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Early interventions for first onset of symptoms of mental health conditions: an umbrella review of systematic reviews

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Abstract

Background: Early intervention following mental health symptom onset has great potential in reducing the long-term burden on individuals, families and friends, and society. The main focus in service development and research has been on early intervention in psychosis, but advances have been made for some other mental health difficulties. We aimed to take stock of existing evidence regarding effectiveness, implementation, and experiences of care for early intervention approaches through a systematic umbrella review.

Methods: We included systematic reviews of complex early intervention strategies including more than one component for early symptoms of mental health conditions with typical onset in young people under 25. We searched 4 databases (January 2019 - May 2025) and synthesised results narratively. Quality was assessed using AMSTAR 2.

Results: Twenty-one reviews were included: eleven covering early intervention for psychosis already meeting diagnostic thresholds, four on early intervention for 'at risk' states for psychosis, three on eating disorders, one on bipolar disorder, and two on transdiagnostic approaches. Reviews of early intervention for psychosis suggest that intensive approaches can improve outcomes following first presentation to services, although the success of initiatives to reduce duration of untreated symptoms is less consistent. When most recently reviewed, interventions for those at high risk of psychosis appeared to have limited effectiveness in preventing transition, possibly because comparisons were often made with good-quality case management controls. We found little high-quality evidence regarding other diagnoses, although some early indications of success with eating disorders were reported. No reviews were found on early intervention for depression, anxiety, or

"personality disorders". Stigma and lack of knowledge or support were barriers to rapid access, while insufficient service resources and staffing hindered effective delivery.

Conclusions: Despite its great importance in reducing the global burden of mental ill-health, review evidence on early intervention following symptom onset remains limited, especially for conditions other than psychosis. For psychosis, some approaches now warrant attention to widespread implementation. Innovative approaches for eating disorders have emerged, but treatments supported by substantial and robust trials are urgently needed. Further evidence is also required for conditions including depression, anxiety, bipolar disorder, and "personality disorder".

Keywords: early intervention; mental health; psychosis; umbrella review

Background

Early intervention services aim to identify and treat mental health difficulties as early as possible and thus improve prognosis. Research suggests that around two-thirds of mental health problems have their onset between ages 14-24 [1,2] and in 2019, mental health conditions were the leading cause of disability among young people in Europe [3]. This highlights a pressing need to improve intervention efforts and research focusing on this illness stage [4]. Preventative approaches to mental health problems include strategies for the entire population (universal prevention), for those at greater risk of developing problems (selective prevention), and for those presenting with early signs (indicated prevention) [5]. Indicated prevention typically involves early intervention in primary and community mental health care, targeting individuals who present with early symptoms of a condition. The current review focuses on this, and also on secondary prevention to reduce the impact of illness on people who are still in the early stages of a mental health problem, but now reach a diagnostic threshold for a formal diagnosis [6]. Indicated and secondary prevention are often mingled within the same service for people with early symptoms that may be just above or below a diagnostic threshold [7], and are thus discussed together in this review.

Traditionally, mental health care has adopted a more reactive as opposed to preventative approach [8], however in recent decades early intervention services, which aim to react more quickly, have come to the fore for psychotic disorders, and these models have been shown to improve outcomes and reduce costs [9,10]. As well as reducing the long-term impact of mental ill health, early intervention has the potential to improve physical health outcomes such as rates of cardiometabolic disease [11]. Other reasons to intervene early in mental health conditions include reducing disruption of relationships with family, friends and wider community, maintaining pathways through education and employment (5), and reducing the likelihood of serious incidents occurring while mental health problems remain untreated [6,11].

However, there remain several challenges that hinder broader implementation of early intervention approaches. In the UK, many specialist mental health services, such as Children and Young People's Mental Health Services (CYPMHS, formerly CAMHS) and Eating Disorder services, have high clinical thresholds including severe mental health symptoms and impaired daily functioning for receipt of support – often at 'crisis point' [12,13]. Minoritised groups, people from lower-income backgrounds, disabled people and older (aged 65 or over) people, are also more likely to face delays to initial treatment, have poorer experiences when receiving care, and have reduced access to services [14–17]. Such barriers may contribute to the exacerbation of symptoms which may be prevented if support was offered earlier. Financial and staffing constraints have further limited availability and effectiveness of early intervention efforts. Although funding for mental healthcare has increased in recent years, with the UK spending £12 billion on mental health services in England in 2021/2022, this financial increase is not enough to keep up with the increasing demand [18,19].

Furthermore, the potential of early intervention for first-episode presentations of common mental health problems like depression, anxiety, and eating disorders has received less attention than approaches for individuals with early signs of severe mental illness [4]. This lack of clear models that are underpinned by theory and evidence is likely to impede early intervention efforts [20–22]. Research-based consensus on the best approaches to supporting the full range of mental health problems experienced by those presenting to community-based early intervention services is thus still limited. Our aim in this umbrella review was to take stock of evidence currently available to inform service development and to identify gaps, by addressing the following research questions:

1. What evidence is available from systematic reviews on the effectiveness of early intervention models in the community for people with early symptoms of mental health conditions?

2. What are the facilitators and barriers to these models being implemented as intended and achieving their aims?

3. What are service users', carers', and staff's experiences of these services?

Methods

This umbrella review was conducted by the NIHR Policy Research Unit in Mental Health, based across University College London and King's College London, which presents independent research to inform government and NHS policy in England. It was conducted according to Cochrane guidelines [23] and written according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [24] [**see Additional File 1 for PRISMA checklist]**. The protocol was prospectively registered on PROSPERO (registration number: CRD42024541486).

The protocol was followed apart from the following deviations:

1) Although not explicitly specified in the protocol, we included reviews of carer perspectives;

2) We did not exclude reviews which only reported acceptability if they met all other inclusion criteria.

Search strategy

We searched four electronic databases: MEDLINE via OVID; PsycINFO via OVID; Embase via OVID and The Cochrane Database of Systematic Reviews (CDSR) for relevant systematic reviews published within the last five years (between January 2019 and May 2025). The search strategy combined terms for mental health disorders, early intervention, and systematic reviews [**see Additional File 2 for full search strategy**]. There was no date limit for the primary papers included in reviews and no language restrictions were imposed on the search. Backward citation searches for relevant systematic reviews within the date limits were also conducted.

Eligibility criteria

We included reviews meeting the following criteria:

Population

Included: Populations aged <65, experiencing early symptoms of mental health conditions with a typical peak onset between 11-25 (as this age range is the most important for developing adult identity and social roles and is a period of especially high risk for the onset of longer term mental health conditions), principally depression, anxiety disorders, psychotic disorders, trauma-related conditions, and difficulties resulting in a "personality disorder" diagnosis. 'Early symptoms' include subthreshold symptoms as well as symptoms meeting the full diagnostic criteria for the conditions in question: primary prevention in people not displaying symptoms was not included.

Excluded: Reviews focusing specifically on populations with neurodevelopmental conditions, dementia, or substance use (without co-occurring mental health symptoms), or reviews of services for specific occupational or physical comorbidity sub-groups.

Intervention

Included: Early intervention services or approaches for populations experiencing first onset of mental health symptoms which were designed to increase the speed or ease of access to care, or provide targeted interventions to improve outcomes following the onset of symptoms. We included models that were intended as improvements to usual care for each condition, and that met criteria for complex interventions [25]. This was defined as:

i) Care delivered by more than one person,

ii) Care consisting of multiple components (e.g. psychotherapy AND peer support), or

iii) Interactions between components or contexts of an intervention (e.g. next phase of care administered after a threshold is reached).

Excluded: Reviews of universal or selective prevention, or treatment aimed at recurrent mental health conditions were not eligible.

Context

Included: Community based (mainly outside of hospital care or residential services), or services that work with people during acute admissions as well as in the community.

Excluded: Reviews of online-only interventions were not eligible, although interventions provided across a range of formats including online provision were included.

Outcome

Included: Reviews were required to report at least one of:

- The effectiveness of early intervention services/approaches (duration of untreated illness or change in symptom severity, quality of life, social functioning, or goal-based outcomes such as employment).
- Implementation outcomes, and facilitators and barriers to implementation.
- Experiences of service users, carers or staff.

Excluded: Reviews reporting only cost-effectiveness outcomes or barriers to more general help-seeking for mental health support were excluded.

Study designs

Included: Published peer-reviewed systematic reviews with or without meta-analyses, realist reviews, rapid reviews, scoping reviews, or qualitative meta-syntheses. We defined systematic reviews as those that searched at least three different bibliographic databases (as this optimises searches in systematic reviews [26,27], and is a usually a requirement in criteria for high quality systematic reviews), and used systematic methods to address potential bias. Quantitative systematic reviews were also required to have conducted a quality appraisal of included studies – this did not apply to qualitative reviews or scoping reviews as quality appraisal of studies for these is yet to become standard practice [28].

Excluded: Non-systematic, narrative reviews, protocols of reviews, and umbrella reviews were not eligible.

Screening

After de-duplication, 25% of titles and abstracts were dual-screened independently by two of three reviewers (JL, JY, LG) in Covidence [29] to ensure consistencies of application of eligibility criteria. The remaining 75% were screened by one reviewer. At the full text screening stage, 100% of reviews were independently double screened by at least three members of the review team (BL-E, JL, JY, JH, LG, NR, PB, SJ), with discrepancies resolved through team discussion and consultation with a senior member of the team. Reasons for exclusion of all reviews assessed at full text were noted.

Data extraction

Data extraction was conducted in Microsoft Excel after piloting the extraction form on 10% of included reviews and making any necessary amendments. Data for each included paper were extracted in duplicate by two independent members of the review team (JL, JY, JH, LG, NR, PB), with discrepancies identified and resolved. The data extracted included information about reviews (e.g. review type, objectives, number of included studies), primary studies (e.g. date range, study designs), search strategies (e.g. databases, inclusion/exclusion criteria), participant details (e.g. gender, age, mental health condition), additional information (e.g. quality appraisal, conclusions and limitations), and reported outcomes of the reviews (e.g. types of services, effectiveness, implementation facilitators/barriers, and service user experiences).

Quality appraisal

Quality appraisal was also conducted in duplicate by two review team members (JL, JY, JH, LG, NR) using the AMSTAR 2 Checklist (A MeaSurement Tool to Assess Systematic Reviews) [30]. Given the broad range of review types included in this umbrella review, such as scoping reviews and qualitative meta-syntheses, we adapted AMSTAR 2 for scoping reviews and qualitative reviews

following the method used by Cooper et al. [31] [**see Additional File 3 for AMSTAR2 ratings]** [30,31]. The review team independently assessed reviews blind with conflicts resolved through discussions between two of three authors (LG, JL, JY). Review quality was assessed according to guidance by Shea and colleagues [30] by focusing on the number of critical or non-critical weaknesses. These were also adapted as outlined in Additional File 3.

Reviews without meta-analyses were not assessed on meta-analytical methods and risk of bias of individual studies in meta-analyses, nor publication bias. Rapid reviews were scored on the same criteria as for systematic reviews, following Cochrane guidance (i.e. including the critical domain of risk of bias assessment) [32].

