –0.59–0.01)
- The following **indicated secondary school** interventions may be effective in **preventing anxiety**
  - psychological interventions (SMD = .61, 95% CI 0.95, 0.27)

- The following **universal secondary school**-based interventions may be effective in **preventing depression:**
  - Cognitive–behavioural (SMD –0.04, 95% CrI –0.16 to 0.07)
  - Cognitive–behavioural interventions with psychoeducation (SMD –0.11, 95% CrI –0.28-0.05)
  - Cognitive–behavioural + interpersonal therapy (SMD –0.18, 95% CrI –0.46 to 0.08)
  - Third wave (e.g., acceptance and commitment therapy) (SMD –0.35, 95% CrI –0.70 to 0.00)

The following **indicated school**-based interventions may be effective in **preventing depression**

- psychological interventions (SMD = .45, 95% CI 0.63, 0.269)

Interventions not shown to be effective

- No conclusive positive evidence was found for:
  - Universal primary school-based for preventing depression
  - Targeted primary school-based interventions for preventing depression
  - Targeting secondary for preventing anxiety or depression

Universal and targeted mental health **prevention** programmes were delivered to pupils in primary and secondary schools. A network meta-analysis of 109 studies by Caldwell (2021) provides a comprehensive overview of the evidence. They find, that in **primary school** settings, there is evidence to suggest that both universal (SMD –0.07, 95% CrI –0.23 to 0.05) and targeted (SMD –0.38, 95% CrI –0.84 to 0.07) **cognitive behaviour therapy** can prevent **anxiety.** However**,** similar findings were not found for depression at post-intervention. In **secondary school settings**, **anxiety** can be preventable after receiving CBT (SMD –0.15, 95% CrI –0.34 to 0.04), CBT with psychoeducation (SMD –0.30, 95% CrI –0.59 to –0.01) or Mindfulness/relaxation interventions [SMD –0.65, 95% CrI –1.14 to –0.19]. Findings also remained consistent for the universal prevention of depression (SMD –0.04, 95% CrI –0.16 to 0.07); with greater effect sizes when CBT included psychoeducation (SMD –0.11, 95% CrI –0.28 to T0.05) or was coupled with interpersonal therapy (SMD –0.18, 95% CrI –0.46 to 0.08) at post-intervention. Third wave CBT interventions such as acceptance and commitment therapy were also shown to be effective (SMD –0.35, 95% CrI –0.70 to 0.00). However, there was a lack of conclusive evidence for the effectiveness of universal primary school-based intervention when preventing depression or targeted prevention interventions in secondary schools for anxiety or depression. By 6 and 12 months, the effectiveness of interventions to prevent depression had weakened, and there was a lack of evidence that any intervention type delivered in schools was effective in preventing anxiety.

At the **indicated level**, there is evidence of the effectiveness of **school-based** psychological interventions in improving **depression** and **anxiety** in **adolescents**. Interventions included CBT, IPT and mindfulness. Meta-analysis of 16 trials show that school-based interventions can have a moderate effect on anxiety symptoms (SMD = .61, 95% CI 0.95, 0.27, Gee et al., 2020), as well as a small to moderate effect on depression (k=32, SMD = .45, 95% CI 0.63, 0.269, Gee et al., 2020;). Although findings were maintained at short-term follow-up (<6 months) they didn't hold for later time points (e.g. >6 months, ≤ 12 months or >12-months).

5.2 Digital Interventions

5.2.1 Digital interventions: descriptive overview

Four systematic reviews synthesised evidence on digital interventions delivered to children and young people (Buttazzoni et al. 2021, Eilert et al. 2022, Grist et al. 2018 ,Leech et al. 2021). Reviews included studies on prevention of depression and the universal treatment of anxiety and depression. Digital interventions varied regarding the extent to which they were based on somatic practices and/or the core principals of CBT. They also varied in the extent to which they included the additional support of professionals or peers. Interventions were delivered via online platforms or were speciality designed mobile applications. Evidence synthesis largely focused on categorising interventions by their mode of delivery rather than providing in-depth detail about the content of the interventions.

Table 5.2 Digital Interventions

Authors	Intervention details	Search	Studies	Countries
Buttazzoni et al. (2021)	**Pathway level**: Treatment **Intervention**: CBT; Attention bias modification; Emotional self-awareness; Positive psychology; Social interaction; Gameful design **Delivery:** Self-administered; parental involvement. **Duration:** Ranged between 2-days to 16 weeks **Population:** Youths ≤24 years	From database inception to 2020	N=12	Australia and/or New Zealand (N=5); United States (N=3); Italy (N=1); Korea (N=1); UK (N=1); Japan (N=1)
Eilert et al. (2022)	**Pathway level:** Treatment **Intervention:** Internet-based CBT with synchronous and asynchronous by a therapist; Competent Adulthood Transition with Cognitive Behavioural Humanistic and Interpersonal Training; Affect-focused psychodynamic therapy with web-based feedback and weekly chat with a therapist; Spirituality-informed e-mental health tool. **Delivery:** Internet-delivered **Duration:** Ranged between 4 weeks to 8 months **Population:** 3 to 21 years old	From database inception to 2020	N=16	Sweden (N=6); Australia (N=6); The Netherlands (N=5); China (N=1); Canada (N=1); Denmark (N=1); Iran (N=1); New Zealand (N=1);United States (N=1);

Authors	Intervention details	Search	Studies	Countries
Grist et al. (2018)	**Pathway level:** Treatment **Intervention:** computerized and internet-based CBT; ACT therapy; Problem-solving therapy; Video games utilizing neurofeedback; Biofeedback; Emotion regulation training. **Delivery:** (1) self-administered (therapist contact for assessment at most); (2) predominantly self-administered (giving initial therapeutic rationale, direction on how to use the program and periodic check-ins, < 90 min of time); and(3) minimal contact therapy (active involvement of therapist, help in applying specific therapeutic techniques, > 90 min of time). Self-administered, parental involvement **Duration:** Average of 8-10 sessions per child. **Population:** 6 to 18 years	Jan 2013 to Sept 2017	N=34	Netherlands (N= 8); Australia (N = 8); China (N = 3); Sweden (N = 3); UK (N = 3); USA (N = 2); Israel (N = 2); New Zealand (N = 2); Canada (N = 1); Ireland (N = 1) Thailand (N = 1)
Leech et al. (2021)	**Pathway level:** Treatment **Intervention:** CBT, Mindfulness, Attention bias modification training; Emotional self-awareness; Cognitive remediation; Positive Psychology **Delivery:** Self-administered **Duration:** Ranged between 2 weeks to 12 weeks **Population:** 10 to 35 years old	Database inception to 11th Novembe r 2020	N=11	Australia (N=3); UK (N=1); USA (N=4); New Zealand (N=1); Korea (N=1); Canada(N=1)

5.2.2 Quality of reviews

Two reviews were judged to be of high quality (Eilert 2022, Leech 2021) and two of medium quality (Buttazzoni 2021, Grist 2018). All reviews provided important information about how studies were identified and included and conducted appropriate meta-analysis. High quality reviews were notable for including details of their protocol and considering the risk of bias in the interpretation of results. Quality assessment ratings for each of the reviews on digital interventions are reported in Appendix 3.2.2

5.2.3 Digital Interventions: findings

Box 5.2. Overall direction of effects

Interventions with evidence of positive effect

- The following **digital** interventions may be effective in **treating anxiety**
  - Internet delivered CBT (g=−0.25, 95% CI −0.38 to −0.12; P<.001)
  - Smartphone-based CBT interventions (*d*=0.42; 95% CI 0.00-0.83)
- The following **digital** interventions may be effective in **treating depression**

    - Smartphone-based CBT interventions (d=0.16; 95% CI 0.01-0.31)
    - CBT-informed Mobile Apps (g = 0.52 95% CI: 0.18–0.84; p=0.01)
- The following **digital** interventions may be effective in **treating depression and anxiety (combined)**
    - Internet delivered CBT, ABM, CBM (g = 0.45 [95% CI 0.29, 0.60)

Grist et al. (2018) examined the effects of **technology delivered psychological interventions** on children and adolescents, aged between 6 – 18, with a confirmed diagnosis or **elevated symptoms of depression or anxiety**. Using data from 34 RCTs, they conducted a meta-analysis to determine the effect of computerized and internet-based cognitive behaviour therapy (CBT) programs (n=17), attention bias modification (ABM) programs (n=8), cognitive bias modification (CBM) programs (n=3), as well as other (n=6) intervention programs such as internet-based acceptance and commitment therapy, emotion regulation training, biofeedback therapy etc. Combined results from the meta-analysis suggest that technology delivered interventions can have a small positive effect (g=0.45 [95% CI 0.29,0.60]) on depression and anxiety outcomes, however, effect size varies once different factors are taken into consideration. A sub-group analysis revealed that type of control group, mental health problem severity, theoretical basis, therapist support, parental involvement, and continuation of other treatments all influence effect size.

Technology delivered interventions produced statistically significant benefits over attention/placebo control groups (k = 14, g = 0.29 [0.05–0.53], p = 0.02) and wait-list control groups (k = 17, g = 0.68 [0.47–0.90], p ≤ 0.001), albeit the effect sizes varied across both control groups. The effect of the interventions on the degree of severity of mental health disorders was also significantly different. Technology-based interventions were much more effective in participants with diagnosed depression and anxiety disorder (k = 18, g = 0.72 [95% CI 0.52–0.91] p < 0.001) than those with elevated symptoms (k = 16, g = 0.22 [95% CI 0.03–0.40] p = 0.02). Furthermore, compared to ABMT (k = 8, g = 0.41 [95% CI 0.08-0.73] p = 0.01), CBM (k = 3, g = 0.09 [95% CI -0.19-0.37] p = 0.53), or other therapies (k = 6, g = 0.20 [95% CI -0.03-0.44] p = 0.09), CBT-based interventions had significantly bigger effect sizes (k = 17, g = 0.66 [95% CI 0.42–0.90] p < 0.001). When considering parental engagement, the same pattern can be observed. Interventions with parental support (k = 9, g = 0.86 [95% CI 0.69, 1.04] p < 0.001) had much larger effects than those without parental support (k = 23, g = 0.25 [95% CI 0.09, 0.42] p = 0.002). Therapies with minimum contact had a marginally bigger effect size (k = 9, g = 0.87 [95% CI 0.68, 1.06] p 0.001) compared to those that were mostly self-help (k = 2, g = 0.81 [0.68, 2.31] p = 0.29) or totally self-administered (k = 23, g = 0.24 [0.10, 0.38] p 0.001). The subgroup analysis's findings also revealed a significant difference in effect sizes between trials that permitted participants to continue receiving psychological or pharmaceutical treatment (k = 6, g = 0.90 [95% CI 0.68, 1.11], p 0.001) and trials that did not (k = 16, g = 0.42 [95% CI 0.20, 0.63]). Lastly, there was no discernible difference in outcomes between therapies given to younger children versus adolescents, or between the various types of mental health problems.

Buttazzoni (2021) explored the effects of smartphone-based interventions on internalising disorders such as anxiety, stress, and depression in youth populations. Based on a meta-analysis of 12 RCTs Buttazzoni's findings suggest that smartphones can have a small significant effect (d = 0.20; 95% CI 0.02-0.38) on reducing symptoms of internalising disorders. A sub-group analysis on interventions targeting anxiety (n=6) revealed a statistically significant medium size effect (d=0.42; 95% CI 0.00-0.83) in reducing symptoms of anxiety, whereas interventions targeting depressive symptoms (n=9), although statistically

significant had a much smaller effect size (d=0.16; 95% CI 0.01-0.31).[1] Further, a sub-group analysis on style of intervention showed that interventions that did not use CBT features (n=7) but focused on other styles of program delivery, such as monitoring, relaxation, and support, were statistically significant with a much larger effect size (d=0.42; 95% CI 0.09-0.75) than interventions that used CBT features (n=5), which had a very small and nonsignificant effect size (d=0.11; 95% CI −0.06 to 0.28).

Building on Buttazzoni's (2021) research and updating the existing literature on the effectiveness of smartphone-based mental health applications (apps) for adolescents and young people experiencing mental health difficulties, **Leech et al. (2021)** conducted a comprehensive review and meta-analysis of 11 RCTs targeting depression, distress, anxiety, stress, and overall mental health well-being (emotional, psychological, and social). The smartphone apps used were time limited, with sessions ranging from 4 to 12 weeks. The content was predominantly based on evidence-based psychological principles and techniques, particularly cognitive-behaviour therapy, and mindfulness. The apps were mostly self-guided, with limited to no support from therapists.

Their findings suggest that apps focused on mental health can be effective in reducing symptoms of mental health disorders. When comparing those exposed to various smartphone interventions to those in waitlist or attention control groups, participants in intervention groups, specifically those with symptoms of depression (g = 0.52 [CI: 0.18–0.84] p = 0.01, k = 8) and stress disorders (g = 0.30 [CI: 0.06–0.53], p = 0.02, k = 2) reported significant symptom improvements. Similar improvements were seen in interventions which targeted anxiety and distress; however, the reported effect estimates were either imprecise or dismissed due to publication bias or between study variably.

Finally, based on the rational that internet-delivered mental health interventions provide access to psychological treatment to a wide range of people, among them children and adolescents, **Eilert et al. (2022)** sought to understand how effective these interventions are in treating symptoms of depression and anxiety in children and young people between the ages of 3 and 21. Following a systematic search of multiple databases, 16 studies with RCTs were selected for a meta-analysis. The RCTs included a variety of therapeutic interventions, including internet-delivered cognitive behavioural therapy (iCBT) (n=12), internet-delivered cognitive or attentional bias modification interventions (n=3), problem-solving therapy (n=1), affect-focused psychodynamic therapy (n=1), and spirituality-informed interventions (n=1). Most of interventions were delivered directly to children and young people, a few were accessible to parents, and one intervention was delivered directly to parents only.

The results of the meta-analysis suggest that internet delivered mental health interventions can be effective in treating children and young people diagnosed with anxiety disorders. When comparing participants with mild to moderate anxiety symptoms and participants that met the diagnostic criteria for a primary disorder of anxiety, with waitlist or active controls, those who received the interventions experienced a small positive significant effect on anxiety symptoms (g=−0.25, 95% CI −0.38 to −0.12; P<.001). For those diagnosed with depression, **Eilert et al. (2022)** found no evidence to suggest that internet-delivered interventions can be effective in improving depressive symptoms (g=−0.27, 95% CI −0.55 to 0.01; P=0.06).

[1] Note: in cases where multiple outcomes of interest were reported in a single study, Buttazzoni calculated the average standardized difference across variables to ascertain the overall effect size

5.3 Community-Based Health Care Interventions

5.3.1 Community-based health care interventions: descriptive overview

The three systematic reviews on community-based health care interventions focused largely on the clinical treatment of anxiety, depression and PTSD in children, adolescents, and young people (Mavranezouli et al. 2020, Cuijpers et al. 2020, James et al. 2020). **Mavranezouli et al. (2020)** used a network meta-analysis to investigate the effectiveness of several psychological therapies, including trauma-focused cognitive behavioural therapy (TF-CBT) and non-TF-CBT in the treatment of PTSD in children. **Cuijpers et al. (2020)** compared psychotherapy interventions for depression across six age categories, from children to older demographics. **James et al. (2020)** updated a cochrane reviews which demonstrated that CBT is an effective treatment for children and young people with anxiety disorders. All three reviews found evidence of effectiveness following the different forms of therapy treatments.

Table 5.3 Community-based interventions

Authors	Intervention details	Search dates	Studies	Countries
Mavranezouli et al. (2020)	**Pathway level**: Treatment **Intervention:** TF-CBT, CBT, Non-TF-CBT, EMDR, etc. *Note: Full list of interventions in footnote[Mav] **Delivery:** Face-to-face, Digital **Duration:** short-term [≤12 weeks] & long-term [>12 weeks] **Population:** 0 -18 years old (with clinically important PTSD)	Database inception to 29 January 2018	N=32	US (N=13);Iraq (N=1); Sri Lanka (N=1); China(N=1); Netherlands(N=2); Uganda(N=1); Israel(N=1); Germany(N=2); Norway(N=1); Australia(N=1); UK(N=2); Thailand (1); Mexico(N=1); Sweden(N=1); Bangladesh(N=1); Kosovo(N=1); Other (N=1)
Cuijpers et al. (2020)	**Pathway level:** Treatment **Intervention:** CBT, Third-wave therapy, Behavioural activation therapy, Psychodynamic therapy, Interpersonal Psychotherapy, Life review therapy, Problem-solving therapy, non-directive supportive therapy. **Delivery:** individual, group, telephone, and guided self-help (through the internet or not). **Duration:** 1 - 60 sessions (varies) **Population:** All age groups	Database inception to January 2019	N = 366	North America (N=154); Europe (N=129); Australia (N=25); East Asia (N=30); Other (N=28)
James et al. (2020)	**Pathway level:** Treatment **Intervention:** CBT **Delivery:** Individual, group, with/without family/parent involvement, and parent-led **Duration:** Varied **Population:** ≤19 years	2016 to 10 October 2019	N=87	Two-thirds of the included studies were conducted in either the USA or Australia. The remaining studies were conducted in the UK, Spain, Norway, Netherlands, Germany, Sweden, Iran, Brazil, Hong Kong, India, Japan, Denmark, and Ireland.

Mavranezouli et al. (2020): 1) Psychological interventions: Trauma-focused cognitive behavioural therapies; Non-trauma-focused CBT; Psychologically focused debriefing; Eye movement desensitisation and reprocessing (EMDR); Hypnotherapy; Psychodynamic therapies; Counselling; Combined somatic and cognitive therapies; Parent training/family interventions; Play therapy 2) Psychosocial interventions: Meditation; Mindfulness-based stress reduction (MBSR); Nature-assisted therapies; Supported employment; Practical support 3) Psychoeducational interventions: Peer support 4) Other non-pharmacological interventions: Acupuncture; Exercise and aerobic; Repetitive transcranial magnetic stimulation (rTMS); Yoga.

Cuijpers et al. (2020) Cognitive behaviour therapy; Third-wave therapy; Behavioural activation therapy; Psychodynamic therapy; Interpersonal Psychotherapy; Life review therapy; Problem-solving therapy; non-directive supportive therapy.

