

Strategies not accompanied by a mental health professional to address anxiety and depression in children and young people: a scoping review of range and a systematic review of effectiveness



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This Review reports on a scoping review followed by a systematic review to consider interventions designed to address or manage depression or anxiety in children and young people up to the age of 25 years without the need to involve mental health professionals. The scoping review identified 132 approaches, 103 of which referred to children or young people (younger than 25 years). These approaches included social interaction, engagement with nature, relaxation, distraction, sensory stimulation, physical activity, altering perceptions, engaging in hobbies, self-expression, and exploration. A systematic review of effectiveness studies from the literature identified in the scoping review found only 38 studies on seven types of intervention that met the inclusion criteria. 16 studies were based on cognitive or behavioural principles (15 on digital interventions and one on bibliotherapy), ten focused on physical exercise, five on light therapy, three on dietary supplements, two on massage therapy, one on online peer support, and one on contact with a dog. Most studies focused on adolescents or young adults. Evidence suggested that light therapy could be effective for season depression and that digital interventions based on attention bias modification are ineffective for anxiety. Mixed evidence was available on the effectiveness of computerised cognitive behavioural therapy for depression and anxiety, and of physical exercise for depression. All other studies had insufficient certainty to obtain even tentative conclusions about effectiveness. These results highlight the disparity between the extensive range of approaches identified in the scoping review and the restricted number and focus found in the systematic review of effectiveness of these approaches. We call for an expanded research agenda that brings evaluation rigour to a wide range of self or community approaches.

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Introduction

Depression and anxiety are two of the most prevalent mental health problems worldwide and represent an increasing global health challenge.¹ Their onset in childhood and adolescence is becoming more widely recognised by researchers and practitioners,² with long-term effects across a range of psychosocial outcomes.^{3,4} Growing evidence shows the increase in incidence in young people (younger than 25 years), particularly in girls, with potentially one in four girls reporting anxiety and depression.^{5,6} Anxiety and depression are the most frequently reported difficulties among young people seeking help from specialist mental health services.⁷

How to address this major health challenge in children and young people is of international interest, which has resulted in calls for improved availability of mental health specialists. Whether a wide range of interventions to support and address mental health problems in youth might be possible, including approaches that do not rely on specialist professional input, is also of interest.⁸

The consideration of non-professionally mediated responses to depression and anxiety in youth is important for four reasons. First, not all those who accessed specialist help measurably improved symptoms of functioning.^{9,10} For example, only around half of patients who received professional help for depression from specialist mental health services in England between 2011 and 2015 showed a “reliable improvement” by the end of treatment.¹¹ Therefore, considering a wider range of approaches might be warranted.

Second, many young people with mental health difficulties do not receive professional help,¹² which is thought to be due to a combination of a paucity of available resources, the stigma associated with seeking professional help, and personal choice. Thus, considering additional or complementary approaches might be necessary.

Third, the extent of mental health problems in the general population, and in young people in particular, means that relying on increased numbers of professionals alone is unlikely to be a viable solution. Prevalence of anxiety and depression is high and possibly rising.⁵ As Schaefer and colleagues¹³ found in their analysis of life course trajectories for mental health problems over a 30-year period, only 17% of people had no mental health problems identified over this period and 41% of the cohort had mental health problems sustained over many years. This finding suggests that what the authors termed enduring mental health (ie, long-term state of not having a mental health illness) might be an aberration rather than the normal condition. Therefore, it is necessary to consider solutions that have the potential for a wide population reach and to understand what is likely to positively affect mental health for people with depression or anxiety who do not have access to specialist help or who have accessed specialist help but still have ongoing difficulties.

Finally, redressing the skew in research to date is also needed. The majority of this research has considered interventions from the perspective of a professional

viewpoint of treatment intervention. Any change that was not associated with a professional input has been termed spontaneous improvement rather than considering the effort or action of the individuals or the effect of other approaches that might have contributed to that improvement. Since up to 48% of people with depression will show such spontaneous improvement,¹⁴ understanding more about what helped these individuals and how these approaches can be applied to others is important.