Evidence synthesis

We synthesised data for each of our review questions using a narrative approach [33], grouping reviews by their population focus (mental health condition) and subsequently by the characteristics of early interventions they included. Effectiveness outcomes were narratively synthesised as there was not enough homogenous meta-analytic data to be combined meaningfully, however meta-analytic effect sizes were reported if included in the original review. Where only some models of support met our inclusion criteria, we provide information on the studies included in reviews as well as specifically those meeting our inclusion criteria, for which we report the outcomes.

Lived experience researcher involvement

Four lived experience researchers (experts by personal experience of mental health difficulties) were part of the research team and involved at various stages throughout the project, including attending regular team meetings, reviewing the systematic review protocol, contributing to synthesis of results and write-up.

Results

Study selection

The search identified 3,258 references, and 25 reports were identified from citation tracking. 144 potentially relevant full-text articles were assessed for eligibility, following which 123 were excluded [**see Additional File 4 for a list of excluded reviews with reasons for exclusion]** [34–156]. Twenty-one reviews met eligibility criteria and were included. Figure 1 provides further information on the full search and screening procedure.

- **INSERT FIGURE 1 AROUND HERE -**

Figure 1: PRISMA flow diagram

Quality of included reviews

On the modified AMSTAR 2 scale, 3/21 reviews were of critically low quality, 4/21 were of low quality, 10/21 were of moderate quality, and 4/21 were of high quality. The most common critical limitations included: not accounting for risk of bias in individual studies when interpreting and discussing results of the review (3/14 reviews which were not qualitative or scoping designs), and not registering a protocol prior to conducting the review (3/21 reviews).

Study characteristics

Of the 21 included reviews, three were quantitative systematic reviews with narrative syntheses [157–159], three were scoping reviews [21,160,161], seven were quantitative systematic reviews with meta-analyses [162–164], two were rapid reviews [165,166], two were systematic reviews and narrative syntheses of facilitators and barriers (including mixed methods primary studies [167,168]), two were thematic meta-syntheses [169,170], one was a systematic review and components

network meta-analysis [171], and one was a mixed-methods systematic review to inform a health technology assessment (HTA) [172].

Fifteen reviews related to psychosis [157,158,160,162–164,167–171,173–176]. Three focused on early interventions for eating disorders [165,166,172]. Only one review focussed on bipolar disorder examined an intervention considered complex and is thus described in this review [159]. Two reviews included transdiagnostic early intervention models for a variety of mental health problems, specifically in young people [21,161], of which one had a broader intervention focus on health pathways for indigenous youth, including one primary study meeting our criteria.

Reviews primarily included studies conducted in high or middle-income countries (n=19), such as the UK, USA, Canada, and Australia. One review [157] focused on low- or middle-income countries (LMICs), including studies conducted in India, Iran, Nigeria, Nepal, Tunisia, and Uganda. Another review [160] focused on Latin American settings, specifically in Argentina, Brazil, Chile, and Mexico. The sample size of primary studies included in reviews ranged from 5 to 36,309, with the total range of ages included in samples ranging from 10 to 60 years.

Sixteen reviews reported on the effectiveness of the intervention in improving outcome measures [21,157,159–166,171,172] and six on reducing duration of untreated illness [158,160,163,165,166,172]. Eight reported outcomes relating to implementation, including barriers and facilitators to successful services and patient access [21,157,160,161,166–168,170]. Three reviews reported outcomes relating to experiences of care [162,163,169].

We explored the extent of overlap in included primary studies to ascertain whether results of some studies may bias overall conclusions. Six trials were included in four reviews (all pertaining to interventions for at-risk mental states for psychosis), eight studies were included in three reviews, while 34 studies were included in two reviews [**see Additional File 5 for overlapping studies]** [177–226].

Only 4 out of 21 reviews [165,166,170,172] stated that lived experience researchers (LERs) worked on the review design process. Of these 4 reviews, 3 focused on early intervention for eating disorders, and one for psychosis. Further characteristics of each study are summarised in the following sections.

Data synthesis

Early interventions for psychosis and people at high risk of psychosis

Fifteen reviews synthesised research on early intervention approaches for psychosis. Firstly, we synthesised reviews of early intervention approaches that are intended to improve prognosis for people who show signs of being in the prodromal stage of the development of psychosis, variably described as interventions for 'at risk', 'high risk' or 'ultra high risk' mental states. Four quantitative systematic reviews focused on interventions targeting at-risk mental states, all focused on the aim of preventing transition to psychosis and employing meta-analytical techniques [173–176].

Another type of intervention in psychosis is aimed at reducing the Duration of Untreated Psychosis (DUP) and improving pathways to care for people already experiencing psychosis but not yet treated. We found three systematic review in this area [158,160,163], and two qualitative meta-syntheses that described structural barriers deterring patients and carers from seeking help from early intervention models [168,170]. A final type of early intervention in psychosis is aimed at improving prognosis for patients experiencing First-Episode Psychosis (FEP) once they have presented to services. Two reviews [160,163] included interventions across both primary aims of reducing DUP and improving prognosis, and four reviews synthesised findings about improving prognosis once they have presented to services [157,162,164,171]. We also identified qualitative syntheses of facilitators to successful implementation [167] and experiences of initial engagement with these service models [169]. A single additional review focused on the effect of early intervention in psychosis on suicidal behaviour [164]. Tables 1, 2 and 3 describe individual review

characteristics and outcomes for strategies targeting high-risk mental states, strategies to reduce DUP and improve pathways to care, and strategies to improve prognosis respectively.

Early intervention services to improve prognosis for individuals at high risk for psychosis

Four reviews of interventions to improve prognosis and reduce duration in psychosis among individuals at high risk were included. One moderate-quality review focussed on adolescents [175], and the other three (two high-quality and one moderate-quality reviews) included both adults and adolescents [173,174,176]. All these systematic reviews synthesise data from randomised controlled trials, most of which compared the treatment of interest to an active comparator: in many recent studies a sample of people at risk of psychosis is identified and an active treatment such as CBT is combined with some form of case management and compared with a control condition also involving CBT. There was some overlap between these reviews - 6 trials were included in all four reviews, 6 in three reviews, and 4 in two reviews.

In terms of meta-analytical strategies, the high-quality 2019 Cochrane Review [174] and the 2021 moderate-quality systematic review [176] adopted very different approaches to grouping studies, with the 2019 study [174] avoiding grouping studies where treatment and control conditions were not closely similar, and so often reporting the results of a single study. In contrast, the 2021 study [176] took a radically different approach, meta-analysing all therapies combined and separately estimating the effects of pharmacological and of psychological therapies. These reviews have largely been superseded by the latest systematic review in this area as it includes some large studies not published at the time of the previous reviews [173]. This review, published in 2025, was of high quality and reported no clear benefit of any type of intervention for at risk mental states, attributing this more pessimistic finding than in earlier reviews to inclusion of negative findings from three large recent trials [173]. Authors of the review noted that recent studies tend to involve active control groups offering forms of case management, and it may be that such case management is in itself

effective in reducing transitions and improving outcomes. A single moderate-quality review focussed only on effectiveness for adolescents, grouping together multiple forms of intervention. This found that, compared to control conditions, preventive interventions were ineffective in reducing transition to psychosis or in reducing the occurrence of depressive symptoms, but there were beneficial effects on symptoms (positive, negative, and total symptoms) and functioning. The results were graded low to moderate certainty of evidence [175].

Table 1: Reviews of early intervention models aimed at improving prognosis for people at high risk for psychosis

Author ID **Review type** **Quality**	**Included primary studies**	**Type of early intervention**	**Description**	**Reported meta-analytic outcomes**
Frearson 2025 [175] Systematic review Moderate quality	Total included (N): 24; 12 RCTs 5 NRSIs and 7 naturalistic studies. Main geographical coverage: International (high-income countries) Publication dates: 2007-2023	Improving prognosis in patient groups with a mean age of 14-17 years.	This study compared different types of intervention including cognitive behavioural social skills training, family focused therapy, and Family and Community Oriented Integrative Treatment Model.	**Reducing transition to psychosis**: no significant effect: (OR = 0.711, 95% CI = 0.149–3.395, p = .669). 3 studies, comparing: omega-3 polyunsaturated fatty acid (PUFA) vs coconut oil placebo, psychoeducational multi-family groups vs declined participation, and family aided assertive community treatment (FACT) vs community care. Low certainty of evidence. **Positive symptoms**: significant, beneficial effect (SMD = 0.38, 95% CI = 0.06–0.70, p = .02). 3 studies, comparing: omega-3 PUFA vs. coconut oil placebo, FACT vs. community care, and glycine. Moderate certainty of evidence. **Negative symptoms**: significantly, beneficial effect: (SMD = 0.58, p = .004, 95% CI 0.19, 0.98). 3 studies, comparing: omega-3 PUFA vs. coconut oil, FACT vs. community care, glycine vs. sucrose, moderate certainty of evidence. **Total symptoms**: significantly, beneficial effect: (SMD = 0.68, p = .002, 95% CI 0.25, 1.11). 2 studies, comparing: omega-3 PUFA vs. coconut oil placebo, glycine vs. sucrose, moderate certainty of evidence. **Depressive symptoms**: not significantly more effective than control conditions: (SMD = 0.94, 95% CI = 0.79–2.66, p = .29). 2 studies, comparing: omega-3 PUFA vs. coconut oil placebo, glycine vs. sucrose. Moderate certainty of evidence. **Functioning**: significant, beneficial effect: (SMD = 0.94, 95%CI = 0.05–1.84, p = .04). 4 studies, comparing: omega-3 PUFA vs. coconut oil, family and community oriented integrative treatment

				model vs. treatment as usual, FACT vs. community care, CBT vs. Non-Directive Reflective Listening). Low certainty of evidence.
Kuharic 2019 [174] Systematic review High quality	Total included (N): 20 Main geographical coverage: International; -(high-income countries) Publication dates: 1998-2018 Study designs: Quantitative (RCT); n=20)	Improving prognosis.	The study included randomised controlled trials (RCTs) evaluating interventions for participants older than 12 years, who had developed a prodromal stage of psychosis, and tried to estimate the effects of different components of therapies.	No evidence of a clear difference between the two treatments for transition to psychosis (by 12 months) for: ○ Olanzapine + supportive intervention vs placebo + supportive intervention ○ Cognitive behavioural therapy + risperidone vs cognitive behavioural therapy + placebo ○ Cognitive behavioural therapy + needs-based intervention + risperidone vs needs-based intervention (12 months, 4 years) ○ Cognitive behavioural therapy + placebo vs supportive therapy + placebo ○ Cognitive behavioural therapy + supportive intervention vs non-directive reflective listening + supportive intervention ○ Cognitive behavioural therapy + risperidone vs supportive therapy + placebo ○ Family treatment vs enhanced care ○ Integrated treatment vs. standard treatment (2 years) **Cognitive behavioral therapy + supportive therapy vs supportive therapy** Evidence of a clear difference in favour of CBT + supportive therapy on transition to psychosis (at 12, 18 and 24 months), not sustained at 4 years follow-up. Notes: Some reported results are from single studies (as opposed to meta-analyses). All findings based on very low- or low-quality evidence.
Mei 2021 [176]	Total included (N): 26 Main geographical coverage: International	Improving prognosis	Included studies with intervention complexity: CBT (7 studies), cognitive remediation (5 studies), family	Transition to psychosis: Psychological therapies significantly reduced transition to psychosis at 12-months (RR 0.50, 95%