5.3.2 Quality of reviews

Reviews were judged to be of high (Cuijpers et al. 2020, James 2020) and medium quality (Mavranezouli, 2020). Reviews narrowed their inclusion criteria to RCTs only and conducted appropriate meta-analysis. High quality reviews took additional steps to consider the role of study quality in the interpretation of the results and discussion and considered the impact of publication bias. Like previous sections, the reporting of funding sources of included primary studies, is not standardised and often not included. Quality assessment ratings for each of the reviews on community-based interventions are reported in Appendix 3.2.3

5.3.3 Community-based health care interventions: findings

Box 5.3 Overall direction of effects

Interventions with evidence of positive effect

- The following **community-based** interventions may be effective in **treating anxiety**
  - CBT (OR 5.45, 95% (CI) 3.90 to 7.60)
- The following **community-based** interventions may be effective in **treating depression**
  - Cognitive behaviour therapy (SMD -0.41 -0.56, -0.27)
  - Psychotherapy
    - for children, aged 13 years and younger (g = 0.35; 95% CI, 0.15-0.55)
    - adolescents, aged 13 to 18 years (g = 0.55; 95% CI, 0.34-0.75)
    - young adults aged 18 to 24 years (g = 0.98; 95% CI, 0.79-1.16)
- The following **community-based health care** interventions may be effective in **treating PTSD:**
  - Cognitive therapy (SMD -2.94, 95% CrI -3.94 to -01.95)
  - Combined somatic/cognitive therapies (SMD - 2.14, 95% CrI -3.34 to -0.92)
  - Child–parent psychotherapy (SMD -2.16, 95% CrI -4.02 to -0.26)
  - Combined TFCBT/parent training (SMD -1.79, 95% CrI -3.15 to -0.45)
  - Meditation (SMD -1.67, 95% CrI -2.94 to -0.41)
  - TF-CBT: narrative exposure (SMD -1.49, -2.25 to -0.74)
  - TF-CBT: exposure/prolonged exposure (SMD -1.34, 95% CrI -2.15 to -0.51)
  - Cohen TF-CBT Cognitive processing therapy (CPT) (SMD -1.17, 95% CrI -1.78 to -0.54)
  - Group TF-CBT (SMD 0.91 95% CrI -1.48 to -0.34)

Interventions not shown to be effective

- no conclusive positive evidence was found for treatment of PTSD in children and young people via
  - Supportive counselling (SMD -0.59, 95% CrI -1.29 to 0.12)
  - Family therapy (SMD -0.37, 95% CrI -1.60 to 0.84)

Using a network meta-analysis**, Mavranezouli et al (2020)** assessed the relative effectiveness of psychological and psychosocial interventions for children and adolescents, under 18 years old, with **PTSD**. Three network meta-analyses were conducted using the following outcomes: 1) PTSD symptom change between baseline and treatment endpoint (n=29); 2) PTSD symptom change between baseline and 1–4-month follow-up (n=10); and 3) remission post-intervention (n=9). In total, 32 RCTs were included in this study, each comparing the effects of different therapy programs against waitlist and no treatment control groups. The results of the network meta-analysis suggest that trauma-focused cognitive behavioural therapy (TF-CBT) intervention programmes are the most effective in reducing PTSD symptoms and establishing remission in children and young people with PTSD at the end of treatment.

When compared with waitlist control groups, TF-CBT focused therapies had the largest effect sizes for PTSD symptom change post-intervention. Within the TF-CBT class of psychological interventions, cognitive therapy with a standardised mean difference (SMD) of -2.94 [95% CrI -3.94 to -1.95]) appeared to be the most effective, followed by narrative exposure therapy (-1.49 [95% CrI -2.25 to -0.74]), exposure/prolonged exposure therapy (-1.34 [95% CrI -2.15 to -0.51]), Cohen TF-CBT/CPT (-1.17 [95% CrI -1.78 to -0.54]), and lastly group cognitive behaviour therapy (-0.91 [95% CrI -1.48 to -0.34]). When compared with waitlist controls, other therapy interventions were also effective in reducing PTSD symptoms, albeit to a lesser extent when combined together. These include combined somatic/cognitive therapy -2.14 [95% CrI -3.34 to -0.92], child–parent psychotherapy (-2.16 [95% CrI -4.02 to -0.26]), meditation (-1.67 [95% Crl -2.94 to -0.41]), play therapy (-1.35 [95% Crl -2.48 to -0.20]) and EMDR (-0.99 [95% Crl -1.76 to -0.23]). There was insufficient evidence to support claims that parent training, supportive counselling, family therapy, EMDR&TAU and TAU improve PTSD symptoms between baseline and treatment endpoint.

Four of the five interventions that showed positive evidence of effect at 1-4 month follow-up were TF-CBT-related (Cohen TF-CBT/CPT, group CBT, combined TF-CBT/parent training, and narrative exposure). But when compared to control groups, somatic/cognitive therapy, a non-trauma-focused cognitive behavioural therapy, had the largest effect size (-1.80 [95% Crl -3.01 to -0.58]). For remission at treatment endpoint, a similar pattern is observed. TF-CBT interventions showed better effects than all other individual forms of interventions, when compared with waitlist control groups. With a mean log-odds ratio (LOR) of 2.81 (95% CrI 95% 0.87 to 5.13), narrative exposure showed the highest mean effect followed by cognitive therapy (mean LOR 2.66 [95% CrI 95% 1.28 to 4.22]) , exposure/prolonged exposure therapy (mean LOR 1.62 [95% CrI 95% 0.22 to 3.04]) and Cohen TF-CBT/CPT (mean LOR 0.89 [95% CrI 0.15 to 1.64]).

Cuijpers et al. (2020) compared the effectiveness of psychotherapy interventions for **depression** across different age groups. In all, 366 RCTs were included, with 13 focusing on children (0-13 years) and 24 on adolescents (13-18 years). The most commonly used therapy across all groups was cognitive behaviour therapy (CBT), but other therapies such as third wave therapy, behavioural activation therapy, psychodynamic therapy, interpersonal psychotherapy, life review therapy, problem-solving therapy, and non-directive supportive therapy were also used. A diverse range of treatment formats were permitted, including individual, group, telephone, and guided self-help. The intervention groups were compared to different control groups, including waitlist, usual care, and placebo groups.

The meta-analysis results indicate a highly significant effect size difference across age groups. The effect size for interventions in children and adolescents were much smaller than those seen in adults. When compared with control groups, children in intervention groups had the smallest effect size (g= 0.35 [95% CI 0.15-0.55] p= <.001), followed closely by adolescents (g=0.55 [95% CI 0.34-0.75] p = <.001). In comparison, interventions delivered to young adults (18-24 years) had significantly larger effect sizes (g= 0.98 [95% CI 0.79-1.16] p = <.001). Similar results can be seen in the older population groups. Interventions delivered to middle-aged (0.77 [95% CI 0.67-0.87 p = <.001], older (0.66 [95% CI 0.51-0.82] p = <.001), and elderly adults (0.97 [95% CI 0.42-1.52] p = <.001) had much more larger effect sizes than those in the youngest categories. When differences between children and adolescents were compared, in pairwise comparisons, no significant differences were found (Q1 = 2.10; P =.14).

James et al. (2020) conducted an in-depth qualitative synthesis and meta-analysis to determine the efficacy of cognitive behavioural therapy (CBT) in the treatment of **anxiety disorders** in children and adolescents. The studies included in the review addressed a wide range of anxiety disorders, including generalised anxiety disorder, panic disorder, social anxiety disorder, and separation anxiety. The review assessed the impact of

differing amounts of therapist contact time, as well as a variety of delivery formats, including individual, group, parental involvement, and parent led interventions. James et al. (2020) were primarily interested in remission of primary anxiety disorders post-treatment, followed by remission of all anxiety disorders post-treatment, and lastly reduction in anxiety symptoms post-treatment.

In total, 87 RCTs were included in the meta-analysis. The findings presented were based on comparisons between CBT interventions and various types of control groups. In the first comparison, the meta-analysis results indicate that CBT is more effective in reducing anxiety in children and young people than waitlist or no treatment controls. The advantage of CBT over waitlist/no treatment control groups was observed across all outcomes. Those that received CBT were 5.45 times more likely to experience remission of primary anxiety disorders post-treatment in comparison to waitlist/no treatment controls (95% CI 3.90 to 7.60, Z = 9.96, P < 0.001). With regard to post-treatment remission of all anxiety disorders, the odds ratio was 4.43 (95% CI 2.89 to 6.78, Z = 6.85, P < 0.001), and for the outcome reduction in anxiety symptoms (reported by the child) the standardised mean difference (SMD) between CBT groups and waitlist/no treatment controls was −0.67 (95% CI −0.88 to −0.47, Z = 6.36, P < 0.001, n = 2831).

When comparing CBT with treatment as usual, there was no evidence of significant difference in the rate of remission of primary anxiety diagnosis post-treatment (OR 3.19, 95% CI 0.90 to 11.29, Z = 1.80, P = 0.07), remission of all anxiety disorders post-treatment (OR 2.74, 95% CI 1.16 to 6.46, Z = 2.30, P = 0.02, k = 5, n = 203) and reduction in anxiety symptoms (SMD −0.15, 95% CI −0.78 to 0.48, Z = 0.46, P = 0.64, n = 214). There was not enough evidence to suggest that CBT results in a greater rate of remission of primary anxiety diagnosis post intervention, when compared with attention controls. For remission of all anxiety disorders post intervention, the analyses indicated a benefit of CBT over attention controls (OR 2.75, 95% CI 1.22 to 6.17, Z = 2.45, P = 0.01, n = 378, I2 = 49%). For child-reported anxiety symptoms, there was a greater reduction in symptoms following the CBT intervention (SMD −0.31, 95% CI −0.51 to −0.11, Z = 3.09, P = 0.002, n = 978). Lastly, when comparing CBT with alternative treatment controls, there was either insufficient data to conduct a meta-analysis or no evidence of difference between intervention and control groups post-treatment. The review found no clear and consistent evidence of differences between delivery formats or amount of therapist contact time.

6. Effectiveness of population-level MHPSS interventions for adults

This chapter reports the findings of our systematic review of reviews on population-level mental health interventions for adults. The reviews are organised and reported according to their setting/delivery mode in the following sections: 6.1. Workplace Interventions; 6.2 Digital Interventions; 6.3 Community-based interventions. Each section provides a descriptive overview of the evidence-base, an assessment of the quality of the reviews, and an overview of the findings.

6.1 Workplace interventions

6.1.1 Workplace interventions: descriptive overview

Four systematic reviews evaluated the effectiveness of population-level mental health interventions in the workplace. **Bartlett et al. (2019**) assessed the effectiveness of mindfulness training delivered in the work context for employee mindfulness, stress, mental health, well-being, and work performance. Mindfulness interventions reported in this review varied in dose, ranging from 10-minute self-guided meditation 5 days per week to 42 hours of class across 8 weeks with 25-minutes of practice. They also varied in delivery mode from video conferences and audio tracks to face-to-face sessions. **Bellon et al. (2019)** evaluated universal prevention programmes with non-depressed workers through a systematic review and meta-analysis that included 3 RCT studies. Preventive psychological interventions included cognitive-behavioural orientation (n=2) and acceptance and commitment therapy (n=1). The duration of interventions ranged from 4 to 6 sessions, with one of these being a group workshop and another one delivered online.

In contrast, **Nigatu et al. (2019)** evaluated the effectiveness of indicated interventions for the reduction of depressive symptoms in employees through a review and meta-analysis of 15 RCT studies. Interventions included telephone, online, and in-person CBT interventions. Finally, **Wan et al. (2018)** conducted a meta-analysis of 22 RCTs to investigate the efficacy of different therapeutic approaches involving both universal interventions (n=8) and interventions targeted at employees with depressive symptoms (n=14). Interventions were delivered face-to-face, via telephone, and through online individual or group sessions. Employees in the above studies were affiliated with the private sector or governmental organisations (Bellon et al., 2019), comprising university staff, public servants, healthcare workers, nurses, teachers, ICU staff, lab technicians, oncology workers, researchers, insurance workers, police officers, and workers from the pharmaceutical manufacturing industry, media organisations and 'high tech' companies (Wan et al., 2018; Bartlett et al., 2019; Nigatu et al., 2019).

Table 6.1 Workplace Interventions

Authors	Intervention Details	Search		Countries
Bartlett (2019)	**Pathway**: Promotion/Prevention **Intervention**: Mindfulness Trainings **Delivery**: face to face; online supported; and self-guided: online, audio or seminars **Duration**: three to twelve-week courses between ten and 480 minutes, range from 0-45 mins homework	From inception to May, 2016	N= 23	USA (n =18), Canada (n= 4), Australia (n=1), Colombia (n=1), Denmark (n=1), Italy (n=1), Netherlands (n=1), Scotland (n=1), and Taiwan (n=1)
Bellon (2019)	**Pathway**: Promotion/Prevention **Intervention**: Workplace initiated education on ACT, CBT and Stress management	From inception to 19 Sept 2018	N=3	Finland (n=1), USA (n=1) and Japan (n=1)

Authors	Intervention Details	Search		Countries
	Delivery: group workshop, online course, individual book reading sessions **Duration**: between 4-6 sessions			
Nigatu (2019)	**Pathway**: Prevention **Intervention**: Cognitive Behavioural Therapy (CBT) and education **Delivery**: online; telephone; face to face; not specified **Duration**: telephone CBT (8 sessions); CBT (10-12 sessions); self-guided web based, (one had 5x1 hour modules, one had a 4-week course; some did not specify duration); group in person workshop (1 week); email sessions of CBT (no duration specified); supervised exercise (20 mins 3 times per week; 2 sessions per week for 10 weeks); stress management programme (1x2-hour lecture and email counselling with no duration specified)	Not stated	N=15	USA (n=1), Japan (n=4), Netherlands (n=5), UK (n=3), Australia (n=1), Finland (n=1)
Wan (2018)	**Pathway**: Prevention **Intervention**: see list of interventions in footnote 1. **Delivery**: group or individual face-to-face; computerized; telephone interviews; combination of face-to-face and individual emails; automated phone system **Duration**: therapeutic interventions had between 1 and 24 sessions; the workshop consisted of either one full day or two half days and one intervention consisted of a lecture combined with an individual interview in which the durations were not specified	From inception to April 2016	N=22	The Netherlands (n=4), Thailand (n=1), Germany (n=1), USA (n=5), Japan (n=4), UK (n=3), Sweden (n=1), Hong Kong (n=1), Australia (n=1), Finland (n=1)

Footnote 1: BDI, Beck Depression Inventory; BDI-II, Beck Depression Inventory (2nd edition); CAU, care as usual; CBT, cognitive behaviour therapy; cCBT, computerised cognitive behaviour therapy; CES-D, Center for Epidemiologic Studies Depression Scale; CGT, cognitive group therapy; CI, combined intervention; CPRS-S-A, Comprehensive Psychopathological Rating Scale-Self-Affective; CT, cognitive therapy; DASS, Depression Anxiety Stress Scale; HADS, Hospital Anxiety and Depression Scale; EAP, employee assistance programme; FGT, focused psychodynamic group therapy; G-SMT, group stress management training; I-SMT, individual stress management training; iPST, internet problem-solving therapy; MSM, multicomponent stress management; PHQ, Patient Health Questionnaire; QIDS-SR, Quick Inventory of Depressive Symptomatology; PST, problem-solving therapy; REBT, rational emotive behaviour therapy; RT, relaxation training; TAU, treatment as usual; tCBT, telephone cognitive behavioural therapy; TLC, telephone-linked communications, ACT, acceptance commitment therapy; BDI, Beck Depression Inventory; BDI-II, Beck Depression Inventory (2nd edition); CBT, cognitive behavioural therapy; CES-D, Center for Epidemiologic Studies Depression Scale; CI, combined intervention; CSM, corporate stress management; iCBT, internet cognitive behavioural therapy; IPAT, Institute for Personality and Ability Testing; IPP, innovation promotion programme; POMS, Profile of Mood States; TM, transcendental meditation.

6.1.1 Quality of the reviews

When using the AMSTAR 2 tool (Shea et al. 2017), reviews were judged to be of high (Bartlett 2019, Bellon 2019) or medium quality (Nigatu 2019, Wan 2018). High quality reviews differed from medium quality reviews by provided details of a published protocol, conducted duplicate data extraction and provided clear details of excluded studies. They also used appropriate meta-analysis methods including consideration of study quality

in the findings and discussion. Quality assessment ratings for each of the reviews on work-place interventions are reported in Appendix 3.3.1

6.1.2 Workplace interventions: Findings

Box 6.1 Overall direction of effects

Interventions with evidence of positive effect

- The following **universal workplace** interventions may be effective in **preventing anxiety**:
  - Mindfulness training interventions (g=0.62, 95% CI, 0.32 to 0.92)
- The following **universal workplace** interventions may be effective in **preventing depression**:
  - Psychological and educational workplace interventions (OR=0.251, 95% CI 0.105 to 0.600)
  - Mindfulness training interventions (g=0.38, 95% CI 0.14 to 0.62)
- The following **indicated workplace** interventions may be effective in **preventing depression**:
  - Cognitive behavioural interventions (SMD = -0.44; 95% CI, -0.61 to -0.26)
  - Exercise and self-help interventions (SMD = -0.32; 95% CI, -0.59 to -0.06)

In defining the effectiveness of interventions, all four systematic reviews assessed the outcome of depression, with Bartlett et al.'s (2019) concurrently evaluating a range of other mental health outcomes including anxiety. While none of the reviews assessed PTSD as an outcome, Bartlett et al. (2019) considered psychological distress, presenting evidence for the effectiveness of mindfulness training interventions (g=0.68, 95% CI, 0.49 to 0.87). With respect to the specified outcomes of interest (i.e., depression, anxiety, and PTSD), none of the meta-analyses conducted in the reviews reported interventions with null or negative effects. Interestingly, all reviews either raised or stressed the importance of considering the economic costs of depression associated with reduced productivity, engagement, and absenteeism/presenteeism. However, none explicitly assessed said outcomes when conducting syntheses or meta-analyses. Bartlett et al. (2019) and Bellón et al. (2019) thereby propose that future research on the effectiveness of workplace interventions conduct economic evaluations and/or assess work performance outcomes.