See Online for appendix

Emerging evidence is available on the effect of non-professionally mediated interventions to support positive mental health in general, such as the effect of interaction with pets.¹⁵ However, less evidence is available on strategies aimed specifically at people with existing mental health problems and even less on strategies aimed specifically at children and young people. A contemporaneous review on self-care strategies for children and young people with mental health issues only included interventions developed by professionals (eg, computerised cognitive behavioural therapy [CBT]) and has a specific focus on comparing those guided by a professional with those not guided by a professional.¹⁶ To our knowledge, no systematic reviews of the scope or effectiveness of strategies for helping children and young people with anxiety and depression that are explicitly non-professionally mediated are available. This Review aims to address this gap. Therefore, we did a scoping review of the published scientific literature to identify the existing range of non-professionally mediated interventions for those with anxiety, depression, or both, in children, young people, or adults; identified how many of these approaches have been researched and assessed for children and young people with anxiety, depression, or both; systematically reviewed the range of approaches identified in the scoping review as an early step in considering the effectiveness of those non-professionally mediated interventions that have been assessed for this population; and are using the findings of both the scoping and systematic reviews to engage professionals, children, young people, and parents in developing and prioritising research that strengthens our understanding of what supports improvement and why, extending our knowledge beyond current professional frameworks.

Methods

Overview for both scoping and systematic reviews

The study involved an electronic search of literature databases to provide a comprehensive scoping of relevant strategies, followed by further screening of the search output to identify evidence of effectiveness of strategies used by children and young people. The review protocol was drafted a priori by the original research team (MW, KD, RU, LG, and DL), which included an experienced systematic review methodologist (RU) and experienced mental health specialists (DL and MW), and was registered on PROSPERO (CRD42018088520). The

systematic reviewer did the searching, screening, and decided on inclusion and exclusion of the studies for both the scoping review and the systematic review of effectiveness. For the systematic review all excluded and included studies were independently assessed by another member of the research team (MW), at both the abstract and full paper stage, and a randomly selected sample of Grading of Recommendations Assessment, Development and Evaluation (GRADE) reviews of quality were independently assessed by a third reviewer (DH). The PICO framework tables (appendix) show the inclusion and exclusion criteria for both reviews.

Scoping review method

The scoping review to identify non-professionally mediated strategies included adults, young people, and children to ensure comprehensiveness. A broad definition of professional or paraprofessional was used and comprised any person trained to use a treatment or intervention for the purposes of improving mental health or emotional wellbeing (eg, traditional healers, acupuncturists, and specifically trained therapists, such as massage therapists, music therapists, and drama therapists) who were all excluded from the review. Where teachers were working as educators they were included in the review, but if they were trained in delivery of a mental health intervention (eg, mindfulness), they were excluded. If an intervention drew on a teacher providing input as part of their role as educator, this was included (eg, introducing an online mental health app in schools or supporting physical activity).

Any level and definition of anxiety or depression was included, including self-report of stress or low mood. Papers that focused solely on phobias or post-traumatic stress disorder were excluded. Any type of intervention strategy was included, as long as it was identified as an approach to improve symptoms of anxiety, depression, or both. Strategies that included any degree of therapeutic input (eg, individualised encouraging weekly emails or feedback on homework exercises) were excluded. However, interventions with non-therapeutic automated reminder emails or text messaging were included.

We did a systematic search for English language studies from Jan 1, 2000, to Jan 29, 2018: Web of Science Core Collection (Science Citation Index Expanded, Social Science Citation Index Expanded, Arts and Humanities Citation Index, Conference Proceedings Citation Index–Science edition, Conference Proceedings Citation Index–Social Science and Humanities edition, Emerging Sources Citation Index (2015–18)); and Book Citation Index (2005–18)); MEDLINE; BIOSIS Citation Index; BIOSIS Previews; Cochrane Central Database of Controlled Trials (CENTRAL, Cochrane Library); and SciELO Citation Index. Studies were identified using search terms for disorders of “anxiety or depression” combined with terms for “self-help”, “coping strategy”, and “complementary therapy” (see appendix for the full list of search terms used).