Systematic review Moderate quality	(mainly high-income countries) Europe, North America Australia, Asia, multinational. Publication dates: 2002-2020 Study designs: Quantitative (RCT); n=26)		interventions (3 studies), CBT + risperidone (2 studies), and single studies of neurocognitive remediation and integrated psychological intervention.	CI 0.31, 0.80; I2 = 13%). The effect was sustained up to 4 years. Pharmacological interventions alone were not effective. Positive psychotic symptoms: Assessing psychological and pharmacological interventions together revealed a significant effect on reducing positive psychotic symptoms at 12 months follow-up compared to control (SMD -0.15, 95% CI -0.28, 0.01, p = 0.04). The effect was no longer significant when pharmacological and psychological interventions were assessed separately. Treatment effects were not significantly different between experimental and control treatments for any other outcome. This includes symptom outcomes (attenuated negative psychotic symptoms, mania, depression, anxiety, and general psychopathology), symptom-related distress, functioning, quality of life, and treatment acceptability.
Minichino 2025 [173] Systematic review High quality	Total included (N): 24 Main geographical coverage: International; -(high-income countries) Europe (*N* = 8, 35%), North America (*N* = 7, 30%), Australia (*N* = 6, 26%), and Asia (*N* = 3, 9%). Publication dates: 2002-2023 Study designs: Quantitative (RCT); n=24)	Improving prognosis	Included studies contributing to our outcomes data: Interventions included CBT (10 studies), family-focused interventions (2 studies), and one RCT assessing each of the following: a sleep intervention, a systemic therapy approach, cognitive remediation, and an integrated psychotherapy approach (i.e., CBT, cognitive remediation, and psychoeducation).	Overall, there was no evidence that any of the investigated active interventions had a sustained and robust effect on any of the investigated outcomes in CHR-P, when compared to control interventions, including transition to psychosis. **Transition to psychosis:** CBT was not superior to control interventions at 6, 12, or +36 months. It was superior at 18 months, but the effects were not sustained. 6 months: (9 RCTs; OR: 0.84; 95% CI: 0.52–1.35; p = 0.47) 12 months (9 RCTs; OR: 0.64; 95% CI: 0.39–1.06; p = 0.08) 18 months (3 RCTs; OR: 0.49; 95% CI: 0.27–0.90; p = 0.02) +36 months (2 RCTs; OR: 0.58; 95% CI: 0.31–1.07; I2: 0%; p = 0.08) Cognitive remediation, sleep intervention and systemic therapy were not superior to control

				(single studies) The single studies into integrated psychotherapy (CBT + cognitive remediation + psychoeducation combined) and TMS both reported significant effects in reducing the risk of transition to psychosis. One trial of family focused therapies demonstrated efficacy in reducing transition risk, whilst the other did not (a meta-analysis was not conducted due to substantial differences in the outcome time points and the treatment approaches). CBT plus risperidone reduced the risk of transition to psychosis in CHR-P at 6 months (OR: 0.29, 95% CI: 0.09–0.91; I2: 0%; p = 0.03), but not at 12 months (OR: 0.55, 95% CI: 0.24–1.28; I2: 0%; p = 0.17) or in the single study reporting data at 18 months. There were no significant differences in attenuated psychotic symptoms for any of the active interventions. Attenuated Psychotic symptoms: CBT, 6 months (8 RCTs; SMD:-0.35; 95%CI: -1.03 to 0.34; p=0.32) 12 months (8 RCTs; SMD: -0.35; 95%CI: -0.80 to 0.13; p=0.13) 18 months (3 RCTs; SMD: -0.18; 95%CI: -0.42 to 0.07; p=0.16) CBT + Risperidone, 6 months: (2 RCTs; 95%CI: -0.33 to 0.37; p=0.92) 12 months (2 RCTs; SMD: 0.00; 95%CI: -0.38 to 0.38; p=1.00) There were no significant differences in negative symptoms for any of the active interventions. Negative Symptoms: CBT, 6 months (5 RCTs; SMD: -0.29; 95%CI: -1.02 to 0.43; p=0.43) 12 months (4 RCTs; SMD: -0.32; 95%CI: -1.22 to 0.58; p=0.49)

				CBT + Risperidone, 6 months: (2 RCTs; SMD: 0.13; 95%CI: -0.68 to 0.94; p=0.76) 12 months (2 RCTs; SMD: 0.12; 95%CI: -0.23 to 0.47; p=0.49) There were no significant differences in acceptability any of the active interventions. Acceptability at the end of treatment: CBT: (9RCTs; OR 0.96, 95%CI: 0.76-1.22; p=0.75) FFT: (2RCTs; OR: 0.63; 95%CI: 0.33-1.21; p=0.16) CBT + Risperidone (2RCTs; OR: 1.25; 95%CI: 0.46-3.42; p=0.66) There were no significant differences in functioning for any of the active interventions. CBT; 6 months (8 RCTs; SMD: 0.11; 95%CI: -0.26 to 0.49; p=0.55) 12 months (7 RCTs; SMD: 0.20; 95%CI: -0.10 to 0.49; p=0.19) 18 months (3 RCTs; SMD: 0.23; 95%CI: -0.02 to 0.48; p=0.07) CBT + Risperidone; 12 months (2 RCTs; SMD: 0.01; 95%CI: -0.34 to 0.36; p=0.96)
CI: Confidence Interval; CBT: Cognitive behavioural therapy; CBT-F: Cognitive behavioural therapy (CBT-F) (French and Morrison protocol); FACT: family aided assertive community treatment; NBI: Needs-Based Interventions; OR: Odds Ratio. PMFG: psychoeducational multi-family groups, PUFA: polyunsaturated fatty acid.				

Strategies to reduce DUP and improve pathways to care

Reviews described interventions to reduce DUP such as training healthcare professionals, particularly in primary care, to identify signs of FEP and refer patients to appropriate services [160], as well as multi-component public health strategies [158,163]. These public health strategies were aimed at members of the general public experiencing early signs of FEP and their family and friends, and at professionals in healthcare and elsewhere who are likely to come into contact with people experiencing FEP. Strategies included alterations to pathways to care, awareness campaigns on the signs of FEP and available support, and educational interventions for specific groups [158].

Effectiveness: There was mixed evidence on the effect of models in reducing DUP [158,160] – although they may result in higher functioning levels at service entry [163], and identify people experiencing long-term symptoms (>2 years), evidence for this was mixed [158]. Models with multiple targets (general public, non-health professionals and health professionals) delivered across longer periods of time may be more likely to reduce DUP [158]. Salazar de Pablo et al. [163] also reported that all early intervention in psychosis models, whether they have reducing DUP as a primary aim or are mainly focused on improving prognosis following first contact with services, have a small overall effect on DUP (g=0.17, 95% CI: 0.06-0.28).

Implementation: Training healthcare staff to recognise psychosis and refer individuals earlier had good acceptability and increased skills [160], although lack of time and poor coordination between services were barriers to the implementation of this intervention. Two reviews (one high- and one low-quality) synthesised evidence on barriers and facilitators to accessing early intervention services (primarily those with a main aim of improving prognosis), highlighting areas with scope to achieve further reduction in DUP. Both reviews identified as barriers to access negative perceptions of psychiatric services and medication, as well as stigma associated with seeking mental health support, or a lack of knowledge (among both patients and health professions) about key signs of psychosis [168,170]. Misalignment between available resources and patient needs also resulted in

delayed access to care through short appointments and a lack of continuity of care [170]. Availability of high-quality support from family and friends, collaborative and flexible services, and provision of accurate information (for example through public health campaigns) were reported as facilitators to navigating complex care systems in one low-quality review [168].

Table 2 provides further information on reviews describing evidence on early interventions to reduce DUP and improve pathways to care.

Table 2: Reviews of early intervention models aimed at reducing DUP and improving experiences of pathways to care

Author ID **Review type** **Quality**	**Included primary studies**	**Type of early intervention**	**Description**	**Reported outcomes**
Aceituno 2021 [160] **Scoping review** **Moderate quality**	N: 10 Main geographical coverage: Latin America: Argentina, Brazil, Chile, Mexico Publication dates: 2007-2019 Study designs: qualitative (n=2), RCT (n=2), observational (n=6) Primary studies contributing to outcomes for intervention models meeting our criteria: 2 Study designs: Observational (n=1), qualitative (n=1)	Interventions to reduce DUP	Training conducted in primary care to support healthcare professionals to identify signs of FEP and refer patients to appropriate services.	**Effectiveness:** ***DUP:*** Training healthcare professionals improved DUP following training (reported in one study, no further information). **Implementation:** Good acceptance of the training and increased skills of healthcare workers as a result. Lack of time and poor coordination between services acted as barriers to uptake (reported in one study).
Causier 2024 [170] **Thematic meta-synthesis** **High quality**	N: 19 Main geographical coverage: International (high-income countries) Publication dates: 2001-2023 Study designs: Qualitative (n=18), mixed methods (n =1)	Interventions to reduce DUP	Experiences of service users seeking help. Structural barriers that deter patients and carers from continuing seeking help from EIP to improve prognosis. Community based multidisciplinary services to support people experiencing	**Barriers:** *Knowledge and resource:* Many studies reference a lack of personal knowledge and resources - e.g. stereotypes regarding professional care, financial constraints or not knowing where to go or how to get there. *Complex process of care initiation***:** Complexity of health care systems patients and carers reported difficulties finding appropriate services, resulting in frustration and "battling" with professionals. *Varying level of professional expertise***:** Studies reported that while some were supportive and facilitated help seeking, others misinterpreted symptoms and gave unhelpful advice, resulting in undiagnosed or untreated psychosis. *Negative encounters in healthcare:* experiencing restrictive care, lack of communication and empathy from professionals. *Misalignment between patient needs and service resources***:** a lack of continuity of care or time-restricted