Three of the four reviews addressed the effectiveness of interventions relative to their delivery methods. with the authors tended to differentiate between virtual interventions and in-person interventions. Bartlett et al. (2019) demonstrated through their meta-analysis that virtual and in-person mindfulness training interventions produced roughly the same levels of effectiveness on all outcomes. Nigatu et al.'s (2019) results illustrated that interventions delivered virtually produced larger effect sizes in reducing depressive symptoms compared to in-person interventions. Wan et al. (2018), however, shed light on the higher dropout and attrition rate recorded for virtual interventions such as computerised interventions, and advised that such interventions be delivered with therapist support. This ties in with their conclusion that combined interventions comprising more than a single therapeutic orientation showed promising results in preventing depression and should be further investigated for future use. In this sense, Wan et al. (2018) are supported by Nigatu et al. (2019), who also advocate for multimodal interventions using a combination of approaches. Finally, seeing that the effect of workplace interventions may be immediate and short-lived, Bartlett et al. (2019), Bellón et al. (2019), and Wan et al. (2018) caution against focusing solely on the short-term effectiveness of preventive interventions. Bellón et al. (2019), and Wan et al. (2018) thus call for more studies that conduct post-intervention follow-up sessions to assess the longer-term effectiveness of interventions.

6.2 Digital Interventions

6.2.1 Digital Interventions: descriptive overview

Three systematic reviews evaluated the effectiveness of population-level mental health digital interventions. Interventions ranged from standalone mobile apps and to practitioner supported online interventions for the prevention or treatment of depression, anxiety or PTSD. The review by **Linardon et al. (2019)** conducted a meta-analysis of 66 RCTs to evaluate the efficacy of app-supported smartphone interventions on a range of mental health outcomes. Phone apps were based on cognitive and/or behavioural principles (n=35) and/or acceptance-or mindfulness-based principles (n=38). Most trials (n=38) included participants with some indication of mental health problems, whilst others (n=28) were targeted at the general population. **Pauley et al. (2021**) examined the effectiveness of digital interventions across all anxiety disorders as well as the effectiveness of each anxiety disorder in comparison to inactive control conditions. The meta-analysis included 47 RCTs. Participants were aged 18 or older and had received a clinician-validated diagnosis of a primary anxiety disorder as defined by the diagnostic and statistical manual version 5 (DSM-5) (American Psychiatric, 2013). This included Generalised Anxiety Disorder (GAD), panic disorder with or without agoraphobia (PD/A), Social Anxiety Disorder (SAD) or Specific Phobias (SP). Cognitive behavioural therapy was the most common digital intervention, followed by acceptance and commitment therapy, psychodynamic therapy, and mindfulness-based therapy. Most interventions were guided. **Simon et al. (2021)** assessed the effects of internet-based cognitive and behavioural therapies (I-C/BT) for post-traumatic stress disorder (PTSD) in adults. Their meta-analysis included 13 RCT studies. Participants included those with 'traumatic stress symptoms'. At least 70% of the participants in any included study met the DSM diagnostic criteria for PTSD, which was assessed by a clinician or scored above a pre-established threshold on a validated traumatic stress questionnaire. The authors defined trauma as 'exposure to a DSM qualifying traumatic event'. The duration of interventions ranged from 10 to 12 weeks. Most interventions were guided, and a small number were non-trauma focused.

Table 6.2 Digital Interventions

Authors	Intervention details	Search	Studies	Countries
Linardon 2019	**Pathway level:** Prevention/Treatment **Intervention:** CBT, ACT, including mindfulness **Delivery:** Mobile apps, with guidance and stand alone **Duration:** Not stated	Database inception to December 2018	N=66	Not stated
Pauley (2021)	**Pathway level**: Treatment/Maintenance **Intervention**: iCBT; iPDT; iMBT; iACT; cCBT specifically to treat anxiety disorders. See list of abbreviations in footnote 2 **Delivery**: online/via computer **Duration**: mean number of sessions completed = 5.8	Initial search: April 2019 Updated: February 2020	N= 47	Europe (n=37) - Austria, Ireland, Denmark, Germany, Netherlands, Romania, Spain, Sweden, Switzerland Oceania (n=14) - Australia, New Zealand North America (n= 1) – Canada, Mixed continents n = 1 - Australia and Europe

Authors	Intervention details	Search	Studies	Countries
Simon (2021)	**Pathway level**: Treatment/Maintenance **Intervention**: iCBT interventions specifically to treat PTSD symptoms **Delivery**: via computer or mobile device, delivered online or through apps. **Duration**: from between three to fourteen weeks; up to ten sessions	Updated from a published review conducted March (2018) Updated: June (2020)	N =13	US (n=7), Sweden (n=2), Australia (n=2), UK (n=1), Iraq (n=1).

Footnote 2: iCBT: internet delivered cognitive behavioral therapy; iPDT: internet delivered psychodynamic therapy; iMBT: internet delivered mindfulness-based therapy; iACT: internet delivered acceptance and commitment therapy; cCBT: computer delivered cognitive behavioral therapy

6.2.2 Quality of the reviews

Reviews were judged to be of high (Simon et al. 2021) and medium quality (Linardon et al. 2019). All reviews conducted a comprehensive search, double data extraction and appropriate meta-analysis including consideration of the role of publication bias. The high quality review by Simon also provided a clear list of excluded studies and details of the funding sources of included trials. Quality assessment ratings for each of the reviews on work-place interventions are reported in Appendix 3.3.2

6.2.3 Digital interventions: Findings

Box 6.2 Overall direction of effects

Interventions with evidence of positive effect

- The following **digital** interventions may be effective in **preventing/treating anxiety**:
  - CBT and ACT based smartphone apps (g = 0.30; 95% CI, 0.20 to 0.40)
- The following **digital** interventions may be effective in **treating anxiety**:
  - Composite psychological interventions, e.g.: computer-based and iCBT, online psychodynamic therapy, mindfulness-based therapy, iACT (g = 0.80; 95% CI, 0.68 to 0.93)
  - Internet-based cognitive and behavioural therapies (SMD = –0.61; 95% CI, –0.89 to –0.33)
- The following **digital** interventions may be effective in **preventing/treating depression**:
  - CBT and ACT based smartphone apps (g = 0.28; 95% CI, 0.21 to 0.36)
- The following **digital** interventions may be effective in **treating depression**:
  - Internet-based cognitive and behavioural therapies (SMD = –0.51; 95% CI, –0.97 to –0.06)
- The following **digital** interventions may be effective in **treating PTSD:**
  - Internet-based cognitive and behavioural therapies (SMD = –0.61; 95% CI, –0.93 to –0.29).

Interventions not shown to be effective

- No conclusive positive evidence was found for treatment of PTSD
  - CBT and ACT based smartphone apps (g = 0.18 CI –0.04 to 0.41).

There is consensus amongst the included reviews that digital interventions have the potential to contribute to making psychological treatment more accessible, affordable, and effective, especially where clinical services and resources are limited. In considering the breadth of digital interventions, Simon et al. (2021) analysed the differences in effectiveness between digital cognitive and behavioural therapies, and digital non-cognitive and behavioural therapies. They found negligible differences in the effects of both types of interventions on the specified outcomes of interest (i.e., depression, anxiety, and PTSD).

With respect to the said outcomes, none of the syntheses or meta-analyses conducted in the reviews reported interventions with negative effects. Nevertheless, several interventions were found to have negligible effects on PTSD. Linardon et al. (2019) found that mental health smartphone applications had a non-significant positive effect on post-traumatic stress symptoms (g = 0.18 CI –0.04 to 0.41)). The internet-based cognitive and behavioural therapies evaluated by Pauley et al. (2021) also showed no effect in diminishing the risk of being diagnosed with PTSD after treatment. Further, these therapies showed negligible effect in reducing the severity of PTSD symptoms when follow-up took place within six months, even though they were effective when measured posttreatment. This suggests that the positive treatment effects of internet-based cognitive and behavioural therapies on PTSD were not maintained over time.

All three reviews compared the effectiveness of interventions delivered digitally to that of their in-person or face-to-face versions. Simon et al. (2021) found internet-based cognitive and behavioural therapies to be less effective than their in-person counterpart for the reduction of PTSD severity. However, seeing that this conclusion is based on one study which the authors determined to be at high risk of reporting bias and low statistical power, it is rated as one of low certainty. Linardon et al. (2019), on the other hand, concluded that the effect of mental health smartphone applications on all outcomes did not differ significantly from that of their 'active' versions, which encompass face-to-face therapy. In a similar vein, Pauley et al. (2021) found no difference in effect between assorted digital interventions and their in-person counterparts in treating anxiety disorders, thereby deducing that both types were as effective as the other.

Finally, all three reviews compared the effectiveness of guided (i.e., with provided support from a professional) and non-guided digital interventions, arriving at varying conclusions. According to Linardon et al. (2019), mental health smartphone applications with professional guidance produced the largest effect sizes. Concurring with Linardon et al., Simon et al. (2021) found that guided digital interventions had a greater effect than unguided ones (P=0.002). However, Pauley et al. (2021) found no difference in effectiveness between guided and non-guided digital interventions on anxiety, leading them to suggest that such digital interventions could be effective even when self-administered or administered by non-professionals. Based on these reviews alone, it is inconclusive as to whether digital interventions as a whole should be guided or non-guided for enhanced effectiveness.

6.3 Community-Based interventions

6.3.1 Community-based interventions: descriptive overview

Three systematic reviews evaluated the effectiveness of population-level mental health community-based interventions. **Dolan et al. (2021)** explored the effectiveness of the stress control (SC) programme on anxiety, depression, and global distress in adults aged 16 and above. This systematic review and meta-analysis included 19 studies, two of which are RCTs and the remaining being variations of practice-based evidence (PBE). SC was compared to other psychological interventions (n=4), to usual care (n=1), and to wait-list or no treatment (n=3). SC was delivered within public psychological health services, with 1 study set in a custodial setting. **Parker et al. (2021**) investigated the effect of psychological and pharmacological treatments on anxiety compared with control in primary care in adults aged 18 and above. A meta-analysis on the studies of psychological treatment for anxiety disorders included 10 studies. Some of these compared treatment to waitlist control (n=4) and others to care as usual (n=6). Psychological treatment was predominantly CBT-based with the majority provided on an individual basis. **Wakefield et al. (2021)**

investigated the effectiveness of UK-based IAPT interventions delivered during routine practice to individuals aged 18 and above. The systematic review and meta-analysis included 47 PBE studies; some of which included patients with long-term physical health conditions. The most common interventions reported in the studies were CBT based (n=8) followed by SC (n=2). Other interventions from single studies included high-intensity behavioural activation group, step 2 intervention for dementia patients and their carers, systemic therapy, dynamic interpersonal therapy and couple's therapy.

Table 6.3 Community-based Interventions

Authors	Intervention details	Search	Studies	Countries
Dolan et al. 2021	**Intervention:** Stress Control (SC) **Pathway level:** Promotion/Prevention **Delivery:** Primarily delivered in person, for those in primary care through health centers, public conference rooms, gyms, and hotels **Duration:** two hours per session, 6 sessions (N=17); 1 session (N=8); 1 session (N=NR)	April 2020	N=19	UK (N = 14); Ireland (N=2); Belgium (N=2); China (N=1)
Parker et al. 2021	**Intervention:** Evidence based interventions (such as CBT) for anxiety or common mental disorder for people with a primary diagnosis of anxiety disorder or clinically significant anxiety delivered in primary care settings in countries with universal healthcare. **Pathway level:** Treatment **Delivery:** Online (N=4); Bibliotherapy, guided and unguided (N=6); Individual face to face (N=2); Group face to face (N=2); Online (N=4). Facilitated by self (N=1); GP (N=2); Mental health nurse (N=3); Psychologist or trainee psychologist (N=8); Unspecified clinician (N=1) **Duration:** Not reported	Initial: April 2017 Updated: April 2020 Included studies from 1997	N=11	Germany / Switzerland/ Austria (N=1); Germany (N=1); UK (N=2); Australia (N=2); Sweden (N=2); Scotland (N=1); Netherlands (N=2)
Wakefield et al. 2021	**Intervention:** Psychological treatments following stepped care principles. Progressively intensive psychological treatments are made available to patients according to need. CBT (N=6); CBT for psychosis (N=1); trauma-informed CBT (N=1); group interventions (N=6) of which (N=2) were psychoeducation interventions for stress control, (N=1) was a high intensity behavioural activation group and (N=1) was a GSH intervention for dementia patients and their carers; systemic therapy (N=1); dynamic interpersonal therapy (N=1); couples therapy (N=1); GSH version of cognitive analytic therapy (N=1). **Pathway level:** Treatment **Delivery:** Delivery (based on level of need): over the telephone, via computerized CBT, in large groups or in a one-to-one, in person format. Facilitation (based on level of need): either psychological well-being practitioners (PWPs),	From 2007 to August 2018	N=47	UK (N=47)

Authors	Intervention details	Search	Studies	Countries
	who are trained and supervised or qualified therapists, under weekly clinical supervision. **Duration:** Patients initially offered brief (≤8 sessions), low-cost, and low-intensity guided self-help (GSH); patients with higher need: typically, around 16–20 one-one sessions.			

6.3.2 Quality of the findings

All reviews were judged to be of high quality and how low risk of bias in the majority of domains, including exploring quality and heterogeneity in the meta-analysis, and providing details of their protocol. One review also provided details of funding sources of included trials (Parker 2021). Quality assessment ratings for each of the reviews on work-place interventions are reported in Appendix 3.3.3

6.3.3 Community-based interventions: findings

Box 6.3 Overall direction of effects

Interventions with evidence of positive effect

- The following **community-**based interventions may be effective in **preventing anxiety**:
  - Stress Control (SC) Programme (ES = 0.58; 95% CI, 0.41 to 0.75)
- The following **community-based** interventions may be effective in **treating anxiety**:
  - Improving Access to Psychological Therapies (IAPT) (d = 0.88; 95% CI, 0.79 to 0.97)
  - Psychological Treatments (predominantly CBT-based) (g = 1.16; 95% CI, 0.63 to 1.69)
- The following **community-based** interventions may be effective in **preventing depression:**
  - Stress Control (SC) Programme (ES=0.62; 95% CI, 0.44 to 0.80)
- The following **community-based** interventions may be effective in **treating depression**:
  - Improving Access to Psychological Therapies (IAPT) (d = 0.87; 95% CI, 0.78 to 0.96)

Reviews considered anxiety and depression as either primary or secondary outcomes, but none assessed PTSD. Having said that, it is worth noting that Dolan et al. (2021) explored the outcome of global psychological distress and found SC to be effective in treatment (ES = 0.86; 95% CI, 0.61 to 1.11). With respect to the specified outcomes of interest (i.e., depression and anxiety), none of the syntheses or meta-analyses conducted in the reviews reported interventions with negative effects.

In assessing effectiveness, all reviews recognised the importance of comparing pre-post effect sizes with the corresponding effect sizes at follow-up. Dolan et al. (2021) found that while the pre-post effect sizes of SC on depression and anxiety were greater than that at follow-up, treatment gains were still maintained at the first and second-year follow-up mark. Parker et al.'s (2021) findings on the effect of psychological treatments concur; most reported treatment gains were maintained at follow-up after at least three months. Nevertheless, Parker et al. (2021) and Wakefield et al. (2021) correspondingly highlight that many studies on pharmacological interventions and IAPT interventions fail to report post-treatment follow-up data, which they have deemed a fundamental aspect in evaluating the durability and overall effectiveness of an intervention. In a similar vein, Dolan et al. (2021) and Wakefield et al. (2021) acknowledge that studies assessing SC and IAPT interventions should be more consistent in reporting participant attendance and drop-out rates to enhance the current understanding of their effectiveness. The authors thereby call for better reporting in these areas.

Finally, Dolan et al. (2021) and Parker et al. (2021) addressed whether the effectiveness of community interventions might be adversely impacted when an intervention is delivered by non-specialists, which is not uncommon in the stepped care model of mental health service provision. Both appear to agree that non-specialist interventions are not inferior to their specialist counterparts. In underscoring the effectiveness of the non-specialist-led SC Programme in treating anxiety and depression, Dolan et al. (2021) implicitly suggest that it is possible for interventions led by non-specialists to still be highly effective. This sentiment is echoed by Parker et al. (2021), who establish that barring CBT-based psychological treatments, psychological treatments delivered by non-specialists may be as good and appropriate as those delivered by specialists. Given that access to specialist care may not always be possible in the mental health field, this finding is worthy of further investigation.

7. What factors support the potential scale-up of effective MHPSS interventions?

This chapter provides a narrative overview of factors supporting the scale-up of mental health and psychosocial interventions, drawn from primary studies addressing this question.

7.1 Summary of findings

Box 7.1 Key themes on scale-up

The factors presented below suggest that programmes may be more likely to achieve scale-up if they:

- **Intervention characteristics:**
  - Increase access to services across time and place by digitising interventions and making them available online
  - Expand the workforce by task shifting or task sharing from specialists to non-specialists
  - Use technology and online provision to train non specialists and speed up workforce availability
  - Enable self-referral and make mental health interventions more open access
- **Resource related factors:**
  - Secure policy support and government funding for scaling by demonstrating evidence of impact
  - Identify when additional resource is needed for scale-up to support greater implementation success
  - Match service level to needs by identifying care pathways, signposting, or stepped care
  - Integrate mental health services into primary care to make more efficient use of resources
- **Working together:**
  - Employ effective leaders to gain lasting buy-in from stakeholders on scale-up of services
  - Include knowledgeable local champions to promote new services at set- up and maintenance
  - Gain the buy in of multi-stakeholders, including the implementors of programmes
- **Programme fidelity** (to ensure scale up happens as intended):
  - Provide training fidelity and knowledge transfer to provide skills for consistency in provision
  - Use guidelines, templates, manuals to provide a common shareable framework for delivery
- **Monitoring and Evaluation:**
  - Use benchmarks and indicators to measure progress against and support future investment
  - Include ongoing evaluation of the quality and feasibility of services and track scale-up progress
  - Standardize training and adopt recognised accreditation models to disseminate the programme more widely and implement best practice while seeking greater reach
- **Test the acceptability of an intervention prior to scale-up**
  - Assess acceptability to implementors to anticipate potential organisational changes needed
  - Assess acceptability to service users to ensures services are meeting needs and reach
- **Contextual factors:**
  - Engage with the socio-political context of programme implementation to assess and ensure fit
  - Consider cultural factors and adaption needs by integrating local knowledge and practices with evidence-based programmes to contribute to contextually appropriate service delivery.
- **Combine supply side and demand side approaches**
  - Use resource mapping to identifying population needs and service gaps.
  - Take proactive efforts to raise awareness of the programmes in the target community.
  - Minimising barriers to service use through campaigns to reduce stigma towards mental ill health

7.2 The evidence-base

The WHO, ExpandNet framework of scaling up (WHO 2009, WHO 2007), defines it as "deliberate efforts to increase the impact of health service innovations successfully tested in pilot or experimental projects so as to benefit more people and to foster policy and programme development on a lasting basis" (Simmons et al 2007 p.180). We found 87 primary studies that reported on the factors important for scaling up the intervention meeting this definition and we mapped these studies for their characteristics. Most of these studies were published between 2011- 2022 (n=79) with the remainder prior to this date range (n=8). A total of 59 studies were about scaling up an intervention in a low and middle income and fragile state, while 34 studies were about scaling up MHPSS in a high-income country.