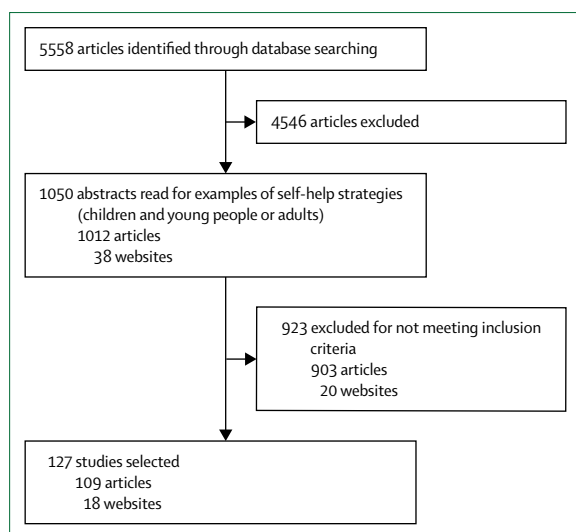


Figure 1: PRISMA diagram for scoping review

We did a first round of citation screening of titles and abstracts to remove clearly irrelevant studies for this Review. After the initial search and screening of identified citations, we did a second round of screening of titles and abstracts. This round included all types of citations, including non-research, and was not restricted to children and young people. When the abstract was unclear on whether the strategy or strategies being described were used without the input from a professional or paraprofessional, the full paper was retrieved and read for clarification.

In addition, websites relating to mental health were hand-searched using a snowballing technique, and any novel strategies that were described for use without support from a professional or paraprofessional that had not been identified from the literature search were listed. This searching was guided by input from the expert clinical specialists in the group. The snowballing technique was similar to that used to identify a sample of informants for a qualitative study. In the first instance the clinical experts suggested several websites that might be useful. We searched these websites and any reference or link to an alternative website was followed up. We then searched the newly identified websites for strategies that fit the Review's inclusion criteria, which was continued until no novel strategies were identified (ie, until saturation was reached).

All self-help strategies identified from both search methods were tabulated, along with their citation and whether the strategy was being suggested for use by children and young people, adults, or both. The research team agreed a strategy of not seeking to group or categorise approaches as they were identified to allow maximum scope for identifying new approaches and minimal imposition of pre-existing schema for considering interventions.

| | Target population identified in the literature |
|---|--|
| Letting oneself be loved | Children and young people |
| Unsupported or unguided computer-based attention bias modification | Children and young people |
| Unsupported or unguided computer-based attention bias modification of interpretations | Children and young people |
| Unsupported or unguided computer-based problem-solving therapy | Children and young people |
| Unsupported or unguided computer-based cognitive-behavioural analysis of system psychotherapy | Children and young people |
| Unsupported or unguided computer-based worry exposure | Children and young people |
| Unsupported or unguided computer-based audio-photoc stimulation | Children and young people |
| Unsupported or unguided computer-based systematic desensitisation | Children and young people |
| Robots | Children and young people |
| Apologising to others | Children and young people |
| Avoiding conflict or stressful situations at home | Children and young people |
| Thinking about things | Children and young people |
| Challenge the negative feelings | Children and young people |
| Notice triggers | Children and young people |
| Goal-setting | Children and young people |
| Small actions to release tension | Children and young people |
| Switching off screens | Children and young people |
| Denial | Children and young people |
| Being alone or distancing from others | Children and young people |
| Relaxation techniques (unspecified) | Children and young people |
| Distraction techniques | Children and young people |
| Daydreaming | Children and young people |
| Hope box or happy box therapies | Children and young people |
| Going out or being outside | Children and young people |
| Minimising exposure to environmental toxins | Children and young people |
| Home entertainment, escapism, or self-distraction | Children and young people |
| Going to the cinema | Children and young people |
| Socialising or going out with friends | Children and young people |
| Bibliotherapy | Children and young people |
| Self-talk | Children and young people |
| Rewards | Children and young people |
| Eating more | Children and young people |
| Playing | Children and young people |
| Making music | Children and young people |
| Singing | Children and young people |
| Drama | Children and young people |
| Crying | Children and young people |
| Over the counter medications | Children and young people |
| Homeopathy preparations | Children and young people |