			FEP.	appointments meant that help often came too late.
Murden 2024 [158] Systematic review with narrative synthesis Low quality	N: 19 Main geographical coverage: International (high-income countries) Publication dates: 1996-2022 Study designs: Quantitative (no further specification; n=14)	Interventions to reduce DUP	Public health interventions targeted at multiple populations to reduce DUP through early identification and improved pathways to care: Interventions were targeted either at multiple populations (general population, healthcare professionals and non-healthcare professionals), or targeted the general public only, or non-healthcare professionals likely to come into contact with a person experiencing FEP only, for example employment organisations. Interventions involved multiple components to improve identification, including changes to service configuration (e.g. to include early intervention services, easy access to early detection teams and open referral policies), advertisements and campaigns to improve knowledge about psychosis, treatment and available interventions.	**Effectiveness:** ***DUP*:** Across all included studies, the median DUP ranged from 28 to 227.5 days in intervention groups and 30 to 430 days in control groups. Interventions targeting multiple populations and those lasting >12-months, appeared to be more likely to result in a reduction in DUP, however this was not a universal finding. *Models targeting the general population, healthcare professionals and non-healthcare professionals*: 3/7 reported significant reductions in mean or median DUP although two of these were low quality. 4/7 reported no significant differences in DUP (all medium to high quality). *Models targeting only the general population*: 1/2 found a significant decrease in the median DUP for the adult population but not the youth population, 1/2 found a significant increase in the median DUP following the intervention programme, both were of medium quality. *Models targeting non-healthcare professionals only*: Neither of the two programmes targeting only non-healthcare professionals found significant differences in mean or median DUP compared to controls. Both studies were of relatively high quality. Two studies reported that there were more participants with a DUP of 2+ years in the intervention arm, suggesting that the programmes may have brought individuals into treatment who may not otherwise have been detected.
Salazar de Pablo 2024 [163] Quantitative systematic review with meta-analysis Moderate	N: 33 Main geographical coverage: International (high-income countries) Publication dates: 1996 - 2023 Study designs: Unclear, although a control group was required (n=33)	Interventions to reduce DUP	Detection of early signs and symptoms through community awareness and outreach efforts to reduce delays in access to care. Examples include workshops for potential referrers al (e.g. community mental health or general healthcare services), educational, or community/governmental organisation professionals, and general public awareness campaigns, including TV or radio advertisements, theatre advertisements, high school art contests,	**Effectiveness:** ***DUP*:** Across both early detection and intervention models, DUP was reduced compared to controls (g=0.17, 95% CI: 0.06-0.28) with a small effect size. ***Baseline symptom severity:*** Compared to individuals in the control group, individuals in the early detection group had better functioning levels (g = 0.281, 95% CI = 0.073–0.488) when they entered services. Total psychopathology (g = 0.186, 95% CI = −0.173 to 0.546), admission rates (g = 0.179, 95% CI = −0.146 to 0.504), quality of life (g = 0.154, 95% CI = −0.217 to 0.525), positive symptoms (g = 0.078, 95% CI = −0.126 to 0.283), negative symptoms (g = 0.078, 95% CI = −0.064 to 0.219), employment rates (g = 0.025, 95% CI = −0.124 to 0.173), and depressive symptoms (g = 0.003, 95% CI = −0.157 to 0.162), did not differ between both groups. **Pathways to care:** Early detection interventions were also reported to decrease police referrals (P=.001) and increase self and family

quality			and sports sponsorships.	referrals (P=.04) in one study, and individuals with FEP were more likely to receive clinical care without previous mental health services contact (P=.003) in one study.
Tiller 2023 [168] Mixed-methods systematic review and narrative synthesis of facilitators and barriers Low quality	N: 10 Main geographical coverage: International (high-income countries) Publication dates: 2010-2020 Study designs: Quantitative cross sectional (n=3), qualitative semi-structured interviews (n=5), focus group (n=1), chart review (n=1)	Structural barriers that deter patients and carers from seeking help from EIP to improve prognosis, and facilitators to access	Barriers to accessing a range of services focused on improving prognosis for people with FEP.	**Barriers:** *Mental health stigma* was identified in 3 quantitative and 6 qualitative studies as a significant barrier to accessing EIP services. One quantitative study also identified structural barriers within the broader mental health services which prevented access to EIP services. *Limited knowledge* among the public (e.g. believing symptoms did not warrant treatment or being unaware of treatment options) was a significant barrier to accessing services in 4 studies while 3 also identified lack of knowledge among primary care clinicians, e.g. through misattribution of symptoms to anxiety or depression as barriers. *Lack of supportive familial relationships* was identified as a barrier in 2 studies. **Facilitators:** *Accurate information* about psychosis and mental health services was highlighted in 4 studies as facilitating access, for example through public health campaigns. *Consistent emotional and practical support* facilitated access to services in 6 studies. *Collaborative relationships* with interpersonally effective professionals and flexible service systems regarding pace of engagement facilitated maintenance of early engagement with services in 4 studies.
DUP: Duration of Untreated Psychosis; CI Confidence Interval; FEP: First Episode Psychosis				

Early intervention services to improve prognosis

The majority of included reviews described Early Intervention in Psychosis (EIP) service models with a main aim of improving prognosis following presentation to services. Services varied across countries and regions [167] but models typically included combinations of rapid access to antipsychotic medication, individual or group psychological interventions, case management, and family involvement, delivered by multidisciplinary, collaborative teams in the community and were compared with usual community mental health care for people presenting with psychosis. Some also described social interventions such as employment support [157,171] and an assertive outreach style as central to service offerings [162]. EIP services reviewed in Latin American [160] and Low and Middle Income Countries (LMICs) [157] described similar services, although some adaptations such as greater importance of case managers and additional provision of physical health interventions were also described [157].

One review [157] included a study focused on an alternative, less resource-intensive model which was considered potentially suitable to LMIC settings. This involved depot antipsychotic medication prescription alongside an assertive monitoring programme by mental health nurses to encourage continued engagement.

Effectiveness: A high-quality Cochrane review of EIP trials concluded with low certainty that EIP services increased likelihood of recovery, reduced admissions to psychiatric hospitals, and improved functioning. The review also concluded with moderate certainty that EIP services reduce the risk of disengagement from services at the end of treatment by half compared to treatment as usual, although general psychotic symptoms at end of treatment did not significantly differ [162].

A review investigating the effect of early intervention in psychosis on suicidal behaviour reported a significant association between EIP and a one-third reduction in both deaths by suicide and suicide attempts [164]. However, this review was of critically low quality, primarily due to not justifying combining data from randomised and non-randomised studies in a meta-analysis or exploring

potential publication bias. The significant reduction in suicide and suicidal behaviour was also found in a moderate-quality review which reported that EIP models resulted in significantly larger improvements over time than usual for measures of quality of life, employment, and functioning, but that evidence regarding improvements in symptoms and remission was mixed [163]. Moderate-quality reviews of EIP services in LMICs and Latin American countries reported that in these contexts there were fewer relapses and reduced symptomatology at follow-up compared to controls in an RCT as well as over time in longitudinal studies [157,160].

One moderate-quality review [171] explored which individual components of EIP services are most effective (combined with antipsychotic medication). Although psychological interventions reduced rates of negative symptoms at 3-month follow-up, at longer (12-month) follow-ups evidence of this effect was less clear. However, case management was beneficial for reducing both negative and positive symptoms, with large effect sizes.

In environments with limited resources, combining a depot antipsychotic with assertive monitoring was reported to be an effective alternative treatment model for first-episode schizophrenia [157].

Implementation: Moderate-quality evidence suggested that the key components of EIP services can be adapted and provided in resource-poor settings such as LMICs [157], and that studies in Latin America demonstrated feasibility and initial penetration [160], although few studies were scaled up from initial local implementation.

Facilitators of successful implementation of early intervention services to improve prognosis noted in two (moderate- and low-quality) reviews [157,167] included collaboration and communication with other health services, and sufficient training capacity and supervision within teams, which in turn supported recruitment and retention of staff. Adequate funding, existing service structures, and support for the model from, for example, political leaders, were also noted as facilitators in the low-quality review [167].

Experiences of care: Two moderate-high quality reviews briefly reported that satisfaction ratings were higher for patients receiving EIP services than controls [162,163]. Qualitative literature suggested that strong relationships with staff supported increased agency, sense of identity, and confidence to interact with others, and that early interventions supported readjustment to normal life, although the lack of continued, ongoing support following discharge reduced optimism for the future for carers (described in one low-quality review [169]).

Table 3 provides further information on reviews describing early interventions to improve prognosis for FEP.

Table 3: Reviews of early intervention models to improve prognosis for FEP

Author ID Review type Quality	Included primary studies	Type of early intervention	Description	Reported outcomes
Aceituno 2021 [160] Scoping review Moderate quality	**Total included:** 10 Main geographical coverage: Latin America: Argentina, Brazil, Chile, Mexico Publication dates: 2007-2019 Study designs: Mixed - qualitative (n=2), RCT (n=2), observational (n=6) **Primary studies contributing to outcomes for intervention models meeting our inclusion criteria:** 8 Study designs: qualitative (n=1), RCT (n=2), observational (n=5)	Early intervention to improve prognosis for psychosis	**EIP services to improve prognosis for people experiencing FEP:** Multidisciplinary teams in stand-alone services for FEP (including low dose antipsychotics, psychological interventions such as psychoeducation and family involvement or social skills training; in line with international guidance for EIP services).	**Effectiveness:** Two RCTs of one EIP programme which reported effectiveness outcomes reported that participants receiving EIP services had better outcomes in terms of fewer relapses, shorter hospitalisations and lower symptomatology compared to those not receiving EIP services. **Implementation:** All included EIP services were successfully established and operated as planned within local service networks, indicating feasibility of the model in these settings. There was no report on affordability, costs, or cost-effectiveness of programmes, and although some continued within their hospitals or research centres, none had been scaled up to national level. One study reported that over 95% of families stated that the service was appropriate for their needs.
Farooq 2024 [157] Systematic review with narrative synthesis	**Total Included:** 18 Main geographical coverage: International (low- and middle-income countries) Publication dates: 2008-2023 Study designs: RCT (n	Early intervention to improve prognosis for psychosis	**EIP services to improve prognosis for people experiencing FEP, provided in India and Canada:** Services adopted protocols of case management, individual and family intervention, psychoeducation and CBT. Adaptations of EIP in LMIC settings (e.g. India): Referrals completed by hospitals, GPs, families/caregivers, young people	**EIP:** **Effectiveness:** Results of 3 studies reporting pre-post effectiveness of the same EIP services in India (as well as comparator services in Canada) suggested that these services significantly improve positive and negative symptoms of psychosis over 2 years (P<.001 and P<.03 for positive and negative, respectively). **Implementation:** The essential components of EIP can be adapted and provided in resource-poor settings and it may be feasible to establish these services in LMIC. Adaptations may be required, including involving family and modifications in the role of different team members in EIP. Dropout rates in India (5.4%) were considerably lower than the comparator Canadian site (18.95%). **Facilitators for successful implementation of EIP model:** Improved communication, early identification and treatment