The scale parameters or the intended reach of interventions spanned from being transnational, (e.g. not being limited within physical or political spatial boundaries) to being made accessible system wide as well as simply place-based. The most common transnational scale up was in making interventions available on the world wide web. In most cases however, studies of mental health interventions reporting on scale up factors, were place-based, that is within the boundaries of a community or nation or state. For general populations within a place or for whole communities that had experienced a traumatic event (including Covid19); in addition to smaller scale place-based communities that were set in schools, universities or workplaces. Some studies were targeted at whole, but specific populations that were also bounded by place, such as interventions that were targeted at all refugees in an area. System wide scaling-up predominantly aimed at integration of mental health interventions where they were not available before, such as integrating new mental health care services into general health care systems or integrating services into primary care.

A number of different individual factors were reported as influential on the scale up of mental health interventions. These were grouped into eight broad themes: i) factors related to intervention characteristics; ii) factors related to the resources; iii) factors related to ways of working together; iv) programme fidelity factors; v) monitoring and evaluation factors, and vi) feasibility and acceptability testing for all stakeholders; vii) contextual and supply/demand factors that supported scale up and viii) supply side- demand side approaches to scale up. Each of these themes and corresponding sub-themes are reported in turn below.

7.3 Intervention characteristics that support scale up

Three dominate intervention characteristics were suggested to increase the scale of delivery. These included: online provision, task shifting (including the use of technology to support not specialist provision) and self-referral.

7.3.1 Increasing access to services across time and place via online provision

A commonly reported change to the intervention format to support scale up was making the programme available online (n=19). These differed in the amount of input from qualified therapists to fully automated, in the form of chat bots (Daly 2020, Dosovistky 2020) or unguided, and self-directed programmes (Bennett 2022, Bottche 2021, Brogg 2022, Economides 2022, Hill 2017, March 2018).

Online programmes were more often blended with support from therapists. This was in the form of online activities and tasks that clients work through, arranged into sequential modules with personalised therapist feedback and reminders provided by email or telephone (Brabyn 2016, Bragesjo 2021, Isbasoiu

2021, Owusu 2021, Piera-Jimenez 2021, Sharif-Sidi 2021). One study blended real-time web chat counselling with interactive, online self-directed therapy and web-based peer to peer support through social media (Alvarez-Jimenez 2020). Another study used the online modules as a "flipped classroom" activity, with students working through the online tasks and used as a prompt for class discussion (Teeson 2020).

A smaller number of studies (n=7) reported using technology and media (other than web based, online provision) which included mobile phone apps and videoconferencing. In one study this was in the form of an automated mobile phone app (Bendtsen 2020) which was designed for working age adults to self-monitor their mental health and wellbeing. Telepsychiatry (over video) was mentioned in another study (Adiukwu 2022). Another study delivered a guided self-help supports for anxiety, mainly over the telephone (Bastiampillai 2014)

7.3.2 Expanding the workforce by task shifting or task sharing

A similar proportion of studies used task shifting from specialists to non-specialist workers (N=19). The aim of these programmes was to increase access to mental health services by increasing the personnel that could deliver them, often in resource constrained environments. These programmes were usually low intensity, brief, manualised programmes for common, low severity mental health disorders. Training was provided in mental health support to non-specialist individuals who were described in a variety of ways, such as community health workers (Adiukwu 2022, Brugha 2016, Irurozqui 2021, Muke 2020, Naslund 2019, O'Donnell 2020, Wainberg 2021), peer to peer or peer –led programmes (Sijbrandij 2018, Singla 2014, van Dam 2021, Alvarez-Jimenez 2020), non-specialist facilitators or coaches (Gibson 2021, Tol 2020), paraprofessionals (Fuhr 2020)) less specialized staff (Livheim 2022, Restivo 2020), lay providers (Singh 2021), local providers (Akhtar 2022) School based personnel (Yuxuan 2016) and caregivers. (Akhtar 2021).

7.3.3 Use of technology and online provision to support and train non specialists

The aim of these studies was to scale up the provision of services by providing specialist supports to non-specialists or to recent graduates. This can speed up the time for mental health services workforce to be made available and to more people. Use of technology to support non specialists were often in studies set in low- and middle-income countries and fragile states. Two of the studies that reported online provision were directed at increasing availability of therapists by providing online supervision to recently graduated therapists (Chu 2017, Sigel 2013). Two other studies aimed to increase the available mental health services workforce by increasing access to online training and by providing remote support for non-specialists (Muke 2020, Naslund 2019) similarly, videoconferencing was also used for supporting non-specialists in Hungerbuehler (2015).

7.3.4 Self-referral and open access to mental health interventions

The third most common change to interventions to support scale up were increasing access by allowing client to self-refer and these included a set of studies that were described as transdiagnostic interventions, meaning the programme did not depend on a diagnosis or a referral for the client to access therapies. Many of these self-referred programmes were made accessible online (Bennett 2022, Daley 2020, Isbasoiu 2021, March 2018).

Those that were based in-person also increased access by being in a group format, increasing how many people can be seen at one time, they sometimes utilised a mechanism of "social bonding" through shared

experience and this was a common format for those delivered at scale to traumatized communities. A self-referred group format was delivered in a large-scale programme for survivors of mass violence in Uganda (Tol (2020) and survivors of natural disasters in Tuvalu (Gibson 2021). One programme for young people affected by Covid19 facilitated sourcing beneficial adults or "natural mentors" in their social networks (van Dam 2021). A proactive, group-based intervention trialled for a Norwegian traumatized community (Following 2011 terror attacks) automatically enrolled identified participants into group-based therapy, which included weekend and one day reunions for the bereaved and affected families and standardized screening for symptoms in the first year (Karki 2015).

Other self-referred group-based programmes not delivered for traumatized communities included workshops for self-confidence (Brown 2004) or dealing with stress (Brown 2006) or a group CBT programme (Roberge 2020).

7.4 Resource factors that support scale up

Interventions that aimed to scale up mental health intervention mentioned several resource factors that were influential. The most mentioned influential factor that supported scale up was in securing funding.

7.4.1 Securing policy support and government funding

Related to the theme of additional investment, implementation factors for successful scale up included policy support and government investment in several studies. These studies pointed to the importance of demonstrating evidence of effectiveness and used different measures of success to secure policy support and government funding, including clinical and client outcomes (Amaya-Jackson 2018), cost effectiveness and return on investment (Chisholm 2005, Chisholm 2016, Kanika 2021) recommendations of evidence and practice guidelines (NICE) (Clark 2012) and in responsive mental health policies and plans that supported systems change and were supported by finance (Fuhr 2020a). Leadership was thought to be helpful when provided by the Ministry of Health or other governmental bodies that had the necessary political power to bring about sustainable funding (Fuhr 2020b).

7.4.2 Lack of secure funding as a barrier to implementation

On the other hand, a lack of or a delay to funding acted as a barrier to scale up of a national digital signposting service (Agbakoba 2015) in a study of a scaling up a depression services, other factors such as scientific evidence, teamwork and leadership, strategic alliances, and program institutionalization needed to be in place first to secure funding and in attracting resources to the programme (Araya 2012). One study set in a low-income country pointed out that the security of funding could be in doubt if funder requirements and conditions could not be met (Ryan 2020).

7.4.3 Additional investments were needed to increase capacity for scale up of interventions

Several studies, often in the low- and middle-income countries found it was necessary to secure additional funding as the scale up of effective and cost-effective programmes, which can come in at a higher overall cost by comparison (Bolier 2014). This was also found in a study of scale up in a low and middle income country that found that although significant additional resources was needed to be invested, the absolute amount was still low compared to other health Investment strategies (Chisholm 2007) and while these additional costs represented a catching up to a level necessary for scale up from an under-resourced baseline, it showed significant health gains in return (Chisholm 2017, Hosseini 2021). In one study set in

high-income country, additional resources were still needed to increase capacity, for instance in training more therapists (Sigel 2013).

7.4.4 Match service level to needs by identifying care pathways, signposting or stepped care

This theme supported scale up by enabling better use of resources though more efficiently matching services to the people's level of needs and by providing stepped increments of increasing intensity and professional level of input accordingly. This approach is related to the scale up factors for task shifting, where lower severity mental health needs can be task shifted to non-specialists with referral to specialists at higher level of needs. Implementers of care pathways, signposting and stepped care decision making were supported using manuals and guidelines.

In one study, signposting took the form of a self-access digital platform of services (Agbakoba 2015) which increased the reach of accessible information where to access personalised and relevant information to support the individual's wellbeing and independence.

Stepped care and triage was also mentioned to address common mental disorders as a way of scaling up and using limited resources efficiently and effectively (Belkin 2011). One study, a multi-state-wide implementation of mental health and wellbeing services determined the patient's willingness and capacity to participate on application (Sigel 2013). On the other hand, a lack of clear inclusion criteria for patients in a return-to-work programme, was a barrier to effectiveness mentioned in one study Bramberg (2015).

7.4.5 Integration of MH services into primary care to increase capacity and reach (6)

Several of the studies of scale up suggested that integrating mental health services into primary care could make more efficient use of resources and increase capacity and coverage however, while there were advantages, collaboration and integration were also said to be challenging, particularly in aligning differences in organizational structures and ways of working, and integration did not necessarily lead to better (or worse) mental health outcomes than standard care.

In Nakamura (2011) advantages in collaboration produced ways to overcome interdisciplinary barriers, and collaborative working could facilitate innovations and new initiatives. In the Ryan (2020) study of scale up of mental health services into a comprehensive community mental health programme in Nigeria, multisectoral partnerships including state and non-state actors could utilise the resources and expertise and overcome some of the barriers to integration of mental health with general health care. Similarly, in Hosseini (2021), integration with primary care was effective in increasing capacity to provide universal mental health coverage in similarly resource constrained contexts.

Integrating mental health services into primary care came with some challenges in other studies, in Beck (2018) there were challenges to increasing capacity through integration of mental health services into primary care for a large-scale collaborative care intervention. They identified several implementation factors that impacted in integration across health systems including organisational structures and environment: health systems' organizational environments, care team trust and cohesion, care manager training and experience, systems for patient-tracking, quality improvement and outcomes monitoring reports, patient enrolment length and attainment of clinical targets. Staff related factors included: prior care coordination experience, physician engagement, the frequency/content of care manager contacts, finally, a contextual factor that impacted on integration was for patients' social needs.

Baumeister (2021) did not find a significant difference between the two modes of delivery in terms of mental health outcomes, they suggest that, integrating the guided internet and mobile based interventions into existing health care requires distinguishing between stand-alone and add-on solutions to determine where such integration is most effective.

7.5 Working together factors that support scale up

Scaling up of interventions depended on the buy-in and support of key stakeholders, not only on organisational structures and systems. Working together with local champions and stakeholders offers advantages in increasing reach by sharing resources, knowledge and networks., Strong and effective leadership was an important factor for successful scale up for accountability, oversight and consensus building.

7.5.1 Leadership as brokerage

Strong and effective leadership was described as consensus building through teamwork and was important in gaining lasting support from policymakers and other stakeholders in Araya (2012). Leaders were good communicators, trustworthy, able to form alliances and adaptable in their communication style and were important in persuading and changing clinician attitudes and behaviours.

Leaders were cited as helpful in relation to establishing a national mental health service in Bramberg (2015). In the McGinty (2021) study of a centre that aims to bridge the divide across primary and mental health care, policy and practice leaders are engaged through the stakeholder advisory board as well as the strategic inclusion of representatives of national organizations who are well-positioned to support national scale-up. On the other hand, a lack of leadership in the form of a lead organisation that could provide the necessary funds and support for maintenance was a difficulty cited in a nationwide scale up of a mental health service (Lampa 2021).

7.5.2 Local champions

Local champions who make use of their existing networks and relationships can navigate and promote new services for both set up and maintenance (Agbakoba 2015, Alonge 2020). A local champion might be in the form of supportive government or policy official, who would also be able to access secure funding (Fuhr 2020b).

7.5.3 Multiple sector stakeholder engagement

Engagement with community stakeholders were key to deliver services at the community-platform level (Shidhaye 2019), "Active networking and collaboration" was key to successful maintenance of community-based delivery, looking beyond health and civil society, but also where there were already networks and relationships in their communities (Lampa 2021). A key component in IAPT was that programmes were well integrated with non-governmental organisations (NGOs) and the community sector (Bastiampillai 2014). In two studies it was the cross sector strategic alliances between private and public partnerships or between state and non-state actors that were deemed important for programme scale up success (McCabe 2014, Ryan 2020).

7.6 Programme fidelity factors that support scale up

Programme fidelity factors for scale up success ensures that the scale up true as intended, that the core components are delivered to the same quality, different places and by different people, and sustained over time. The most common method of ensuring programme fidelity in different places and over time

was in the form of standardized training, and/ or standardized delivery by providing a manual, template or guidelines.

7.6.1 Training fidelity and knowledge transfer

Fekadyu (2016) provided a training manual and supportive supervision with the aim of increasing staff confidence and the skills to provide consistent, competent care. Inadequate knowledge transfer of the new programme could lead to declining confidence in its effectiveness, and that a loss of trust in the new service could result in demotivation to use the service over time.

Inadequate knowledge transfer was a barrier to implementation in the Bearman (2020) study of a transdiagnostic scale up - clinicians felt that as they had only had opportunity to practice some sections from the transdiagnostic manual during the study they felt less than expert in the new programme, which would likely impact on their ability to sustain the intervention over time.

7.6.2 Implementation fidelity using guidelines, templates, manuals

Programme fidelity factors through using guidelines, templates and manuals provided a common shareable framework to the programme; a step-by-step guide to delivery, and an aide to decision making. The techniques in the manual were usually expected to be delivered in the order they appeared, however the manual left room for some flexibility and adaptation (Lampa 2021, O'Donnell 2020) the capacity to be able to make adaptations and modifications influenced clinician's intention to use in Bearman (2020). Short summaries of guidelines could be circulated and displayed as aide memoirs in the form of posters and pocket guides for staff (Fekadyu 2016) or in the form of an easy-to-follow implementation fidelity checklist or blueprints (Restivo 2020) in another study this was provided using a tablet-based application (Ruggiero 2015). A treatment protocol supported paraprofessionals in decision making such as on when service users should be discharged into the community or when they should be referred to higher intensity treatment (Fuhr 2020).

7.7 Monitoring and evaluation factors that support scale up

The monitoring and evaluation factor supporting scale up was a dynamic process, starting with baseline indicators and shared examples of best practice, interventions required monitoring to make sure they are on the right track, standardized training for delivery assisted with wide dissemination. Outcome monitoring and open channels of communication for feedback were important for continuous quality improvement.

7.7.1 Using benchmarks and indicators.

Benchmarks, indicators and ways to share best practice, and lessons learned through a common language or vocabulary were mentioned in several studies that included monitoring and evaluation factors important to scale up.

Quality improvement practices included ongoing monitoring of quality and feasibility (Belkin 2011). This could be in the form of a shared vocabulary and a set of tools to coordinate and compare efforts across diverse settings (Belkin 2011). Another suggestion is to develop baseline benchmarks or indicators, by which to monitor progress and impacts. This would enable policymakers and practitioners to select what interventions will be most likely to succeed in their contexts. Indicators were used in a "roadmap" an important means of tracking progress to scale up in Jordans (2020).

Standardized training and recognised accreditation were an effective way to disseminate the programme more widely and in implementing best practice (Stuart 2018). Scaling up or outcomes-oriented implementation appears best accomplished when training incorporates practice-based learning, fidelity coaching, clinical assessment and outcomes-oriented treatment (Amaya-Jackson 2018).

7.7.2 Outcome monitoring

Testing the feasibility, acceptability, and effectiveness of novel health technology solutions needs efficient monitoring of outcomes, with open channels of communication from clients and clinicians to ensure continuous improvements. Being able to demonstrate the scientific evidence of effectiveness was an important factor in securing funding for scaling up interventions in Ruggiero (2015) and Araya (2012) and demonstrating clinician performance and client outcomes was critical in garnering legislative support for the new service in Amaya-Jackson (2018). One of the nine methods identified in the Beck (2018) study of implementation efforts that impacted across health systems was that of outcomes monitoring and regular reporting of quality improvement.

7.8 Feasibility and acceptability testing for all stakeholders

Testing the acceptability of the training in Fekadyu (2016) helped to ensure the buy-in of the people key to its success, this was particularly important when the new programme involved changing working cultures and workloads. Feasibility and acceptability testing helped to anticipate potential changes to patient loads which was important to maintain staff wellbeing and prevent burnout. Acceptability to clients ensures services are meeting needs, are sustainable, and cost effective over time.