Moderate quality	= 4), quasi-experimental (n=1), observational studies (n=11), qualitative study (n=2) **Primary studies contributing to outcomes for intervention models meeting our criteria:** Feasibility and effectiveness of depot antipsychotic combined with an AMP in FEP (n=1), study design: Observational pre-post study Effectiveness of EIP in India through comparison with a similar service in Canada- n=3, study designs: Observational pre-post study (n=1), pre-post studies with comparator in non-LMIC: n=2)		themselves; case managers played important roles in coordinating psychosocial services for patients. individual/family psychoeducation delivered by clinical psychologist; supported employment programmes and vocational rehabilitation; physical health interventions and monitoring; evaluation and quality improvement. **Depot antipsychotic combined with an assertive monitoring programme:** Flupentixol plus psychoeducation with regular assessments, described as a potentially simpler model intended for LMICs.	adherence was suggested to facilitate implementation and prevent service disengagement. Family involvement during treatment is a strong predictor of service engagement. **Antipsychotics combined with assertive monitoring:** **Effectiveness:** In environments with limited resources, combining a depot antipsychotic with assertive, regular monitoring and psychoeducation is effective management for first-episode schizophrenia.
Puntis 2020 [162] Quantitative systematic review with meta-	N: 4 Main geographical coverage: International (high-income countries) Publication dates: 2002-2017 Study designs: Individual RCT (n=3),	Early intervention to improve prognosis for psychosis	**EIP services to improve prognosis for people experiencing FEP:** Based in the community and provide a comprehensive package of support, delivered by specialist, stand-alone, multidisciplinary teams. All included studies provided case management, psychological treatment and family therapy, and most also provided	**Effectiveness:** ***Recovery:*** EIP services resulted in more participants in recovery than treatment as usual at EOT (low certainty evidence, 73% versus 52%; RR 1.41, 95% CI 1.01 to 1.97; meta-analysis of 2 studies, 194 participants). ***Admissions*****:** EIP services resulted in fewer admissions to psychiatric hospital than TAU at EOT (low certainty evidence, 52% versus 57%; RR 0.91, 95% CI 0.82 to 1.00; meta-analysis of 4 studies, 1145 participants). ***Fewer psychiatric hospital days:*** (low certainty evidence, MD -27.00 days, 95% CI -53.68 to -0.32; 1 study, 547 participants). ***General psychotic symptoms*****:** No evidence of a difference between EIP services and TAU (SMD -0.41, 95% CI -4.58 to 3.75; meta-analysis of 2 studies, 304 participants).

analysis High quality	cluster-RCT (n=1)		antipsychotic medication.	***General functioning:*** EIP services resulted in greater general functioning at EOT compared to TAU (low certainty evidence, SMD 0.37, 95% CI 0.07 to 0.66; meta-analysis of 2 studies, 467 participants). **Experiences:** There was a clear difference between early intervention and TAU, favouring early intervention, in satisfaction with care (SMD: 0.69, 95% CI: 0.51-0.88, meta-analysis of 2 studies, 463 participants, low certainty evidence).
Salazar de Pablo 2024 [163] Quantitative systematic review with meta-analysis Moderate quality	N: 33 Main geographical coverage: International (high-income countries) Publication dates: 1996 - 2023 Study designs: Unclear, although a control group was required (n=33)	Early intervention to improve prognosis for psychosis	**Early intervention to improve prognosis, which can also include strategies to ensure timely access to care:** Provision of optimal treatments in early phases of the psychotic disorder, based on multidisciplinary teams of mental health professionals for individuals with early-onset psychosis, providing multimodal psychosocial and psychopharmacological interventions following efforts to detect psychosis symptoms early.	**Effectiveness:** Meta-analysis showed that compared to the control group, early intervention improved outcomes longitudinally including quality of life (g = 0.600, 95% CI = 0.408–0.791), increased employment rates (g = 0.423, 95% CI = 0.134–0.712), improved negative symptoms (g = 0.417, 95% CI = 0.153–0.682), decreased relapse rates (g = 0.364, 95% CI = 0.117–0.612), reduced hospitalisations (g = 0.335, 95% CI = 0.1980.468), improved total psychopathology (g = 0.298, 95% CI = 0.014–0.582), improved depressive symptoms (g = 0.268, 95% CI= 0.008–0.528), and improved functioning (g = 0.180, 95% CI = 0.065–0.295) at follow-up (length unclear). No group differences were found for positive symptoms (g = 0.337, 95% CI= −0.022 to 0.696) and remission rates (g = 0.306, 95% CI= −0.066 to 0.677). Also, individual studies included in the review reported the following benefits compared to TAU: more friends after 1 year, greater improvements in cognitive symptoms, perceived autonomy after 2 years, less likely to live in supported housing after 5 years, lower admission rates and days hospitalised, and less frequently admitted under the Mental Health Act or in locked units. However, no intervention vs control group differences were found in the rates of police involvement and use of seclusion in one study. Individuals in the early intervention vs control group had fewer suicide attempts in one study and death by suicide in 3 (all P < .05), lower rates of antipsychotics (2 studies) and at lower dose. **Access:** Some studies with both early detection and intervention components did not find significant group differences in help-seeking attempts (one study) while others found advantages for the intervention vs the control group regarding decreased delay in help-seeking (p = .01) and in reaching mental health services (p = .003). Authors concluded that results support the implementation of EIP with both an early detection and intervention component using robust and comprehensive treatments, even if the impact on DUP is limited. **Experiences:** Satisfaction with care was high in the intervention group (3.9/5 for patients and 4/5 for relatives) in one study, However, family satisfaction, after adjusting for baseline characteristics, was not higher anymore in the intervention vs the control group in another.
Tahmazov 2025 [164] Quantitative systematic review with	N: 9 Main geographical coverage: International (high-income countries) Publication dates: 2005-2018	Early intervention to improve prognosis for psychosis	**EIP services aiming to improve prognosis for people experiencing FEP:** all studies included: pharmacotherapy, psychotherapy, psycho-social therapies, as well as case-management or related device (care coordinator, keyworker, team member in charge of coordination).	**Effectiveness:** **Deaths by suicide**: EIP was associated with a one-third reduction in deaths by suicide. Adjusted OR = 0.66, 95% CI, 0.49 to 0.88, p = 0.005. **Suicide attempts**: EIP was associated with a 30% reduction in suicide attempts. Adjusted OR=0.66, 95%CI, 0.50 to 0.86;

meta-analysis Critically low quality	Study designs: RCT: (n=3), controlled trial: (n=2), Retrospective cohort: (n=1), Controlled historical study: (n=3)			p=0.002.
Williams 2024 [171] Systematic review with components network meta-analysis to explore which components of EIP contribute to effectiveness Moderate quality	N: 37 Main geographical coverage: International (high-income countries) Publication dates: 1999-2022 Study designs: RCT: (n=37)	Early intervention to improve prognosis for psychosis	**EIP services aiming to improve prognosis for people experiencing FEP:** Included provision of specialised intensive treatment and support for people in early stages of psychotic disorder. Services generally provide antipsychotic medication, but can offer a range of additional services such as case management (individualised treatment with a specific fixed point of contact), psychotherapies (individual or group psychological treatment), family interventions (interventions involving carers or family members), and social interventions (interventions to address adverse social conditions resulting from psychotic symptoms, such as difficulties with employment).	**Effectiveness:** Network meta-analysis showed the incremental effect of adding different individual components to an EIP package which includes pharmacotherapy as standard: Psychological interventions reduced rates of negative symptoms at 3-month follow up (incremental SMD, −0.24; 95% CI, −0.44 to −0.05, p = 0.014). At 1-year follow-up, the addition of case management was beneficial for reducing rates of negative psychotic symptoms (incremental SMD, −1.17; 95% CI, −2.24 to −0.11, p = 0.030) and positive psychotic symptoms (incremental SMD, −1.05; 95% CI, −2.02 to −0.08, p = 0.033). No single component was associated with clinically important differences in the rates of dropouts by EOT. There was preliminary evidence that the addition of psychological interventions may vary from no clinically relevant effect to an important improvement in social functioning (incremental SMD, −0.52; 95% CI, −1.05 to 0.01, p = 0.052) one year after the treatment delivery.
Syntheses of qualitative studies:				
Loughlin 2020 [169] Thematic meta-synthesis of service-user	N: 14 Main geographical coverage: International (high-income countries, mainly the UK and Australia) Publication dates:	Experience of initial engagement with EIP services	**EIP services aiming to improve prognosis for people experiencing FEP:** Community based multidisciplinary services to support people experiencing FEP.	**Experiences of access and initial engagement with EIP**: Two main themes reported: *Strong relationships with EIP staff:* This supported positive experiences. Factors that foster strong therapeutic relationships include staff adopting a calm, warm and approachable style of interaction, using “plain” language, and having a non-judgemental and non-dismissive stance. Such relationships then increased one's sense of agency, encouraged one to interact with others, and increased sense of identity. *Life after EIP*: Service-users highly valued the goal of achieving some “normality” in life and being able to sustain this, achieving reintegration into society and coping with ‘everyday’ situations. This goal is highly subjective and more

and carer experiences of engaging with early intervention services Low quality	2004-2018 Study designs: Qualitative (IPA: n=6, thematic analysis: n=5, grounded theory: n=3)			important to service users than other goals, such as symptom reduction. Carers echoed this sentiment and reported an immediate sense of relief following the involvement of EIS. A significant minority of carers additionally frustration that the carer's emotional needs were not considered by EIS and they were concerned about their ability to cope with both the enduring practical implications of caring for a loved one experiencing psychosis, and their own emotional responses.
O'Connell 2021 [167] Mixed-methods systematic review and narrative synthesis of facilitators and barriers Low quality	N: 23 Main geographical coverage: International (high-income countries) Publication dates: Between June to August 2020, and again in January 2021 Study designs: Descriptive accounts of implementation (e.g. case study, narrative review, feasibility study)	Early intervention to improve prognosis for psychosis	**EIP services aiming to improve prognosis for people experiencing FEP:** The included EIP service models varied across countries and regions. Models included hub-and-spoke models, standalone teams, and services that focus on collaborative partnerships. Services tended to offer a range of psychosocial services, psychiatric and medication reviews, and often assertive case management.	**Facilitators for successful implementation of EIP model:** ***System:*** Adequate resources, services and structures set up before implementation, which support integration of the new model, organisational support such as through "champions" and a system-wide belief in the ethos of the service, including political interest. ***Service*:** Collaboration and communication with outside groups and services, coherence of the EIP programme, such as drawing from existing evidence and showing fidelity to the model, consistency in standardised patient outcomes strengthens the ability to compile evidence on value, training capacity, small caseloads, strong referral links, staff supervision, adequate infrastructure. ***Staff:*** Knowledge of EIP, engagement with clients, staff recruitment and retention.
CI: Confidence Interval; EIP: Early Intervention in Psychosis; EOT: End of Treatment; FEP: First-episode Psychosis; IPA: Interpretive Phenomenological Analysis; OR: Odds Ratio; RCT: Randomised Controlled Trial; SMD: Standardised Mean Difference; TAU: Treatment as usual				

Early interventions for Eating Disorders

Three reviews synthesised research on early intervention approaches for eating disorders. One rapid review included evidence on models which included specialist care provision within standard mental health pathways to support identification and referral to treatment [166]. Another rapid review included both models aiming to reduce the duration of untreated eating disorder (DUED) and models aiming to improve prognosis once contact had been made with services [165], however both of these reviews were of critically low quality. One Health Technology Assessment (HTA) synthesised evidence for early interventions to improve prognosis [172]. Tables 3 and 4 describe individual review characteristics and outcomes for strategies to improve DUED and pathways to care, and strategies to improve prognosis, respectively.

Strategies to reduce DUED and improve pathways to care for people with ED

Strategies to reduce duration of untreated symptoms identified in two rapid reviews included single session interventions (SSIs) within assessment sessions to prevent a long wait for specialist support [165], and multidisciplinary networks and linkages between primary care and specialist services [165,166]. Linkages were included as part of a multi-component campaign (Psychnet) which also included internet-based self-help for people experiencing symptoms and a public health literacy campaign in one instance [165]. Stepped care models were also discussed as a means to facilitate rapid access, where patients first receive self-help which can be provided even when symptoms are at an early stage, with subsequent “step-up” to outpatient and further to inpatient care if they do not respond to the preceding step [166].

Effectiveness: As only two critically low-quality rapid reviews included models to reduce DUED or improve pathways to care, with few high-quality primary studies evaluating effectiveness, drawing conclusions on effectiveness is challenging. The impact of the multi-component Psychnet model was only evaluated in one small primary study, with results suggesting no reductions in DUED [165]. However, one retrospective study demonstrated increased detection of eating disorders and improved quality of care through developing better links between primary and specialist care [166].

SSIs provided after assessment improved some symptoms over time (before further intervention) in one primary study [165], however no further information was provided. Furthermore, based on one primary study each, both specialist referral pathways to a multidisciplinary service and stepped care as part of specialist services were reported to reduce severity of anorexia nervosa (AN) or bulimia nervosa (BN), respectively [166].

Barriers to Implementation: One critically low-quality review [166] cited long wait lists, patient-related barriers such as a need for control, lack of physician knowledge, and stigma as key barriers to accessing early interventions for eating disorders.

Table 3 provides further information on reviews describing early intervention models to reduce DUED and improve pathways to care for eating disorders.

Table 3: Reviews of early intervention models to reduce DUED and improve pathways to care

Author ID Review type Quality	**Included primary studies**	**Type of early intervention**	**Description**	**Reported outcomes**
Koreshe 2023 [165] Rapid review Critically low quality	**Total included:** 35 Main geographical coverage: International (high-income countries) Publication dates: Jan 2019 - May 2021 Study designs: Review (n=8), RCT (n=9), Quasi-experimental (n=5), Statistical modelling (n=1), Cross sectional (n=9), Repeated measure (no follow up; n=1), Longitudinal (n=1) **Primary studies contributing to outcomes for intervention models meeting our criteria:** 2 Study designs: Comparison of patients before and after intervention (n=1), comparison of patients who received intervention to historical cohort before implementation (n=1)	Interventions to reduce duration of untreated eating disorder	**Psychnet:** Multicomponent intervention designed to improve early identification and speed of access in Germany. Includes public health literacy campaign, internet-based self-help for people experiencing symptoms of eating disorders, multidisciplinary networks of practitioners to discuss interventions and cases, and implementation of a specialist outpatient service to refer to. **Single-Session interventions:** In response to long waiting lists in specialist eating disorder clinics in Western Australia, psychoeducation-based single session interventions are offered at assessment to provide support while waiting for longer treatments.	**Psychnet:** **Effectiveness**: **DUED:** Investigation of Psychnet did not demonstrate reductions in DUED among those with AN (1 study). **Single-Session Interventions (SSI):** **Effectiveness:** One study of SSIs to reduce wait times for specialist clinics reported that this reduced binge eating episodes and self-induced vomiting and overeating in participants.
Pehlivan 2022 [166] Rapid review Critically low quality	**Total included**: 63 Main geographical coverage: International (high-income countries) Publication dates: 2009-2021 Study designs: Review (n=17), RCT (n=8), secondary analysis of RCT (n=4), observational (n=32), model of care (n=1) **Primary studies contributing to outcomes for intervention models meeting our criteria:** 8	Reorganisation of the local service systems to facilitate access to specialist eating disorder care	**Developing links between primary care and specialist services**, and establishment of multidisciplinary services to improve referral pathways for ED. **Stepped care models** were also described as service models aimed at facilitating early access: here, patients first receive self-help, then can be "stepped up" to outpatient and then further to inpatient care if they do not respond to the preceding step.	**Links between primary care and specialist services:** **Effectiveness:** One retrospective cohort study reported that establishing a multidisciplinary service reduced the standardised mortality ratio for AN in the region from 11.2 to 2.9 for a sample of 1,064 patients referred to the service. ***DUED*:** Access to specialist care pathways led to increased detection of EDs at rates two to three times higher than in areas without a specialist ED clinic, and linkages between primary care and specialist services in areas where they were available had a significant impact on the consistency and quality of care provided once adolescents with ED were detected (1 study). **Barriers to effective implementation:** Long waiting lists due to high demand- one study reported use of active (opt-in) waitlists to combat this. Stigma around help seeking, particularly patients with symptoms of non-AN eating disorder. Symptom-related barriers e.g. need for control, low self-perceived impairment.

	Links between primary care and specialist services: single group cohort (n=4), case control (n=1) Stepped care: RCT (n=2), single group cohort (n=1)			Physician related barriers: under-recognition of some EDs. **Stepped care models** **Effectiveness:** Stepped care as part of specialist services improved binge eating disorder and bulimia nervosa symptoms (1 study) and quality of life (1 study). An RCT assessing the effectiveness of a stepped care model for BN in the US found stepped care to be significantly superior to usual care at 1-year follow-up in terms of binge eating and compensatory behaviours. **Cost effectiveness:** There is also evidence from 2 studies that stepped care models utilising specialist ED services within local health care systems are more cost-effective.
RCT: Randomised controlled trial; DUED: Duration of untreated eating disorder; ED: Eating disorder; AN: Anorexia Nervosa; BN: Bulimia Nervosa				

Early intervention services to improve prognosis for people with ED

First Episode and Rapid Early Intervention (FREED) was described in two reviews [165,172]. This model of early intervention originates from the UK and is delivered within some UK NHS service systems. It has a holistic and person-centred approach, providing evidence-based psychotherapy tailored to the individuals' needs and the stage of their condition. Another early intervention service in Australia, Emerge-ED, was also described [172] and is modelled on FREED.

Effectiveness: Evidence from seven non-randomised studies included in the moderate-quality HTA review [172] and single pilot RCT included in the critically low-quality rapid review [165] indicated that participants who received FREED-based models experienced reduced waiting times compared to a retrospective treatment as usual (TAU) cohort as well as an improvement across a range of symptoms up to 12 months follow-up, compared to a comparison group. This included improved weight at longer follow-up points [165,172]. However, samples overlapped in available primary studies and evidence consisted primarily of retrospective cohort and pilot study data, making interpretation of estimated differences challenging.

Table 4 provides further information on reviews describing early interventions to improve prognosis for ED.

Table 4: Reviews of early intervention models to improve prognosis for ED

Author ID Review type Quality	**Included primary studies**	**Type of early intervention**	**Description**	**Reported outcomes**
Hamson 2023 [172] HTA (no meta-analysis) Moderate quality	**Total included:** 14 Main geographical coverage: International (high-income countries) Publication dates: 2012-2023 Study designs: Cohort study (n=12), RCT (n=2) **Primary studies contributing to outcomes for intervention models meeting our criteria:** 8 Study designs: Controlled pre-post cohort (n=6, with some overlapping samples), retrospective cohort study (n=1), single-arm pre-post cohort study (n=1)	Early intervention to improve prognosis for eating disorders	**FREED**: a UK service model in eating disorder services which aims to offer early assessment and treatment according to prespecified wait time targets alongside evidence-based treatment such as CBT, Maudsley anorexia nervosa treatment for adults, and tailoring for developmental needs and early stage of illness. **Emerge-ED**, an Australian	**Effectiveness:** Findings from 7 non-randomised FREED-based studies (including 6 with a TAU comparator) and 1 single-arm non-randomised study of Emerge-ED suggest that compared to both before the intervention and TAU controls, participants who were included in early intervention program service models experienced significant reductions in eating disorder symptomology (4 studies), eating disorder cognition-related outcomes (1 study), bingeing and purging behaviour episodes (3 studies), laxative use (3 studies), excessive exercise behaviour (2 studies), and restrictive dieting behaviour (1 study). Participants provided early intervention also showed reduced psychological distress (3 studies), psychological impact due to eating disorders (3 studies), depression, anxiety, and stress (3 studies), improved function and well-being (1 study) and work and social adjustment (2 studies). Increases in mean BMI were reported up to 12-month follow-up (3 studies), or were higher than in retrospective TAU cohorts (2 studies). At longer follow-up measures, a higher proportion of FREED participants were described as weight recovered compared to TAU participants (3 studies). Overall there was a lack of comparative evidence, making interpretation of estimated differences challenging. **DUED:** Two FREED-based studies suggested that, when compared to a retrospective TAU cohort, those who were involved in the FREED study experienced mixed findings for duration of eating disorder onset to specialist contact (DUSC) but had lower DUED.

			model, is modelled after FREED (n=1 study).	
Koreshe 2023 [165] Rapid review Critically low quality	**Total included:** 35 Main geographical coverage: International (high-income countries) Publication dates: Jan 2019 - May 2021 Study designs: Review (n=8), RCT (n=9), Quasi-experimental (n=5), Statistical modelling (n=1), Cross sectional (n=9), Repeated measure (no follow up; n=1), Longitudinal (n=1) **Primary studies contributing to outcomes for intervention models meeting our criteria**: 1 Study design: Pilot RCT*	Early intervention to improve prognosis for eating disorders	**FREED**: a UK service model in eating disorder services which aims to offer early assessment and treatment according to prespecified wait time targets alongside evidence-based treatment such as CBT, Maudsley anorexia nervosa	**Effectiveness:** Results of a FREED pilot suggested that provision of psychological treatments produced significant reductions in ED symptoms and increases in BMI. ***DUED*:** FREED participants had a mean waiting time for treatment of 42 days compared to 62 days in the control group between referral and assessment.

			treatment for adults, and tailoring for developmental needs and early stage of illness.	

CBT: Cognitive Behavioural Therapy; DUED: Duration of Untreated Eating Disorder; FREED: First Episode and Rapid Early Intervention; HTA: health technology assessment; RCT: Randomised Controlled Trial.

*****This rapid review included a large number of interventions, however, detail was very limited, meaning we were only able to clearly include the FREED model, however it is possible that other interventions such as digital interventions in some instances also were integrated into more complex forms of support.

Early intervention for Bipolar Disorder

One moderate-quality review included early interventions to improve prognosis for bipolar disorder [159]. This review primarily included pharmacological and psychological interventions but also included one early intervention service meeting inclusion criteria, described in one primary study. The BD Specialised Mood Clinic was a service for patients discharged after their first, second, or third hospital admission for bipolar disorder, offering both pharmacological interventions and group-based psychoeducation provided by a multidisciplinary team.

Effectiveness: The review reported that in one included study, the risk of subsequent re-admission was found to be significantly lower in individuals treated in the specialised mood clinic (Hazard Ratio (HR) = 0.60, 95% CI 0.37-0.97) compared to those in standard care [159].

Experiences: The review reported that participants reported greater satisfaction with care in the specialised mood clinic (no further detail) [159].

Further information on the review describing early intervention to improve prognosis for bipolar disorder is available in Table 5.

Early intervention for depression, anxiety, and "personality disorders"

We found no reviews matching our criteria of early intervention approaches for depression, anxiety, or emerging "personality disorder".

Transdiagnostic early intervention models

Two reviews synthesised information relating to intervention services which did not have a specific mental health disorder focus, instead aiming to support young people with early symptoms of any mental health problem. One review synthesised information relating to integrated community-based youth hub models (ICYSHs), which provide comprehensive 'one-stop-shop' services for young people in community-based settings, integrating mental health services such as counselling with other community and social services such as housing support [21]. ICYSHs commonly include a multidisciplinary team and family engagement to improve service delivery. A second review of a

range of interventions for indigenous youth included one additional referral-based intervention to improve access to mental health care [161]. This intervention established a multi-disciplinary triage team from youth health services, school-based services, and child and adolescent mental health services which worked to identify youth experiencing symptoms and referred them to counsellors for early intervention support [161].