7.8.1 Acceptability to implementors

In a study of supports for disaster survivors, participants ' attendance rates and feedback about the programme indicated that delivery of the programme by trained frontline workers with little or no mental health experience was acceptable, safe, and beneficial in reducing psychological symptoms and impairment (O'Donnell 2020). In a study of extended supervision of newly qualified therapists, the results were more mixed: newly qualified therapist rated all methods of the extended supervision highly overall, however, in practice some forms were more attended than others, while some were rated more appropriate to their knowledge and practice goals compared to ratings of the practical feasibility of implementation. From this feasibility testing, authors could then suggest a more tiered approach to programmes, that progress from simpler to more advanced could increase the feasibility of implementation while also meeting knowledge and practice expectations and goals (Chu 2017).

7.8.2 Acceptability to service users

Several studies tested the acceptability and feasibility of intervention by evaluating satisfaction from the potential service users. A school-based programme found that the intervention was acceptable and positively received to young people who received the intervention, as well as measuring the outcomes from before and after and comparing groups (Burckhardt 2017), and similar findings of acceptability to service users were found in an online intervention for youth anxiety (March 2018).

In another study (Ruggiero 2015), families of potential service users and practitioners were able to give strong recommendations for future improvements to the table-based application, further emphasising the importance of testing the feasibility and acceptability of new technologies in health care. Evaluation of the

acceptability of the programme should be assessed over a sufficient time-period, for instance the HTA on MoodGym found that dropout rates were higher than expected over time and suggested more research on what adjustments were needed to ensure the intervention was acceptable as well as what was effective for clients (Brabyn 2016).

7.9 Supporting contextual factors that support scale up

There may be little opportunity to influence the background contexts in which interventions seek to scale up their operation. However, several supportive contexts were mentioned particularly the capacity to adapt to local contexts.

7.9.1 Assess and adapt to local contexts (9)

The successful scale up of an intervention was often attributed to the intervention's capacity for adaptation, this could be to local conditions, needs, cultural practices and social norms and for children and young people, their developmental stage (Burckhardt 2017, Calvete 2019). Scale-up of interventions considers both the supply side of the intervention, the characteristics of the programme and its delivery, and resources needed to do so, but also the demand side. Assessing the nature and extent of demand, the acceptability of the programme and awareness of the new programme in order to achieve the aim of reaching more people. Integrating local knowledge and practices with evidence-based programmes can contribute to the development of contextually appropriate empirically supported psychological treatments (EPT) (Vellakkal 2015). Findings in one disaster recovery evaluation found the intervention scalable based on it being flexible and culturally adaptable (Gibson 2021), and a large-scale public mental health intervention needed to consider the socio-political and cultural context of recipient communities in resource-poor settings in Makhashvili (2010). A feasibility study (Akhtar 2021) being culturally acceptable as a factor for successful scale up. Engaging with key stakeholder groups in national/local government, NGOs, and Syrian refugee health care clinics who had provided different perspective and knowledge of the local health system and the socio-political context was an important factor in Fuhr (2020b).

7.10 Supply side- demand side approaches to scale up

As well as enhancing the supply side of the intervention, demand side approaches include proactive efforts to raise awareness of the programmes in the target community, minimise barriers to service use by campaigns to reduce stigma towards mental ill health and of help seeking behaviours and increase the acceptability of accessing mental health services (Jordans 2020). As improvements in mental health at population level will not be achieved if the scale up of the intervention does not reach the people for which it is intended. Strategies for identifying population needs and service gaps could be explored through resource mapping. Fekadyu (2016) developed an inventory of local assets with a community resource inventory, which included physical assets (for example forests), community associations, health facilities, faith and traditional healers, education facilities, justice system, recreational venues, agriculture, religious institutions and non-governmental organisations (NGOs).

8. Discussion and conclusions

This multi-component systematic review aimed to identify the nature and extent of mental health issues arising during COVID-19 in the general public (RQ1), provide a high-level overview on the effectiveness of a mental health interventions delivered at population-level (RQ2) and explore factors potentially influencing scale-up of mental health interventions (RQ3). Using a range of methodological approaches, we utilised review-level and primary research evidence to address these questions, with the aim of enabling users of the review to:

- see which mental health symptoms were more elevated at population-level, since the start of the pandemic, and provide a evidence-informed rationale for our mental health outcomes focus in RQ2,
- identify which interventions have been systematically reviewed, along the spectrum of intervention pathways, from prevention to treatment,
- assess, a high-level overview of systematically reviewed evidence on the effectiveness of different types of population-level mental health interventions, along that pathway,
- engage with the complexity and nuance of intervention and system-level factors relevant to informing the scale-up of interventions, to address population-level mental health, and to
- consider implications for policy, practice, and future research.

8.1 Summary of key findings

8.1.1 What is the nature and extent of mental health issues in the general population?

From the 98 reviews in the map, 19 provided pooled estimate of effects for anxiety (N=15), depression (N=14) and post-traumatic stress (N=6). When compared with pre-pandemic data, two reviews found a small to moderate increase in anxiety and depression (Robinson et al. 2021, Kunzler et al. 2021). Meanwhile, evidence on the pooled prevalence of post-traumatic stress suggested it varied from 9% to 27%. The majority of reviews were focused on adults, with one review providing data on children and young people.

8.1.2 Which population-level MHPSS interventions are effective for anxiety, depression and PTSD?

This systematic review provides evidence on the effectiveness of mental health and psychosocial interventions delivered at population-level. The evidence, from high and medium quality reviews, is broadly summarised by categorising each of the interventions according to their prevention-treatment pathway, delivery setting, outcomes, and overall direction of effect (see table 8.1.2 and 8.1.3).

However, it should be noted that any gaps in the pathway, may be more of a reflection of the scope of this review, than a 'true' gap in the evidence-base. For example, interventions addressing PTSD often focus their efforts on vulnerable sub-groups, rather than at population-level and will therefore have been excluded from this review. Similarly, many reviews do not aggregate their intervention according to the fine-grained level of the pathway and may be subsumed within universal or indicated rather than targeted prevention, and lastly, many interventions may have been trialled but are yet to be subject to meta-analysis.

Overall, there is review-level evidence that psychological interventions, delivered at population-level, can have a positive impact on preventing and treating depression, anxiety, and PTSD, with no indication of harm. However, the reviews do highlight the need for higher quality trials, with longer term follow-up, to strengthen the evidence-base going forward.

Children and young people

- Reviews of **school-based interventions** report **evidence of positive effect** on:
  - CBT for the universal and targeted prevention of anxiety at primary schools
  - CBT and CBT with psychoeducation for universal prevention of anxiety and depression in secondary schools
  - Mindfulness/relaxation for universal prevention of anxiety in secondary schools
  - Cognitive–behavioural with IPT for universal prevention of depression in secondary schools
  - Third wave (e.g., acceptance and commitment therapy) for universal prevention of depression
  - Psychological therapies for indicated prevention of anxiety and depression in secondary schools
- **No evidence of difference** was found between intervention and control groups for
  - Universal or targeted prevention of depression in primary schools
  - Targeted prevention of anxiety or depression in secondary schools
- Reviews of **digital intervention** report **evidence of positive effect** on:
  - CBT-based interventions delivered via the internet, smartphone or mobile apps for treating depression and anxiety
- Reviews of **community-based interventions** report **evidence of positive effect** on
  - CBT for treating anxiety and depression
  - Psychotherapy for treating depression
  - A range of trauma-informed CBT and psychotherapeutic approaches for treating PTSD (see below).
- **No evidence of difference** was found between intervention and control groups for treatment of PTSD when delivering supportive counselling or family therapy

Table 8.1.2 brief summary of the evidence: children and young people

Pathway level	**Outcomes**	**Potential effectiveness of population-level MHPSS**	
		Evidence of positive effect	***Interventions not shown to effective[1]***
Prevention *Universal*	Anxiety	*Primary School-based* • CBT • CBT +Psychoeducation • Mindfulness/ Relaxation	
	Depression	*Secondary School-based* • CBT • CBT +Psychoeducation	• Digital interventions
Prevention: *Selective (targeted)*	Anxiety	*Primary School-based* • CBT	
	Depression		• Primary and Secondary School-based interventions
Prevention *Indicated*	Anxiety	*School-based* • Psychological therapies	
	Depression	*School-based* • Psychological therapies	

[1] No evidence of difference between intervention and control group: *e.g., when it was not possible to detect any statistically significant differences in the direction of effect between those receiving MHPSS interventions and those in control or comparison groups. This lack of difference may be because the study was not large enough to detect any differences that there might have been between groups or that the intervention actually had no effect. The statement does not indicate an absence of evidence, nor does it indicate equivalence between comparison groups.*

Pathway level	Outcomes	Potential effectiveness of population-level MHPSS	
		Evidence of positive effect	***Interventions not shown to effective[1]***
Treatment: ***Case Identification***	Anxiety	*Digital* • iCBT • CBT via smartphones or mobile apps *Community* • CBT	
	Depression	*Digital* • CBT *Community* • CBT • Psychotherapy	
	PTSD	*Community*: • Cognitive therapy • Combined somatic/cognitive therapies • Child–parent psychotherapy • Combined TFCBT/parent training • Meditation • TF-CBT: narrative exposure • TF-CBT: exposure/prolonged exposure • Cohen TF-CBT Cognitive processing therapy • Group TF-CBT	*Community* • Supportive counselling • Family therapy

Adults

- Reviews of **workplace interventions** report **evidence of positive effect** on:
  - Mindfulness training intervention for universal prevention of anxiety and depression.
  - Psychoeducation for universal prevention of depression
  - Cognitive behavioural interventions, and self-help interventions combined with exercise for indicated prevention of depression.
- Reviews of **digital intervention** report **evidence of positive effect** on:
  - CBT and ACT based smartphone apps for preventing and treating anxiety
  - Compositive psychological interventions for treatment of anxiety (e.g., mindfulness, iCBT, iACT)
  - Internet-based CBT for treatment of anxiety, depression and PTSD
- They also report ***no evidence of difference*** for
  - CBT and ACT based smartphone apps for treatment of PTSD when comparted to control groups
- Reviews of **community-based interventions** report **evidence of positive effect** on:
  - Stress Control Programmes for preventing anxiety and depression
  - IAPT and CBT based psychological therapies for treating anxiety and depression

Table 8.1.2 brief summary of the evidence: adults

Pathway level	Outcomes	Potential effectiveness of population-level MHPSS	
		Evidence of positive effect	***Interventions not shown to effective[1]***
Prevention ***Universal***	Anxiety	*Workplace*: • Mindfulness training *Digital*: • CBT/ACT Apps *Community* • Stress Control Programmes	
	Depression	*Workplace*: • Mindfulness training • Psychoeducation *Community* • Stress Control Programmes	
	PTSD		*Digital* • CBT/ACT Smartphone
Prevention: ***Indicated***	Anxiety		
	Depression	*Workplace*: • CBT • Self-Help (with exercise)	
Treatment and maintenance	Anxiety	*Digital* • Mindfulness • CBT/ACT Apps • Internet CBT • Internet ACT • Psychodynamic therapy *Community* • IAPT and other CBT therapies	
	Depression	*Digital*: • CBT/ACT Apps	
	PTSD	*Digital* • Internet-CBT	*Digital* • CBT/ACT Apps

8.1.3 What factors potentially influence scale-up of mental health interventions?

A total of 87 primary studies provided evidence on scaling up of mental health and psychosocial interventions. Scale parameters: (e.g., intended reach) included:

- **Transnational**: e.g., not being limited within physical or political spatial boundaries
- **System wide**: e.g., the integration of services, such as integrating new mental health care services into general health care systems or integrating services into primary care.
- **Place-based** e.g., within the boundaries of a community, nation or state or smaller scale place-based communities in schools, universities, or workplaces.

[1] No evidence of difference between intervention and control group: *e.g., when it was not possible to detect any statistically significant differences in the direction of effect between those receiving MHPSS interventions and those in control or comparison groups. This lack of difference may be because the study was not large enough to detect any differences that there might have been between groups or that the intervention actually had no effect. The statement does not indicate an absence of evidence, nor does it indicate equivalence between comparison groups.*

Key themes: The evidence suggests a range of key factors that could support the scale-up of mental health interventions. These were grouped into the following eight themes:

1. INTERVENTION CHARACTERISTICS: intervention characteristics can support scale-up by
   - increasing access to services across time and place by **digitising interventions**, making them available online and providing opportunities for specialist or non-specialist support, either synchronously or asynchronously.
   - **expanding the workforce by task shifting or task sharing from specialist to non-specialists**. Access to low-intensity mental health support can be made possible by increasing the breadth of personnel available to deliver them.
   - **using technology and online provision to support and train non specialists** to speed up the time for mental health services workforce to be made available, and to reach more people by maximising the use of online spaces, such as video conferencing.
   - **enabling self-referral and open access mental health interventions.** Allowing clients to self-refer to online, face-to-face, individual or group service provision can reduce the wait time and increase reach.
2. RESOURCE RELATED FACTORS**:** increase capacity and reach by
   - **securing policy support and government funding;** by demonstrating evidence of effectiveness across difference measures of success, such as clinical and client outcomes, cost effectiveness and showing consistent returns on investment.
   - **identifying when additional resource is needed for scale-up** as lack of funding impedes the ability to deliver services at population-level when required.
   - **matching service level to needs through identifying care pathways, signposting, or stepped care**. This can be achieved by providing stepped increments of intervention intensity and differing levels of professional input. This approach is linked to task shifting, where less severe MH needs can be task shifted to non-specialists allowing referral to specialists when the severity is higher
   - **integrating MH services into primary care,** thereby making more efficient use of resources. However, while there were advantages, collaboration and integration were also said to be challenging, particularly in aligning differences in organizational structures and ways of working.
3. WORKING TOGETHER**:** scaling up of interventions also depends on strong working relationships within organisational structures and systems. This can support scale-up through the following mechanisms:
   - **Leadership as brokerage:** strong and effective leadership is necessary to gain lasting support from policymakers, practitioners and other stakeholders when establishing the scale-up of MH services.
   - **Local champions**: who make use of their existing networks and relationships to navigate and promote new services for both set- up and maintenance.
   - **Multiple sector stakeholder engagement:** Collaborations with community stakeholders, NGOs, and other cross-sector strategic alliances (e.g., private and public partnerships, and state and non-state actors) are key to scale up success.
4. PROGRAMME FIDELITY to ensure that scale up happens as intended (e.g., that the core components of the intervention are delivered to the same quality irrespective of where and who it is delivered by). Suggested ways to achieve this included:
   - **Training fidelity and knowledge transfer** to increase staff confidence and provide skills for consistent, competent care.
   - **Implementation fidelity using guidelines, templates, manuals** to provide a common shareable framework to the programme, a step-by-step guide to delivery, and an aide to decision making.

5. MONITORING AND EVALUATION is a dynamic process supporting scale-up to make sure interventions started and stayed on the right track and support the securing of funding and resources. Processes included:
   - **Using benchmarks and indicators** as ways to share best practice, and lessons learned through a common language or vocabulary, enabling policymakers and practitioners to select what interventions will be most likely to succeed in their contexts**.**
   - **Quality improvement practices** included ongoing monitoring of quality and feasibility, developing baseline benchmarks or indicators by which to monitor progress and impacts, and using indicators as an overall "roadmap" to track scale up progress.
   - **Standardized training and recognised accreditation** as an effective way to disseminate the programme more widely and implement best practice while seeking greater reach.
   - **Scaling up or outcomes-oriented implementation** can also be accomplished when training incorporates practice-based learning, fidelity coaching, clinical assessment, and outcomes-oriented treatment.
6. FEASIBILITY AND ACCEPTABILITY TESTING FOR ALL STAKEHOLDERS to ensure the buy-in of the people key to its success, particularly when new programmes would lead to changing working practices. Examples include:
   - **Acceptability to implementors** to anticipate potential changes to patient loads, which was important for maintaining staff wellbeing and preventing burnout.
   - **Acceptability to service users** to ensure services are meeting needs, are sustainable, and cost effective over time.
7. CONTEXTUAL FACTORS adapting to the local conditions, in which interventions seek to scale their operations, is essential to implementation success and can be supported by:
   - **Engaging with socio-political contexts** of programme implementation to assess and ensure programme fit.
   - **Considering cultural factors and adaption needs** by integrating local knowledge and practices with evidence-based programmes to contribute to contextually appropriate service delivery.
8. COMBINE SUPPLY SIDE AND DEMAND SIDE APPROACHES TO SCALE UP. Improvements in mental health at population level will not be achieved if the scale up of the intervention does not reach the people for which it is intended. Approaches include**:**
   - **Taking proactive efforts to raise awareness** of the programmes in the target community.
   - **Minimising barriers to service use through** campaigns to reduce stigma towards mental ill health and help-seeking behaviours, thus increasing the acceptability of accessing mental health services.
   - **Resource mapping** to identifying population needs and service gaps.

8.2 Implications

8.2.1 Implications for policy and practice

- The evidence-base for the effectiveness of population-mental health and psychosocial interventions continues to gain traction. However, if effective mental health and psychosocial interventions are to be made available at population-level, they need to be scaled appropriately. Policy and practice support for scale-up is critical in this endeavour, and more so when scaling requires intervention, organisational and system-level changes. Government commitment in the form of policy initiatives and resource allocation is key to ensuring the sustainable impact of scaled intervention. Feasibility and cost-effectiveness analysis, prior to scale-up and throughout implementation, could also help inform the success of scale-up strategies.