Effectiveness: There is limited evidence of effectiveness of transdiagnostic early intervention models, with one moderate-quality review finding that only 11 of 110 papers describing integrated community youth hubs reported effectiveness outcomes, and only two of these comparing to a control. However, the review stated that those that did report outcomes generally reported these as positive, with improvements in psychological distress and psychosocial functioning over time [21]. The referral-based intervention for youth demonstrated improvements in social and psychiatric functioning, a reduced risk of clinically significant mental health outcomes, and a decrease in the use and impact of drugs and alcohol following implementation [161].

Barriers and facilitators to implementation: Mainly positive feedback regarding intervention appropriateness and acceptability was reported by the single primary study evaluating the referral intervention, alongside improved service accessibility and coordination [161]. A low threshold for acceptance, funding support and involvement of skilled professionals were cited as facilitators.

Barriers in service implementation for ICYSHs were found to be limited service availability and a shortage of healthcare staff. Some evidence suggested that populations seen in the hubs were experiencing more distress and impairment than the model was designed to address [21].

Further information on the reviews describing transdiagnostic early intervention models is available in Table 5.

Table 5: Reviews of early intervention models for bipolar disorder and transdiagnostic mental health problems

Author ID Review type Quality	Included primary studies	Type of early intervention	Description	Reported outcomes
Bipolar disorder				
Ratheesh 2023 [159] Systematic review with narrative synthesis Moderate quality	**Total included**: 25 Main geographical coverage: Not reported Publication dates: 1/1/1979 - 14/9/2022 Study designs: RCT (n=16), non-randomised studies (n=9) **Primary studies contributing to outcomes for intervention models meeting our criteria: 1** Study design: RCT	Early intervention to improve prognosis for bipolar disorder	**BD Specialised Mood Clinic** A service for patients discharged after their first, second, or third hospital admission for bipolar disorder. The clinic offers pharmacological interventions and group-based psychoeducation, provided by general practitioners, outpatient psychiatrists and community mental health services.	**Effectiveness:** The risk of subsequent re-admission was found to be significantly lower in individuals treated in the specialised mood clinic (HR = 0.60m 95% CI 0.37-0.97) compared to those in standard care (1 study). **Experiences:** Participants reported greater satisfaction with care in the specialised mood clinic (1 study).
Transdiagnostic symptoms				

Jongen 2023 [161] Scoping review Moderate quality	**Total included:** 15 Main geographical coverage: International (high-income countries) Publication dates: Jan 1990 - Oct 2021 Study designs: Evaluation (n=9), programme description (n=6) **Primary studies contributing to outcomes for intervention models meeting our criteria: 1** Study design: pre-post experimental study with qualitative exploration	Early intervention to support youth experiencing a range of mental health symptoms to access support	A referral-based intervention with free counselling support for youth with mild to moderate mental health problems in New Zealand. The intervention focused on establishing a multidisciplinary, cross-agency triage team alongside contract counsellors.	**Effectiveness:** Significant improvements were found for participants' social and psychiatric function, reduced risk of clinically significant mental health concerns and reductions in the use of drugs and alcohol (1 study). **Implementation:** Mostly positive participant feedback regarding intervention appropriateness and acceptability, and reported intervention effectiveness for improving service accessibility and service coordination (1 study). ***Facilitators***: Funding support, involvement of skilled and experienced mental health professionals, support from professionals to engage in programmes if assistance needed, free provision of services, and a low threshold for service acceptance (1 study).
Settipani 2019 [21] Scoping review Moderate quality	**Total included:** 110 Main geographical coverage: International (high-income countries) Publication dates: Year established: 1984 - 2017 Study designs: Primarily descriptions of implementation **Primary studies contributing to outcomes for intervention models meeting our criteria: 11** Study designs: Single group cohort: n=9, controlled cohort: n=2	Early intervention to support youth experiencing a range of mental health symptoms to access support	Described 8 integrated youth support hubs: Headspace; Orygen Youth Health (Australia); Jigsaw (Ireland); Forward Thinking Birmingham (UK); Youth One Stop Shops (New Zealand); YouthCan IMPACT; Foundry; ACCESS Open Minds (Canada). Models focus on young people from adolescence to age 25 and on intervening early following experience of a broad range of symptoms, possibly before diagnostic criteria are met. Support is provided in accessible and non-stigmatising settings, for example, shopping centres or storefronts, or in settings designed to be youth friendly. Service provision included a range of professionals, such as psychologists, social workers, psychiatrists, counsellors, and youth staff. Often, sexual health services are provided alongside mental health support. Drug and alcohol, and vocational support was also described by some services. CBT was usually described as the most common psychological intervention provided, alongside supportive counselling and psychoeducation. Some described more tailored support such as DBT for emotion dysregulation and transitions to specialist services for more severe presentations such as eating disorders or high risk of suicide.	**Effectiveness:** Research on youth mental health or functional outcomes following intervention was limited, only 11 studies reported outcomes. Of these, only one (non-randomised) study of the HEADSPACE model included a control group and one further study of the same model compared single-group data to comparative information from other cohorts. One study reported that reductions in psychological distress over time were significantly greater in the HEADSPACE group than those who received no or an alternative treatment, while the other reported that functioning and distress improved significantly in 31% of youth compared to 19% of youth seen in an outpatient clinic in the Netherlands. Pre-post studies of HEADSPACE, as well as JIGSAW, MOM power group, Spilstead model, youth one-stop shops, Forward thinking Birmingham and youth wellness centres generally reported that more youth improved in symptoms of psychological distress than deteriorated or stayed the same, and that most responded well to the support and signposting given. **Barriers to implementation of the model:** Limited availability of individual aspects of the model and workforce shortages are challenges for the field more broadly and also impact ICYSHs. Additionally, several studies suggested that at least some of the youth presenting for services were experiencing more distress and impairment than models may have been

			Infrastructure and coordination included structured processes to facilitate ongoing collaboration, cross partnership service integration, and outcomes monitoring. Care coordinators were frequently described as positive additions to service models.	primarily designed to address.

CBT: Cognitive Behavioural Therapy; CI: Confidence Interval; DBT: Dialectical Behaviour Therapy; HR: Hazard Ratio; RCT: Randomised controlled trial.

Discussion

This umbrella review brings together evidence for early intervention approaches across different types of mental health problems, as currently reported in systematic reviews. Prevention, including secondary prevention, is a stated priority at the level of governments and international bodies such as the World Health Organisation [228,229], yet for most of the common conditions with onset in young adulthood there is very limited evidence to how this can be achieved. Research in the area has mainly focused on prevention or improvement of prognosis in psychosis (including prevention targeting people at high risk of psychosis, reducing the duration of untreated psychosis, and early intervention for individuals who have developed psychosis).

Most early intervention initiatives included in reviews were aimed at prompt and effective treatment to improve prognosis for people presenting to services with psychosis. EIP services of this type were reported to improve recovery across a range of measures such as functioning, although evidence was less clear on impacts on psychotic symptom severity [160,162,163,171]. There was also some evidence that EIP services reduce suicidal behaviour and deaths by suicide [163,164]. One review [171] provided novel preliminary evidence on the effectiveness of specific components of EIP, suggesting that psychological interventions and case management may be more beneficial than pharmacotherapy alone. This offers an evidence-based approach to identifying 'essential' components of EIP, building upon Addington et al.'s [230] work using expert consensus. The economic benefits of EIP have been highlighted across health systems, which can be attributed to reduced uptake of crisis and inpatient services and better employment outcomes [231,232].

Few reviews reported experiences of care although the available evidence suggested that patients are more satisfied with early intervention efforts than traditional treatment services [159,162], and that early intervention in psychosis can contribute to improved agency and re-integration within society after the end of treatment [169]. The reported experiences of service users in their lives after EIP (for example the importance of social reintegration, and increased ability to handle difficult situations) have been deemed among the most important outcomes of general treatments for psychosis by service users [233]. This stresses the effectiveness of early intervention in psychosis from a service-user perspective. It would additionally be of benefit to further explore specifically how early intervention models may improve experiences of mental health support.

Some eating disorders services also aimed to improve prognosis following a first presentation to services, although evaluative evidence is so far very limited for early interventions meeting the criteria for complex interventions. However, initial evaluation from observational studies of outcomes of the FREED model compared to TAU suggests that a similar holistic, multidisciplinary approach taken by EIP services may also support people experiencing early symptoms of eating disorders [165,172]. The importance of early management of eating disorders has been stressed in the literature, and many interventions which did not meet our criteria for complex interventions were described in these reviews (for example online interventions which may target a wider population who may not access specialist ED Services [165]). However, this umbrella review highlights the need for more systematically reviewed, high-quality evidence for complex early intervention services to support identification and treatment of ED symptoms.

We found very little review evidence for early interventions to support people experiencing early symptoms of common mental health problems such as anxiety and depression. Responding to this

gap in the literature, our team has conducted a systematic review of this field and included international evidence on complex early intervention models for achieving more rapid access to services and improving prognosis [234]. One included review focused on transdiagnostic community hub models which may be potentially promising in improving symptom severity, reducing wait times, and preventing exacerbation of symptoms in conditions such as depression and anxiety [21], but there was a lack of high-quality primary evidence such as controlled studies available for such services. Given the rise in prevalence of anxiety and depression among young people in the last few decades globally [235–237], there is also a need for the current evidence base, which consists of primarily single-group evaluations, to be supplemented with controlled comparative studies. Finally, we found almost no evidence for early intervention approaches for other mental health conditions, such as bipolar disorder, where we found only one model of complex early intervention described within one review [159]. As for emerging "personality disorders" we are aware that some published studies have reported innovative approaches for early detection and intervention for individuals at risk of a "personality disorder" diagnosis with emerging trial evidence [238], however, we found no recent systematic reviews on "personality disorders" – a gap in the literature.

Another type of early intervention approach involves endeavours to reach and engage with services at an earlier stage people who have a condition but are currently not in treatment, thus reducing their duration of untreated symptoms and hopefully improving prognosis. A variety of models with this aim have been tested in psychosis, with mixed success (33, 35, 38), and some preliminary evidence has also been obtained on models aimed at reducing duration of untreated symptoms in eating disorders (40, 41). Acquiring evidence on this aspect of early intervention may have been limited by the substantial methodological challenges in carrying out trials for interventions targeting whole populations, such as public health campaigns or stigma reduction initiatives. Despite this, some reviewed evidence has demonstrated varying levels of success in including a range of

intervention components to support early identification, including public education, stigma reduction, and improvement in connections between services. Further investigation is needed to explore which approaches are most effective and how best to achieve sustained implementation. Knowledgeable healthcare professionals and ensuring the availability of services to support rapid referrals were reported as facilitators to successful early intervention across diagnoses [166,167,231].