- There is consistent evidence on the effectiveness of **community-based** population-level mental health services for treating symptoms of anxiety, depression and PTSD. Large-scale nationwide programmes, such as Increasing Access to Psychological Services (IAPT), which provides a stepped-care approach to maximise availability of services to need (e.g., low to high intensity CBT, counselling interpersonal therapy) is now very well established in England and Wales. The rollout of similar public mental health care in other regions would require significant government policy buy-in to enable and maintain any infrastructure changes needed. It would also require an investment in human resource to establish a trained and competent workforce and support and any organisational culture changes identified.
- The review-level evidence for **school-based** prevention interventions is mixed. While findings suggest that universal and targeted prevention can work to delay the onset or worsening of anxiety symptoms in primary schools, replication of results were not found for depression. Similarly, findings for interventions delivered in secondary schools suggested that CBT-based approaches work for universal prevention of anxiety and depression, but not targeted prevention. While there is evidence of effectiveness for indicated prevention in adolescents. To address this, it might be useful to consider taking a stepped care approach in schools. For example, providing universal prevention interventions for all students alongside targeted individualised support for children and young people with elevated symptoms. The school will continue to be a sit in which to reach large numbers of children and young people, but more understanding of how interventions need to be tailored to meet their needs as they develop is required.
- There are a variety of effective universal and indicated **workplace prevention** interventions for depression and anxiety. Sustained, long-term investment in occupation-based mental health interventions by employers, ensuring they are both acceptable and accessible to employees, continues to be an important route when seeking to reach a large proportion of the adult population and support ongoing mental health efforts in light of the pandemic. The workplace also provides an opportunity to implement key scale up-strategies, such as: adopting effective leadership and deploying champions to promote mental health initiatives, engaging with multi-sectorial partners to provide on and off-site services (e.g., employee assistance programmes), using benchmarks and indicators to measure progress against and incorporating ongoing evaluation of the quality and feasibility of services to track effectiveness and scale-up progress.
- Although the evidence-base for the effectiveness of **digital and mobile app interventions** is currently modest, with greater effect sizes for internet-delivered interventions with professional input, the potential scale-up of specialist and non-specialist online psychological support and increasing transnational reach of mental health provision remains. Thus further consideration of the role of digital mental health, in the prevention and treatment of mental health symptoms as part of a stepped-care approach to service delivery is warranted. Online platforms also provide a resource efficient way to reach and train a workforce necessary for the delivery of mental health services, on and offline, including provision of supervision and cascading of best practice to ensure fidelity. This of course, is particularly salient in the context of COVID-19 and any future infectious disease crises, as many mental health services remain virtual as we continue to use a hybrid model of working.
- As highlighted, there is consistent evidence of improving intervention reach and scale-up of mental health services through **stepped care models** of provision. That is, where low intensity and brief interventions are offered as a first-line approach, with more intensive interventions made available for those with more severe needs. Taking a stepped care approach can be supported by **task-shifting**, where lower severity mental health needs can be shifted to non-specialists, (with referral to specialists

at higher level of needs if required), enabling greater access to metal health services that would otherwise be the case if providers needed extensive training.

- However, in most scale-up scenarios, there will be a need to substantially enlarge the mental health workforce to scale interventions to effectively target large population with prevention needs and smaller populations of people who require more intensive treatments. This can be supported by **using guidelines, templates, manuals** to provide a common intervention framework and ensure intervention fidelity, as stated, by utilising digital platforms to support and train the workforce and speed up their availability.

- In the aftermath of COVID-19, the key to the scale up of mental health provision is being aware of and meeting demand needs. National and regional policy and practice initiatives can achieve scale-up by setting up strategic partnerships, with multi-stakeholders, which integrates local knowledge alongside knowledge of evidence-based mental health interventiosn. Doing so, can inform the maximisation of resources, how best to adapt interventions, and build a strong leadership team and trained workforce to implement services, as closely as intended to achieve intended reach. In the long-term, these mental health strategic partnerships can contribute knowledge on how to scale and deliver mental health programmes at population level and support best practice for similar initiatives in the future.

8.2.2 Implications for research

This review highlights several areas for future research:

- To move beyond the reliance of cross-sectional survey data and prioritise the collection and analysis of national-level longitudinal designs using representative samples. Doing so, could support a more temporal understanding of the ongoing mental health impacts of COVID-19 in the general public.
- Further analysis could also investigate the mediating and moderating factors influencing mental health during and after the pandemic. This would provide a more nuanced analysis of causal mechanisms and inform the development and focus of future interventions addressing mental health impacts arising from similar humanitarian crises and infectious disease outbreaks.
- Evidence synthesis of prevalence would also benefit from access to individual participant data from included studies to better estimate the effect of participant-level variables, such as age, gender, race, and socio-economic position. As the meta-analysis of prevalence included in this review relied on aggregated country-level data making it difficult to account for individual differences in living conditions imposed by COVID-19 and the impact this had on mental health outcomes.
- The quality of randomised controlled trials for mental health interventions can be improved through better and more consistent reporting of attendance/drop-out rates. Researchers could also refer to the Consolidated Standards of Reporting Trials (CONSORT) for guidance in reporting.
- The evidence-base would benefit from not only measuring post-intervention outcomes, but to conduct follow-ups at multiple time-points after the intervention has been completed as standard research practice. This is crucial in evaluating if, and for how long, the treatment effects of an intervention (if any) are maintained over time.
- In addition to evaluating the effectiveness of mental health interventions on mental health, future research should also assess the cost-effectiveness of interventions, which can be accomplished through attaining an understanding of the longer-term benefits, alongside the presence of adverse effects or potential harms, of an intervention.

- For interventions to be scaled up, it is integral that studies are conducted on diverse populations while taking intervention complexity and context into account.
- Utilisation of appropriate and relevant methodological frameworks to evaluate mental health interventions at scale would further benefit our understanding. This would involve evaluating effectiveness alongside key process dimensions identified e.g., feasibility, acceptability, fidelity, cost-effectiveness, and transferability across contexts. Such considerations, would ideally, be made in consultation with the relevant stakeholders, particularly recipients of the intervention.

8.3 Strengths and limitations

The strengths of this meta-review include the use of established methods to identify, aggregate, and critically appraise systematic reviews conducting meta-analyses to answer our first two review questions and more iterative methods to identify and configure primary research to answer our third review question. In each instance, we posed explicit research questions which supported us to define the population, intervention, and outcomes, to inform our search. This included drawing on the extensive resource of the IPPO living map and utilising our information specialist (CS) to conduct a complimentary search, which focused on outcomes and population-level terms to support the identification of possible mental health and psychosocial interventions evaluated. However, despite this review-level evidence will have been missed or inadvertently excluded. For example, reviews conceptualised by type of intervention or type of outcome, but did not provide details about the population, or setting (due to lack of reporting in primary studies) made it difficult to determine if they met our criteria for 'population- level' mental health interventions.

In addition, like many meta-reviews, there is also limitations due to the time lapse between the publication of primary studies and subsequent systematic reviews. For example, our search strategy to answer RQ1 included any reviews published up to January 2022 and to answer RQ2 and 3, May 2022. Therefore, it is possible that primary studies relevant to our questions published after the included reviews may have been missed. Many meta-reviews are also hampered by double counting or fail to critically appraise reviews. We mitigated this by excluding reviews with significant study overlap, and by using both AMSTAR and AMSTAR 2 and adapting the tools to adjust for meta-analysis of prevalence and intervention outcome data accordingly. The breadth of certain parts of this review means that we have been able to bring together a diverse range of evidence and engage with cross-cutting themes relevant to population mental health, however, in doing so, it has not been possible to report all relevant details in the reviews or engage with the full depth of issues the subject raises. Furthermore, despite this breadth the full range of possible interventions supporting mental health was narrowed by the focus on disorder-specific outcomes, such as anxiety, depression and PTSD.

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APPENDICES

Appendix 1: PRISMA checklist

Section/topic	#	Checklist item	Reported in Chapter #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	#1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Executive Summary
BACKGROUND			
Rationale	3	Describe the rationale for the review in the context of what is already known.	#1
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	#1
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	Not published
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	#2
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	#2
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Can provide on request
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	#2
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	#2
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	#2
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	#2
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	#4
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	#2
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	#4, 5, 6, Appendix 3

Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	#3
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	#2
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	#4 and appendix 3
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	#4
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	#4
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	#4, 5, 6, Appendix 2
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	#4
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	Executive summary
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	#8
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	#8
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Supplied on request of submission

Appendix 2: Methods

Appendix 2.1 Example database search strategy for the systematic review

PsycInfo (OVID)

1806 to May Week 2 2022, Searched on 19/5/2022

2,887 records

1 (anxiety or Anxieties or anxious* or "low mood" or "Mood disorder" or "Mood disorders" or Depression or Depressive or depressed or "depressive symptoms" or "trauma" or "traumas" or "posttrauma*" or "post-trauma*" or "Mental stress" or "toxic stress" or "Posttraumatic stress" or "Post traumatic stress" or "trauma-informed" or "trauma-responsive" or "complex trauma" or "High stress" or "Stress disorder" or "Stress disorders" or "Traumatised" or (Pandemic adj2 stress) or (COVID* adj2 stress) or "Occupational stress" or "Psychological stress" or Burnout or traumatic or PTSD or "psycho-trauma" or "psychological distress" or "severe stress" or "extreme stress" or "emotional stress" or desnos).ti,ab,id. (615491)

2 anxiety disorders/ or generalized anxiety disorder/ or "stress and trauma related disorders"/ or posttraumatic stress/ or posttraumatic stress disorder/ or complex ptsd/ or desnos/ or acute stress disorder/ or posttraumatic stress/ or emotional trauma/ or acute stress disorder/ or Trauma Treatment/ or Trauma-Informed Care/ or trauma/ or Anxiety Management/ or Anxiety/ or major depression/ or dysthymic disorder/ or late life depression/ or reactive depression/ or recurrent depression/ or "depression (emotion)"/ or stress/ or chronic stress/ or occupational stress/ or psychological stress/ or occupational stress/ or compassion fatigue/ or emotional exhaustion/ (378233)

3 1 or 2 (676061)

4 (("at scale" or "systems level" or "systems based" or "Scalability" or "scalable" or "scaled up" or "scale up" or "Scaling up" or "large scale" or "up scaling" or "upscale" or "upscaling" or "taken to scale" or "take to scale" or "roll out" or "rolling out" or (universal adj5 reach) or (Population adj5 reach)) adj8 (intervention or interventions or approach or approaches or solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign* or service* or management or therapy or therapies or treatment* or collaboration* or prevention or "capacity building" or "skill development" or training or workforce or mobilisation or mobilization or outreach or counsel* or education or promotion or psychotherapy or bibliotherapy or "mental health support" or "psychosocial support" or "psycho social support" or "psychological support" or "wellbeing support" or "well being support")).ti,ab,id. (8485)

5 ((Universal or "regional level" or "area based" or "whole population" or "whole populations" or "municipality level" or "municipal level" or nationwide or statewide or intersectorial or "population-level" or "population-based" or "population wide" or "population-wide" or "general public" or "general population") adj5 (intervention or interventions or approach or approaches or solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign* or therapy or therapies or treatment* or collaboration* or prevention or "capacity building" or "skill development" or training or mobilisation or mobilization or outreach or counsel* or education or promotion or psychotherapy or bibliotherapy or "mental health support" or "psychosocial support" or "psycho social support" or "psychological support" or "wellbeing support" or "well being support")).ti,ab. (10593)

6 ((("Increase access" or "Improving access" or "improve access" or "increase access") adj5 (intervention or interventions or approach or approaches or solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign* or therapy or therapies or treatment or counsel* or psychotherapy or bibliotherapy or "mental health support" or "psychosocial support" or "psycho social support" or "psychological support" or "wellbeing support" or "well being support")) or ((organisational or organizational or "public awareness") adj8 (intervention or interventions or approach or approaches or

solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign*))).ti,ab. (17145)
7 4 or 5 or 6 (35638)
8 (effective or effectiveness or evaluat* or "lesson learned" or "feasibility study" or "acceptability study" or "acceptability studies" or "pilot study" or "feasibility studies" or "pilot studies" or "outcome measure*" or "performance measure*" or "performance assessment" or "proof of concept" or "programme effect*" or "program effect*" or "programme measure*" or "program measure*" or "programme outcome*" or "program outcome*" or "process outcome*" or "observed effects" or "observational study" or "programme impact*" or "program impact*" or "observed effect" or "observations" or trial or trials or "controlled study" or "controlled study" or randomized or randomised or RCT or "before and after study" or ("pre test" adj3 "post test") or "control group" or "treatment group" or "intervention group" or "control population" or "treatment population" or "control school" or "treatment school" or "control community" or "treatment community" or "intervention population" or "intervention school" or "intervention community").ti,ab,id. (1219246)
9 3 and 7 and 8 (2246)
10 ("mental health" or "psychosocial" or "psycho social" or "psychological" or wellbeing or "mental disorders" or "mental illness" or "mental disorder" or "well being" or "mental state").ti. (208991)
11 ("at scale" or "systems level" or "systems based" or "Scalability" or "scalable" or "scaled up" or "scale up" or "Scaling up" or "large scale" or "up scaling" or "upscale" or "upscaling" or "taken to scale" or "take to scale" or "roll out" or "rolling out" or (universal adj5 reach) or (Population adj5 reach) or Universal or "regional level" or "area based" or "whole population" or "whole populations" or "municipality level" or "municipal level" or nationwide or statewide or intersectorial or "population-level" or "population-based" or "general public" or "general population" or "population wide" or "population-wide").ti. (21337)
12 (intervention or interventions or approach or approaches or solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign* or service* or therapy or therapies or treatment* or collaboration* or prevention or capacity or training or skill or skills or workforce or mobilisation or mobilization or outreach or counsel* or support or education or promotion or psychotherapy or bibliotherapy).ti. (878808)
13 11 and 12 (3874)
14 (organisational or organizational or "Increase access" or "Improving access" or "improve access" or "increase access" or "public awareness").ti. (30561)
15 (intervention or interventions or approach or approaches or solution or solutions or scheme or schemes or strategy or strategies or program* or initiative* or campaign* or support or service* or therapy or therapies or treatment or counsel* or psychotherapy or bibliotherapy).ti. (686663)
16 14 and 15 (4618)
17 13 or 16 (8468)
18 10 and 17 (752)
19 3 and 7 and 9 (2246)
20 3 and 7 (4267)
21 limit 20 to ("0300 clinical trial" or "0830 systematic review" or 1200 meta analysis or 2100 treatment outcome) (498)
22 treatment effectiveness evaluation/ or clinical trials/ or mental health program evaluation/ or randomized clinical trials/ or treatment outcomes/ or "treatment process and outcome measures"/ (74458)
23 between groups design/ (529)
24 22 or 23 (74961)

25 20 and 24 (310)
26 18 or 19 or 21 or 25 (3001)
27 limit 26 to yr="1980 -Current" (2986)
28 limit 27 to (afrikaans or albanian or arabic or bulgarian or catalan or chinese or czech or danish or dutch or finnish or french or georgian or german or greek or hebrew or hindi or hungarian or iranian or italian or japanese or korean or lithuanian or malaysian or nonenglish or norwegian or polish or portuguese or romanian or russian or serbo croatian or slovak or slovene or spanish or swedish or turkish or ukrainian) (99)
29 27 not 28 (2887)

Appendix 2.2 Eligibility criteria

Studies were excluded from the map to address RQ1 if they were	
EX1: Topic	not about mental health
EX2: Population	not sampling or conducting a sub-group analysis of the general population
EX3: Quality	not using methods to critically appraise studies
EX4: Methods	not synthesising evidence on prevalence
Studies were excluded from answering the in-depth review to address RQ	
EX5: Date	not published in or after 2021
EX6: Reporting data	not using meta-analysis to report pooled estimates of effects
Studies were excluded from the review to address RQ 2 and 3 if they were	
EX1: Language:	not published in English
EX2: Population	not on the general population
EX3: Intervention	not investigating a population level mental health or psychosocial intervention
EX4: Outcomes	not investigating depression, anxiety, or post-traumatic distress disorder (PTSD)
EX5: Study design:	not a) an impact or b) a process evaluation or c) a systematic review
EX6: Date	not a SR published since 2017
EX7: Topic and Reporting data	not a) a primary study providing evidence on scale-up of MHPSS programmes or b) a SR using meta-analysis to report effect sizes
EX8: Study overlap	Previously reported in another systematic review

Appendix 2.3 Coding Tool

2.3.1: Brief map coding: systematic reviews

Domain	**Code**
• **Type of review/synthesis**	• Meta-Review (e.g. umbrella/review of reviews) • Meta-Analysis • Narrative synthesis • Descriptive mapping/scoping • Qualitative Evidence Synthesis • Economic synthesis / modelling • Other
• **Date**	• 2022 • 2021 • 2020 • 2019 • 2018 • 2017

Domain	Code
	• 2016 • 2015 • 2014 • 2013 • 2012 • 2011 • 2010 • 2009 • 2008 • 2007 • 2006 • 2005 • 2004 • 2003
• **Geographical Focus**	• LMIC (majority) • Upper middle income • N/A (e.g., geographical criteria not applied/not specified)
• **Population**	• Children and Young People only • Adults • N/A: No age filter
• **Aims**	• Outcome Effectiveness • Process/Implementation • Cost Effectiveness
• **Intervention Mode/ Context/Setting**	• Not specified • School-Based • Digital/Online • Community-Based • Primary/Secondary Health Care • Work/Occupational Health
• **Intervention level**	• Prevention • Treatment • N/A
• **Outcomes**	• Anxiety • Depression • PTSD/PTSS

2.3.2. In-depth Review Coding: Systematic Reviews

Domain	Code
• **Review Aims**	• Details
• **Population details**	• Details
• **Search dates**	• Details
• **Number of Included Studies.**	• Details
• **Description of the Interventions**	• Details
• **Countries of Included Studies**	• Details
• **Study Designs (tick all that apply)**	• RCTS: *Randomised Controlled Trials* • Cluster RCT: *Cluster randomised controlled trials* • CTs: *Controlled trials, but the population is not randomised* • Other (specify)

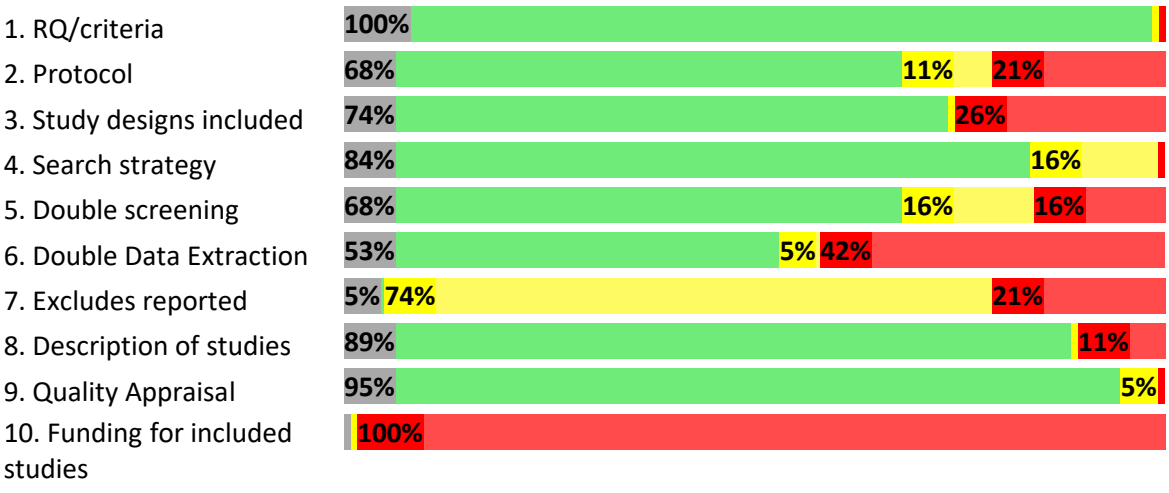
Domain	Code
Evidence-Base:	
• **Sample size**	• Details
• **Findings:**	• Evidence of Positive effect • Not shown to be effective e.g. not effective or no evidence of difference) • Inconclusive: inconsistent evidence Mixed findings • Inconclusive: insufficient evidence

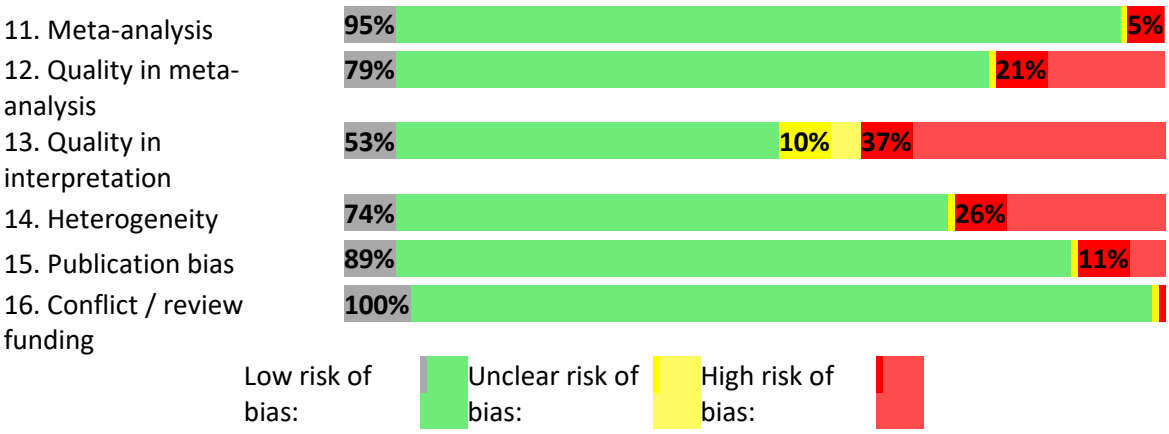
Appendix 3: Quality ratings of reviews

Appendix 3.1: Quality of prevalence reviews

Table 3.1. Prevalence: risk of bias assessment of included reviews

Authors	1. RQ/criteria	2. Protocol	3. Study designs included	4. Search strategy	5. Double screening	6. Double Data Extraction	7. Excludes reported	8. Description of studies	9. Quality Appraisal	10. Funding for included	11. Meta-analysis	12. Quality in meta-analysis	13. Quality in interpretation	14. Heterogeneity	15. Publication bias	16. Conflict / review funding
Blasco-Belled (2022)	+	+	+	+	±	±	±	+	+	-	+	+	+	+	+	+
Castaldelli-Maia (2021)	+	±	+	+	+	+	±	+	+	-	+	-	-	-	-	+
Chekole (2021)	+	+	+	+	-	+	±	+	+	-	+	+	+	+	+	+
Cheung (2022)	+	-	+	+	+	-	±	+	+	-	+	+	-	-	+	+
da Silva (2021)	+	-	-	±	+	-	-	-	+	-	+	-	-	-	+	+
Kan (2021)	+	+	-	+	-	-	±	-	±	-	-	-	-	-	-	+
Kunzler (2021)	+	+	+	+	+	+	±	+	+	-	+	+	±	+	+	+
Lee (2021)	+	+	+	±	+	-	±	+	+	-	+	+	+	-	+	+
Necho (2021)	+	-	+	+	-	+	-	+	+	-	+	+	+	+	+	+
Nochaiwong (2021)	+	+	+	+	+	+	-	+	+	-	+	+	±	+	+	+
Phiri (2021)	+	+	+	±	+	+	±	+	+	-	+	+	+	+	+	+
Qiu (2021)	+	+	+	+	+	+	±	+	+	-	+	+	+	+	+	+
Racine (2021)	+	+	-	+	+	-	-	+	+	-	+	+	+	+	+	+
Robinson (2021)	+	+	-	+	+	-	±	+	+	-	+	+	+	+	+	+
Salehi (2021)	+	±	+	+	+	-	±	+	+	-	+	+	+	+	+	+
Thakur (2022)	+	+	-	+	+	+	±	+	+	-	+	-	-	+	+	+
Wu (2021)	+	+	+	+	±	+	+	+	+	-	+	+	-	+	+	+
Zhang (2021)	+	-	+	+	+	-	±	+	+	-	+	+	+	+	+	+
Zhao (2021)	+	+	+	+	±	+	±	+	+	-	+	+	-	+	+	+



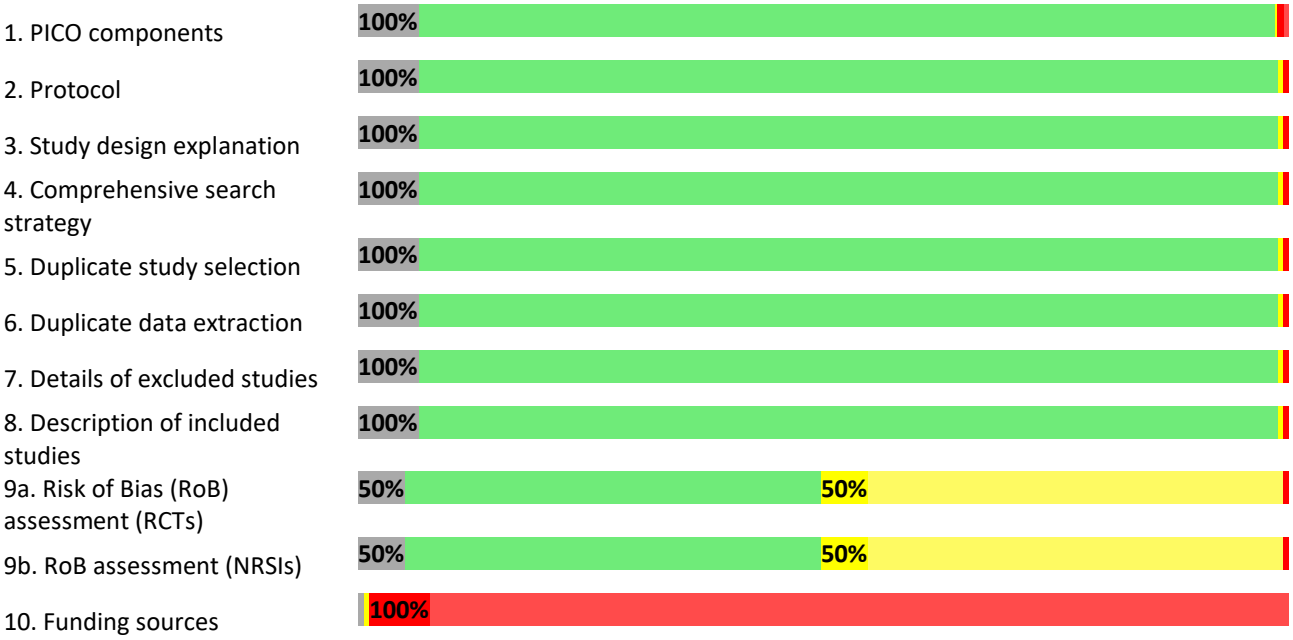


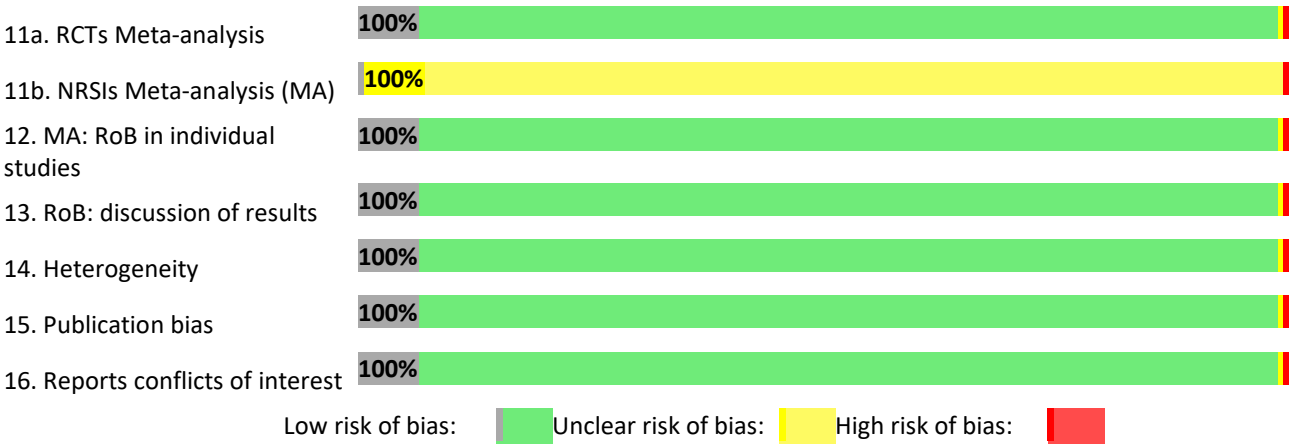
Appendix 3.2. Systematic Reviews: Children

Appendix 3.2.1: School based interventions

Table 3.1. School based intervention: risk of bias assessment of included reviews

	1. PICO components	2. Protocol	3. Study design explanation	4. Comprehensive search strategy	5. Duplicate study selection	6. Duplicate data extraction	7. Details of excluded studies	8. Description of included studies	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis	12. MA: RoB in individual studies	13. RoB: discussion of results	14. Heterogeneity	15. Publication bias	16. Reports conflicts of interest
Caldwell (2021)	+	+	+	+	+	+	+	+	+	N/A	-	+	N/A	+	+	+	+	+
Gee (2020)	+	+	+	+	+	+	+	+	+	N/A	-	+	N/A	+	+	+	+	+

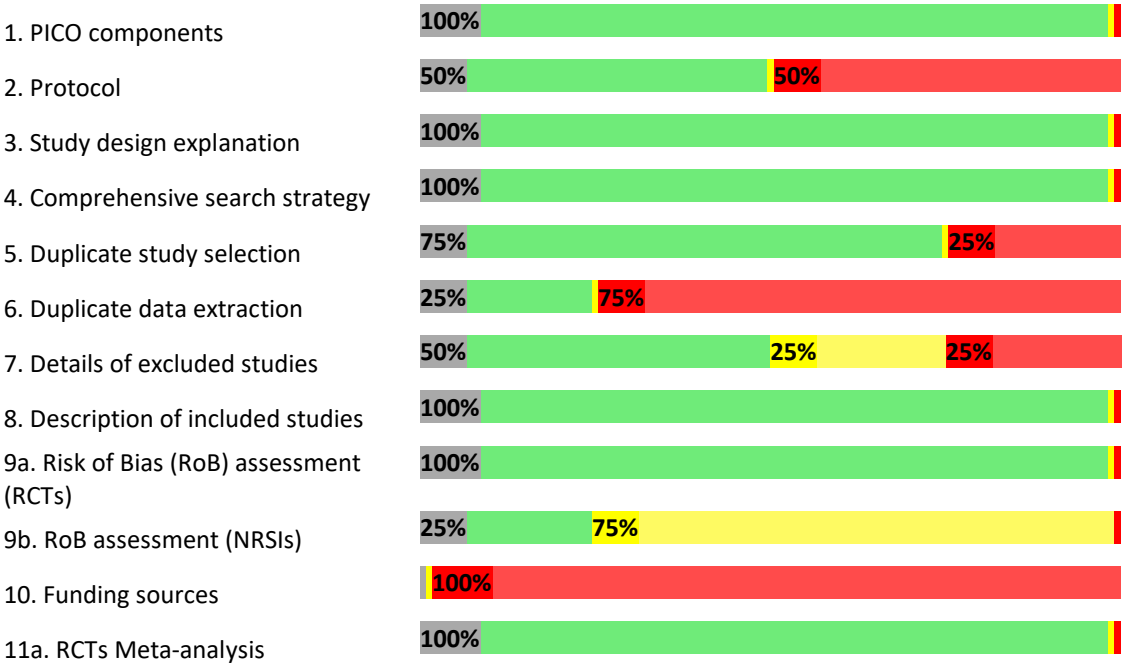


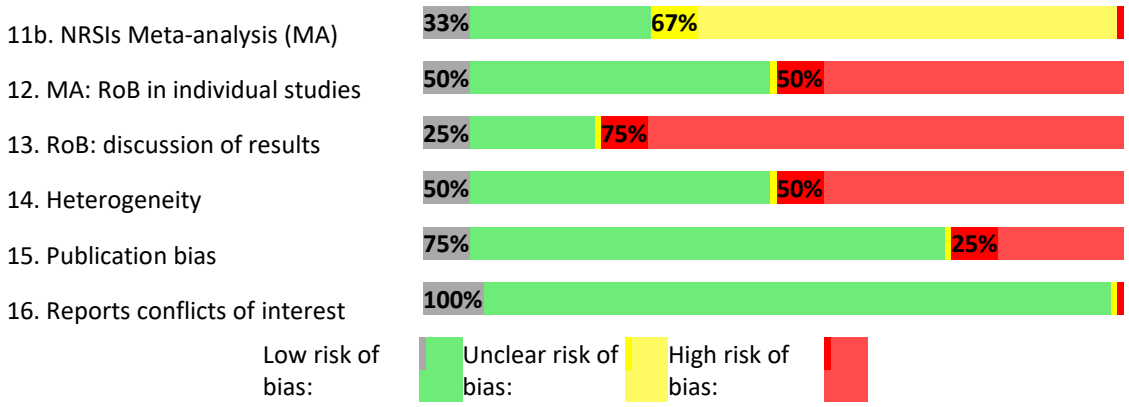


Appendix 3.2.2: Digital Interventions

Table 3.2.2. Digital interventions: risk of bias assessment of included reviews

Authors	1. PICO components	2. Protocol	3. Study design	4. Comprehensive search	5. Duplicate study	6. Duplicate data	7. Details of excluded	8. Description of included	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis (MA)	12. MA: RoB in individual	13. RoB: discussion of	14. Heterogeneity	15. Publication bias	16. Reports conflicts of
Buttazzoni (2021)	+	-	+	+	-	-	-	+	+	+	-	+	+	-	-	-	-	+
Eilert (2022)	+	+	+	+	+	-	+	+	+	n/a	-	+	n/a	+	-	+	+	+
Grist (2018)	+	-	+	+	+	-	+	+	+	n/a	-	+	n/a	-	+	-	+	+
Leech (2021)	+	+	+	+	+	+	+	+	+	n/a	-	+	n/a	+	+	+	+	+

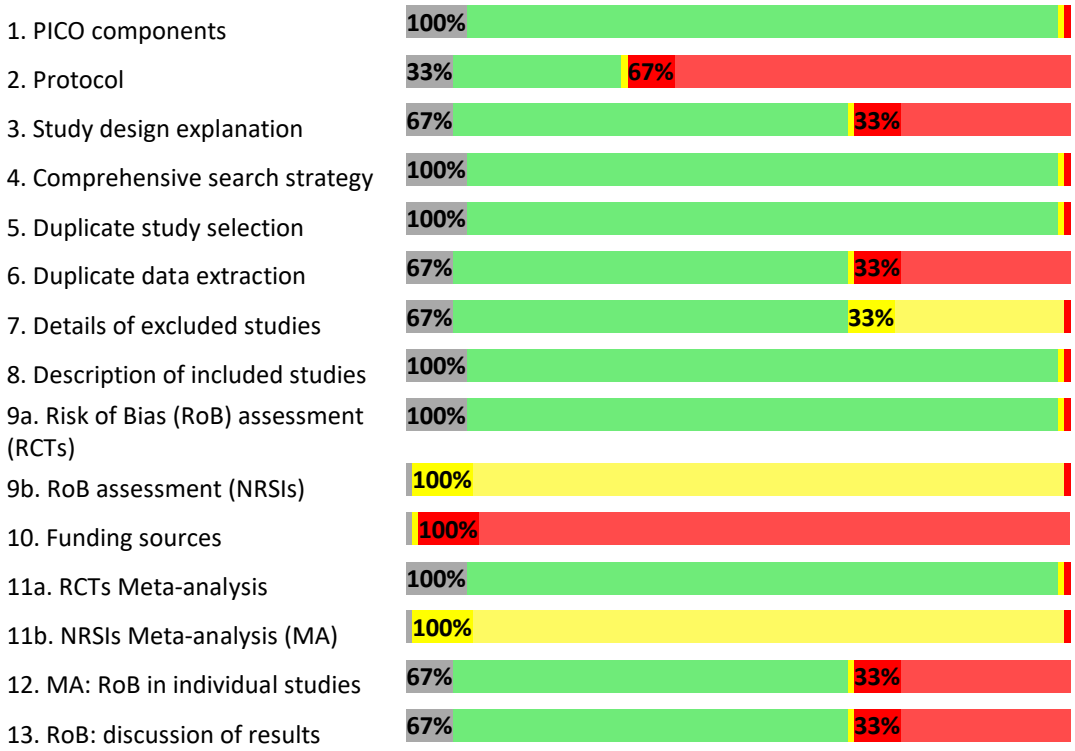


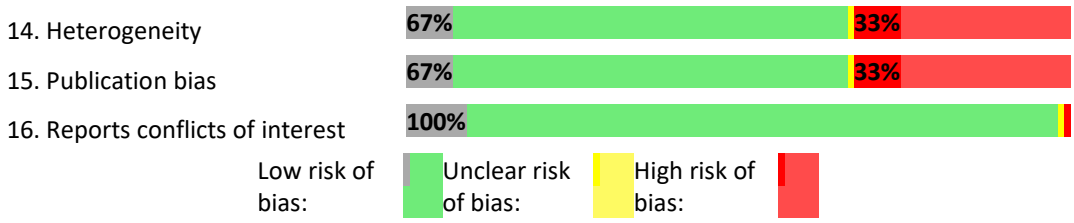


Appendix 3.2.3: Community-based interventions

Table 3.2.3. Community based intervention: risk of bias assessment of included reviews