Aligned with a large evidence base that stigma significantly affects help seeking and so access to a broad range of mental health support [239,240], reviews reported that negative perceptions of services alongside societal and personal stigma impacted access to early interventions, particularly for psychosis and eating disorders. Lack of resources, such as sufficient specialist services to meet demand or adequately trained healthcare staff, also impeded access for those experiencing symptoms of eating disorders and common mental health problems [21,166]. This is aligned with previous calls for additional funding in this area [241,242], particularly regarding support hubs for young people [243]. Findings also suggested that lack of knowledge regarding the nature of symptoms and ways to seek help could prevent timely access to care. Support from family and friends was reported to ameliorate this by facilitating navigation of complex care systems in one review of EIP [168], supporting previous qualitative evidence on the role of family in identifying symptoms and subsequently, available support [244].

Finally, the most ambitious early intervention strategies are aimed at preventing full onset of a condition such as psychosis in individuals identified as at high risk. Regarding such interventions for people at high risk of psychosis, interventions examined in trials currently do not appear clearly more effective than control conditions. Control conditions in recent studies tend to be active with

substantial packages based on case management, or 'needs based care' as well as early assessment and identification of potential prodrome symptoms [173]. Active case management for individuals at high risk of psychosis is not currently available to most people in most parts of the world, and its benefits thus appear worth investigating further: as well as potentially reducing transitions to psychosis, offering case management to people to high risk of psychosis may facilitate prompt treatment if full-blown psychosis does occur. The single moderate-quality systematic review focused solely on intervention for adolescents at high risk of psychosis reported no clear evidence on reducing transition to psychosis, although there was some evidence of beneficial effects of preventative interventions on symptoms and functioning. We did not find systematic reviews of complex interventions to prevent onset among individuals at high risk of other conditions.

Strengths and limitations

This systematic umbrella review provides a broad overview of the state of the evidence for early intervention approaches across a number of symptom presentations, including the impact of these services on effectiveness, experiences, and implementation, highlighting current gaps in the evidence base. These evidence gaps are significant in most instances, primarily due to a lack of primary research comparing early intervention models to controls for most diagnoses, limiting conclusions that can be drawn. We found little to no systematically reviewed evidence for early intervention strategies for depression, anxiety, and behaviours and difficulties resulting in a "personality disorder" diagnosis. It has been suggested that young people presenting to care with these difficulties may not be identified, or that many clinicians believe that a diagnosis of a "personality disorder" necessitates specialist psychotherapy programmes which cannot be accessed rapidly [245], thus potentially inhibiting the development of early interventions in this field.

Umbrella reviews by definition also seek to answer broader research questions through synthesis of syntheses [246], necessitating a lack of detailed focus on individual primary research, such as specific intervention and control protocols which may vary between individual primary studies. Umbrella reviews also entail a time-lag in evidence synthesis [246] which may mean that some recent high-quality research in this area has not been summarised here as it has not been reported in reviews. We have tried to limit the heterogeneity in the present review and ensure it is manageable in scope and relevant by using clear inclusion criteria for complex interventions, and we assumed that interventions with substantial impact were likely to involve multiple components, including mechanisms both for ensuring prompt identification and initiation of multidisciplinary treatment. However, it is possible that reviews of simpler but effective interventions have been omitted. In some cases the intervention to which people were randomised is likely to have included only one component that was different from controls who were also receiving a complex intervention such as case management. There is heterogeneity in the studies included in the present review in terms of different synthesis methods employed by the included reviews (systematic, scoping, rapid, and qualitative), different stages at which early intervention takes place and different conditions involved. These factors have contributed heterogeneity to the present umbrella review, but also allowed us to present a broad overview of the current state of the evidence, appropriate to the research questions and potential evidence needs of policy makers and service planners.

Implications for research, policy and practice

Results suggest that early intervention models can be effective in improving prognosis for people experiencing symptoms of psychosis meeting diagnostic thresholds. EIP models which are individualised, multidisciplinary and provide rapid access to evidence-based care have a substantial evidence base and therefore, effective implementation of these approaches should be considered a priority. Further research could focus on examining best approaches to implementation and scaling

up of successful models in a range of settings, strategies for maintaining gains longer term, and understanding the critical ingredients in the model. Future research in the area of high-risk states for psychosis could usefully establish the effectiveness of case management or 'needs based care' alongside refining and developing new interventions based on scientific advances in understanding high-risk mental states (50).

Although evidence included in systematic reviews was markedly lacking in controlled effectiveness studies for most other early intervention approaches, alongside limited longer-term exploration of impact, both are important to understand the true economic and societal impacts of early interventions, and should be a priority for both primary research and review syntheses in the future to support provision of care across mental health conditions and prevent further exacerbation of symptoms.

With one recent RCT for an early intervention model for bipolar disorder [159] and some early controlled evaluations for the FREED model for eating disorders [172] included in reviews, our results highlight the urgent need for further exploration of the effectiveness of early intervention approaches for eating disorders, bipolar disorder, depression, anxiety disorders, and behaviours and difficulties resulting in a "personality disorder" diagnosis, alongside up-to-date systematic reviews in all these areas to ensure the evidence is readily available for service planners and policymakers. More widely, research into interventions to target transdiagnostic underlying risk factors for depression and anxiety (e.g., repetitive negative thinking), improved prediction of health trajectories, the integration of assessment and early intervention into primary care and the development of scalable, low-intensity intervention models are important potential avenues of research. Only two reviews reported evidence of the effects of early intervention models on suicide, both reporting a significant reduction in deaths by suicide and suicidal behaviour due to early intervention in psychosis [163,164]. Globally, suicide is the second leading cause of death among females aged 15-29, and the third leading cause of death for males in this age group [247]. In

England and Wales in 2023, suicide was the leading cause of death among people aged 20 to 34, accounting for almost a quarter of all deaths registered in that age group [248], There is an urgent need for further research about the potential for early intervention in other conditions to save young lives.

Further, there is limited available evidence at present for effective approaches to reduce duration of untreated illness, although integration of specialist support with clear pathways for referral has been highlighted as potentially helpful. This is a clear target for additional primary research which could further consider the barriers faced by those experiencing early symptoms in accessing care. Research should also seek to have greater involvement of researchers with lived experience, which was limited in currently available syntheses. We note that only 4 out of the 21 included reviews reported that lived experience researchers worked on the design process. It is possible that the involvement of lived experience researchers was underreported - shifts in academic culture to support both the employment of more researchers with lived experience and to support them to openly draw from their lived experience would enrich the field.

Conclusions

Overall, evidence suggests that early intervention approaches can improve outcomes for people experiencing early symptoms meeting criteria for a diagnosis of psychosis, although there is not as yet clear evidence underpinning effectiveness of approaches to preventing transition to psychosis for people at high risk of psychosis despite many trials in this area. While evidence for early intervention in other diagnoses is limited, initial studies point towards possible benefits in improving access and symptom severity, although further high-quality comparative studies are required. Efforts to improve identification and access to support may offer some benefit, however, further exploration is needed to determine how best to reduce the duration of untreated symptoms. Integrating these efforts with other available early interventions options could be most effective. Models which combat limited resources through linkages and collaboration alongside staff training

and dissemination of information for service users and families could be a key facilitator of successful implementation.

Lived experience commentary

Written by two members of our working group with lived experience: Lizzie and Eva

We are a young person with lived experience and a carer of young people with mental health conditions and long-term engagement with CAMHS.

We welcome this much-needed review into current approaches for early intervention (EI) services for children and young people (CYP). We are disappointed by the lack of published evidence in this area, and the low quality and lack of scientific rigour in the studies examined.

Our initial question from this research is; is it really 'early intervention' if we are not treating the first symptoms of an emerging mental illness?' The studies reviewed are for mental illnesses associated with more severe symptoms such as psychosis and eating disorders led by psychiatric, diagnostic, medical models, whereas we feel CYP could benefit from more needs-led, not diagnosis-led approaches.

There is a lack of research into early intervention for the more common problems such as depression and anxiety, which in our experience with CYP mental health care, can present as early warning signs and can lead to serious educational and vocational problems and also be precursors to more severe mental ill-health. It is clearly difficult to draw conclusions from the evidence examined and more robust work with a broader range of presentations and symptoms is desperately needed.

Every young person deserves access to an early intervention approach for all signs of mental distress, including anxiety and depression. The care needs to be flexible in approach, location, time frame, and personalised to the needs of the young person, with extra consideration given for easy-

to-ignore populations due to language, culture, economic circumstances and those in rural locations who can't just 'drop in' to a city-centre hub as these are heavily skewed towards urban areas.

Mental health difficulties don't end when a person leaves the therapy room and neither should mental health support. Home or school visits, outreach, practical support, and a 'triangle of care model' equally considering CYP, carers and family, and the professionals views, can help mental health support be independently accessible, create a safe and stigma-free environment and empower the young person to create sustainable improvements in their mental health.

The Early Support Hubs are a new model of care aiming to adopt the more needs-led, collaborative and accessible approaches CYP need for mild-moderate mental health difficulties such as anxiety and depression, to address the aforementioned gaps in current EI services. We hope this will fulfil the 'early' part of the 'early intervention' promise, providing the effective, proactive and accessible support young people so desperately need for emerging signs of mental distress.

Abbreviations

AMSTAR: A MeaSurement Tool to Assess Systematic Reviews

CYPMHS: Children and Young People's Mental Health Services

CAMHS: Child and Adolescent Mental Health Services

NHS: National Health Service

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

HTA: Health technology assessment

DUP: Duration of untreated psychosis

FEP: First-episode psychosis

CBT: Cognitive Behavioural Therapy

CI: Confidence interval

FACT: Family aided assertive community treatment

OR: Odds ratio

PMFG: psychoeducational multi-family groups

PUFA: polyunsaturated fatty acid

EIP: Early Intervention in Psychosis

LMICs: Low- and middle-income countries

RCT: Randomised controlled trials

EOT: End of treatment

IPA: Interpretative Phenomenological Analysis

TAU: Treatment as usual

DUED: Duration of untreated eating disorder

SSIs: Single session interventions

AN: Anorexia Nervosa

BN: Bulimia Nervosa

ED: Eating Disorder

FREED: First Episode and Rapid Early Intervention

BD: Bipolar Disorder

HR: Hazard Ratio

ICYSHs: Integrated community-based youth hub models

DBT: Dialectical Behaviour Therapy

CYP: Children and Young People

Declarations

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Data Availability

All data is from previously published studies. AMSTAR ratings are available in Additional File 3.

Ethics Approval and Consent to Participate

Not applicable - umbrella review

Consent for Publication

Not applicable - umbrella review

Authors' Contributions

JL, PB, RA, BL-E, EF, SJ contributed to the conception and design of the umbrella review. JL & LG ran the searches. JL, PB, LG, JY, BL-E, JH, NR, SJ screened the reviews, completed data extraction and quality ratings. JL, PB, LG, JY, AU, SJ wrote drafts for and substantially revised the manuscript. LM and ED provided lived experience feedback and wrote the lived experience commentary. All authors read and approved the final manuscript.

Competing Interests

The authors declare that they have no competing interests.

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Additional Files

Additional file 1: PRISMA checklist

Additional file 2: Search strategy

Additional file 3: AMSTAR 2 items, adaptations, and ratings

Additional file 4: Excluded studies with reasons for exclusion

Additional file 5: Overlapping studies