Authors	1. PICO components	2. Protocol	3. Study design explanation	4. Comprehensive search strategy	5. Duplicate study selection	6. Duplicate data extraction	7. Details of excluded studies	8. Description of included studies	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis (MA)	12. MA: RoB in individual studies	13. RoB: discussion of results	14. Heterogeneity	15. Publication bias	16. Reports conflicts of interest
Cuijpers (2020)	+	-	+	+	+	-	±	+	+	n/a	-	+	n/a	+	+	+	+	+
James (2020)	+	+	+	+	+	+	+	+	+	n/a	-	+	n/a	+	+	+	+	+
Mavranezouli, (2020)	+	+	-	+	+	+	+	+	+	n/a	-	+	n/a	-	-	+	-	+



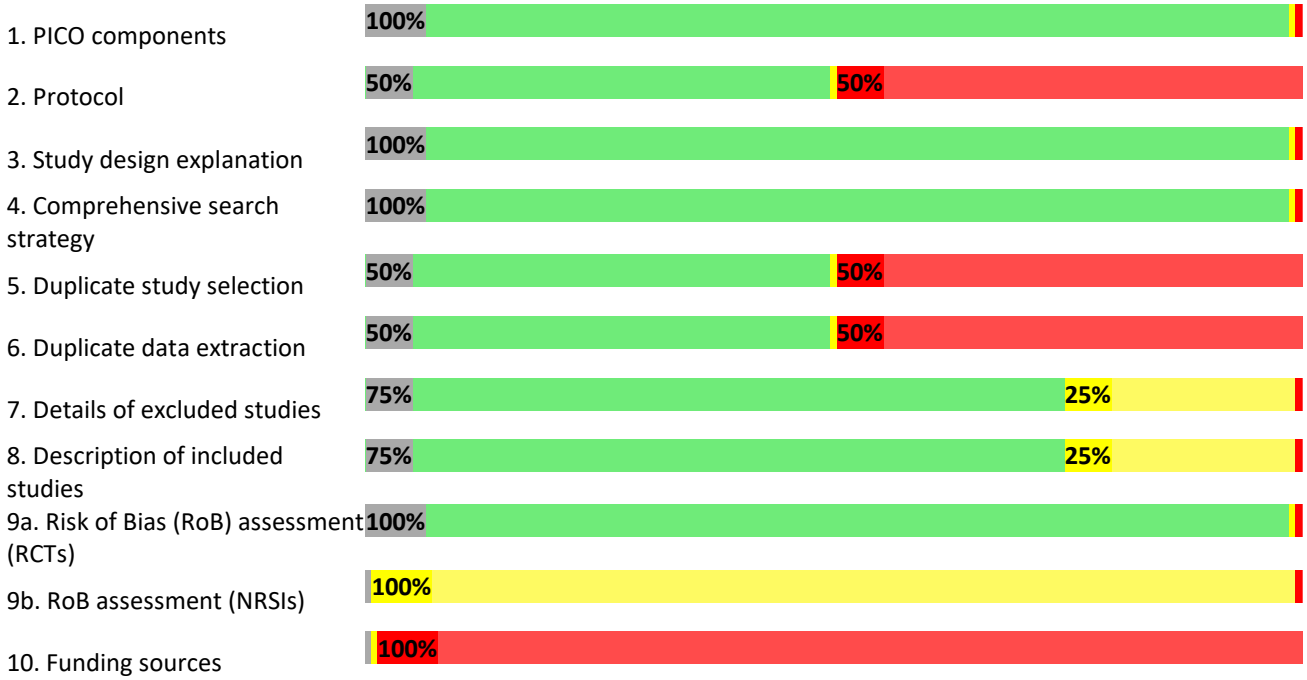


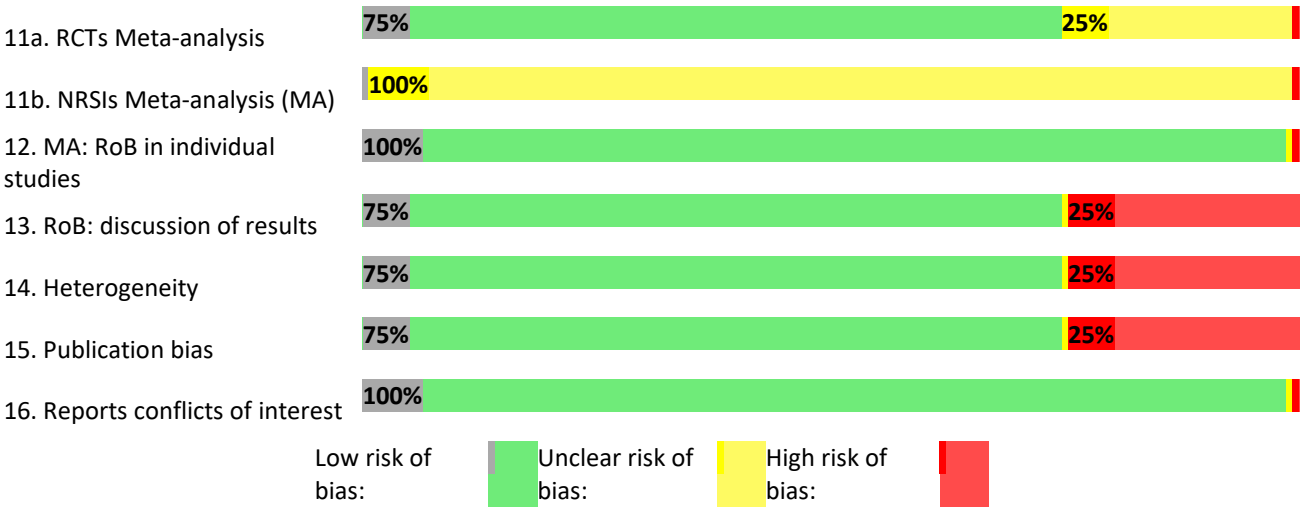
Appendix 3.3. Systematic Reviews: Adults

3.3.1 Workplace interventions

Table 3.3.1 Workplace intervention: risk of bias assessment of included reviews

Author	1. PICO components	2. Protocol	3. Study design explanation	4. Comprehensive search strategy	5. Duplicate study selection	6. Duplicate data extraction	7. Details of excluded studies	8. Description of included studies	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis (MA)	12. MA: RoB in individual studies	13. RoB: discussion of results	14. Heterogeneity	15. Publication bias	16. Reports conflicts of interest
Bartlett (2019)	+	+	+	+	-	+	+	+	+	n/a	-	+	n/a	+	+	+	+	+
Bellon (2019)	+	+	+	+	+	+	+	+	+	n/a	-	+	n/a	+	+	+	+	+
Nigatu (2019)	+	-	+	+	+	-	+	±	+	n/a	-	+	n/a	+	-	+	+	+
Wan (2018)	+	-	+	+	-	-	±	+	+	n/a	-	±	n/a	+	+	-	-	+

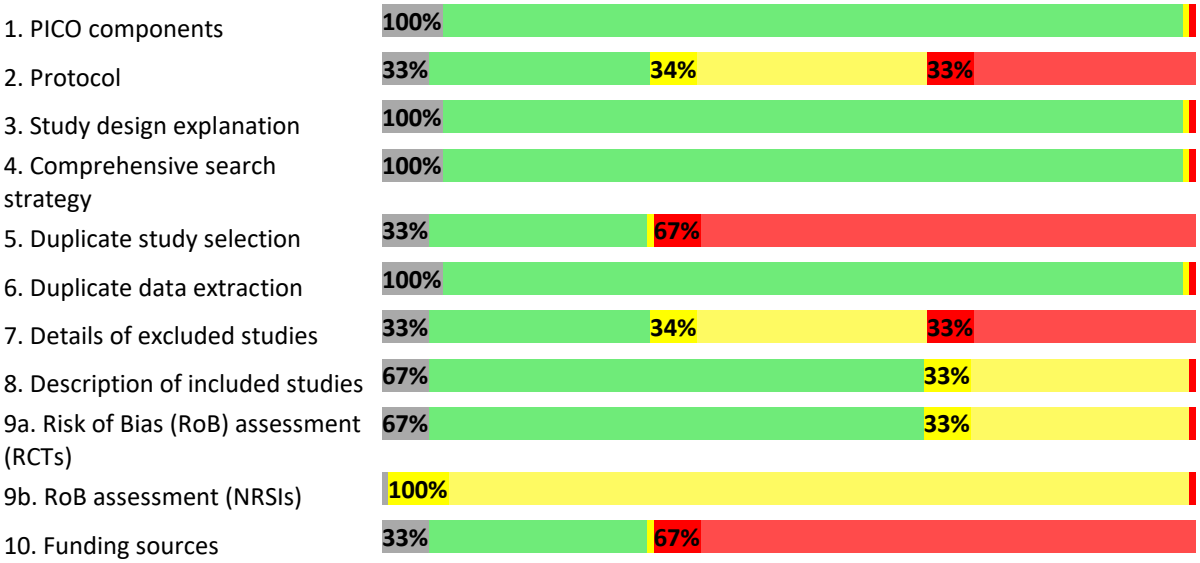


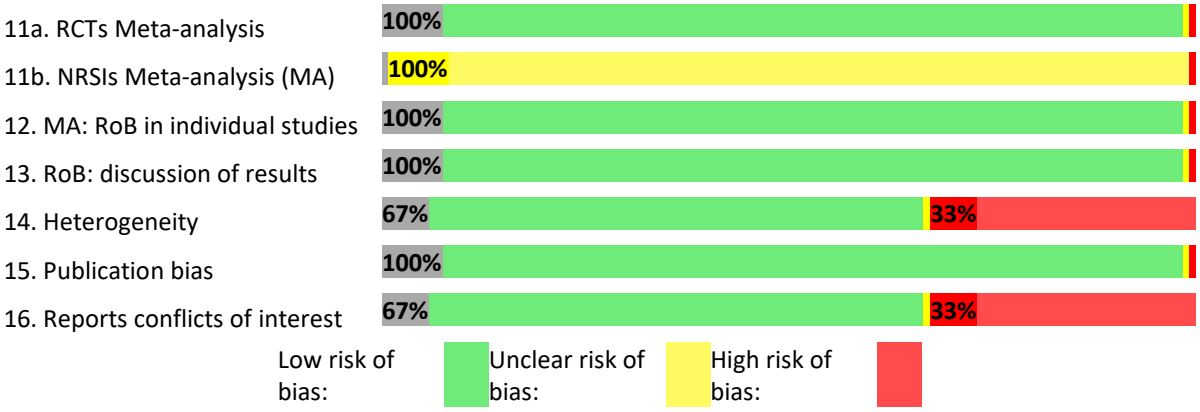


3.3.2 Digital Interventions

Table 3.3.2. Digital interventions: risk of bias assessment of included reviews

Author	1. PICO components	2. Protocol	3. Study design explanation	4. Comprehensive search strategy	5. Duplicate study selection	6. Duplicate data extraction	7. Details of excluded studies	8. Description of included studies	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis (MA)	12. MA: RoB in individual studies	13. RoB: discussion of results	14. Heterogeneity	15. Publication bias	16. Reports conflicts of interest
Linardon, (2019)	+	+	+	+	-	+	±	±	+	±	-	+	N/A	+	+	-	+	-
Pauley, (2021)	+	-	+	+	-	+	-	+	±	±	-	+	±	+	+	+	+	+
Simon, (2021)	+	+	+	+	+	+	+	+	+	±	+	+	±	+	+	+	+	+

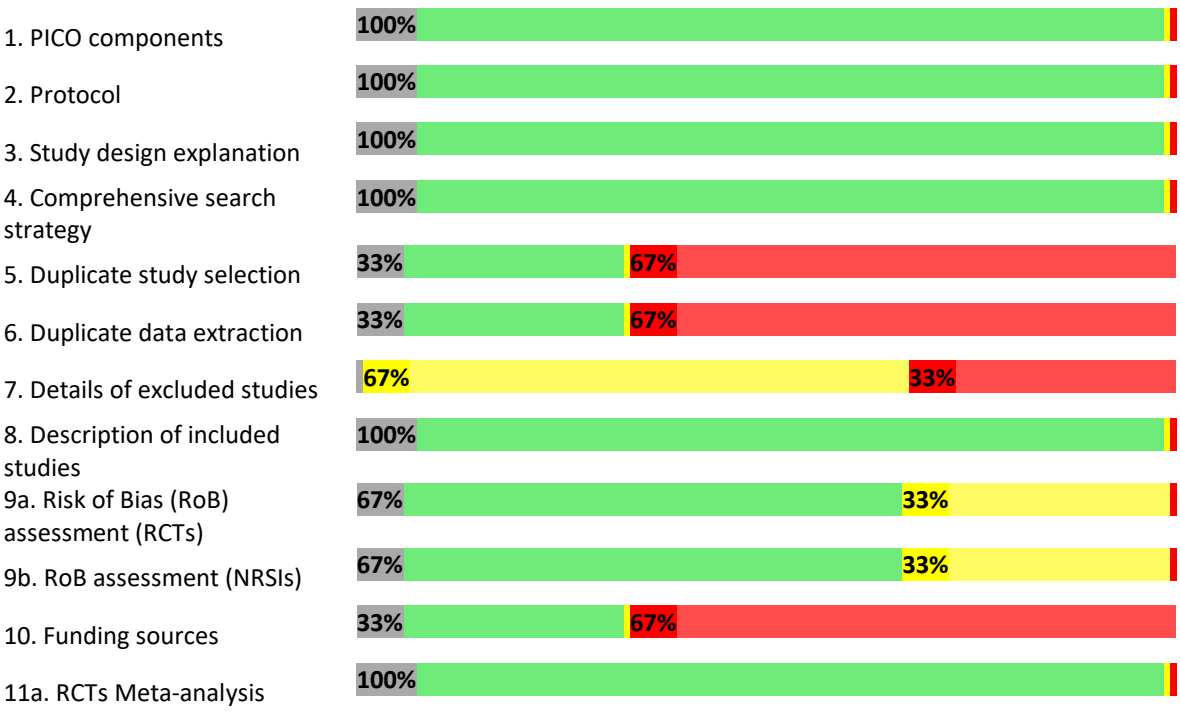


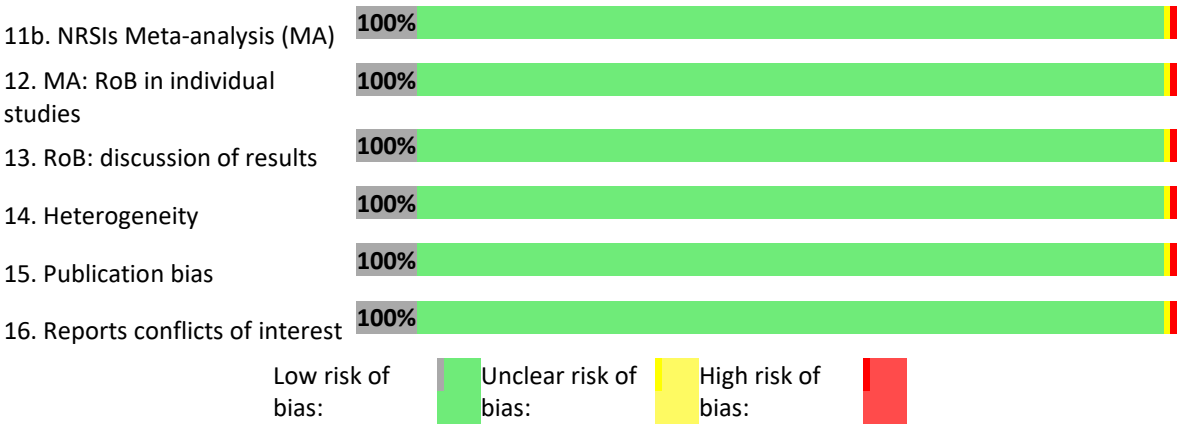


3.3.3 Community based interventions

Table 3.3.3. Community based intervention: risk of bias assessment of included reviews

Author	1. PICO components	2. Protocol	3. Study design explanation	4. Comprehensive search strategy	5. Duplicate study selection	6. Duplicate data extraction	7. Details of excluded studies	8. Description of included studies	9a. Risk of Bias (RoB) assessment (RCTs)	9b. RoB assessment (NRSIs)	10. Funding sources	11a. RCTs Meta-analysis	11b. NRSIs Meta-analysis (MA)	12. MA: RoB in individual studies	13. RoB: discussion of results	14. Heterogeneity	15. Publication bias	16. Reports conflicts of interest
Dolan (2021)	+	+	+	+	-	-	±	+	+	+	-	+	+	+	+	+	+	+
Parker (2021)	+	+	+	+	+	+	±	+	+	±	+	+	n/a	+	+	+	+	+
Wakefield (2021)	+	+	+	+	-	-	-	+	±	+	-	n/a	+	+	+	+	+	+




11b. NRSIs Meta-analysis (MA)
100%
12. MA: RoB in individual studies
100%
13. RoB: discussion of results
100%
14. Heterogeneity
100%
15. Publication bias
100%
16. Reports conflicts of interest
100%
Low risk of bias:
Unclear risk of bias:
High risk of bias:

International Public Policy Observatory (IPPO)
An ESRC funded initiative to provide decision-makers in government at all levels with access to the best available global evidence on the social impacts of the COVID-19 pandemic, and the effectiveness of policy responses. IPPO is a collaboration between the Department of Science, Technology, Engineering and Public Policy (STEaPP) and the EPPI Centre at UCL; Cardiff University; Queen's University Belfast; the University of Glasgow; the University of Auckland and the University of Oxford, together with think tanks including the International Network for Government Science (INGSA) and academic news publisher The Conversation.

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