(Table 1 continues on next page)

| | Target population identified in the literature |
|--|--|
| (Continued from previous page) | |
| Colour therapy | Children and young people |
| Reading religious texts (eg, the Bible and Quran) | Children and young people |
| Going to church, mosque, temple, etc | Children and young people |
| Revision | Children and young people |
| Getting a job or working harder | Children and young people |
| Getting into an argument, saying mean things, or starting a physical fight | Children and young people |
| Blaming others | Children and young people |
| Self-blame | Children and young people |
| Swearing | Children and young people |
| Self-harm | Children and young people |
| Face-to-face informal peer support | Children, young people, and adults |
| Face-to-face group peer support | Children, young people, and adults |
| Telephone support | Children, young people, and adults |
| Telephone peer support | Children, young people, and adults |
| One-to-one online chat support | Children, young people, and adults |
| Face-to-face informal social support | Children, young people, and adults |
| Talking to someone you know and trust | Children, young people, and adults |
| Online peer group support | Children, young people, and adults |
| Unsupported or unguided online, computer, or app-based cognitive behavioural therapy | Children, young people, and adults |
| Apps delivering self-help strategies | Children, young people, and adults |
| Venting or letting off steam | Children, young people, and adults |
| Text messaging | Children, young people, and adults |
| Taking care of others | Children, young people, and adults |
| Positive thinking | Children, young people, and adults |
| Analysing and understanding your negative feelings, thoughts, and fears | Children, young adults, and adults |
| Confronting fears | Children, young people, and adults |
| Problem solving | Children, young people, and adults |
| Organising the day, routine, or planning | Children, young people, and adults |
| Personal hygiene | Children, young people, and adults |
| Hobbies | Children, young people, and adults |
| Physical exercise | Children, young people, and adults |
| Sport | Children, young people, and adults |
| Eating well or healthy diet | Children, young people, and adults |
| Sleep | Children, young people, and adults |
| Reducing consumption of stimulants and other drugs | Children, young people, and adults |
| Alcohol, cigarettes, or drugs as coping strategies | Children, young people, and adults |
| Avoiding stressful or upsetting situations | Children, young people, and adults |
| Muscle relaxation techniques | Children, young people, and adults |
| Breathing techniques | Children, young people, and adults |
| Visual imagery | Children, young people, and adults |
| Mindfulness | Children, young people, and adults |
| Walking | Children, young people, and adults |
| Spending time outdoors in nature | Children, young people, and adults |
| Spending time with animals or pets | Children, young people, and adults |
| Warm bath | Children, young people, and adults |
| Writing things down | Children, young people, and adults |

(Table 1 continues on next page)

Sample

Following the initial screening of the 5558 citations obtained through the initial searches, 4546 were removed because the information in the title and abstract was sufficient to be certain that they were not relevant for this Review. The remaining 1012 studies were screened for a second time using the inclusion and exclusion criteria, which resulted in a selection of 109 papers that included both systematic reviews (n=50) and individual trial studies (n=59). In addition, we searched 38 websites of which 20 were removed for not meeting inclusion criteria. The PRISMA diagram (figure 1) shows sample selection for the scoping review.

Systematic review of effectiveness

The systematic review included consideration of all 109 papers identified in the scoping review that focused only on children and young people up the age of 24 years, excluded studies of anxiety in response to life events (such as medical treatment or transient stressors), and included only studies that reported effectiveness (ie, studies that included a comparator group). All comparative studies were considered, including systematic reviews, randomised controlled trials, and other comparative studies. Studies involving children and young people with diagnosed depression or anxiety disorder and studies in populations with high depression or anxiety symptom scores were also included, as well as studies comparing an intervention with a non-therapeutic control (eg, waitlist or no treatment) and studies comparing an intervention with another active intervention (eg, face-to-face therapy). Studies including mixed populations with a mean age of participants older than 25 years and studies of preventive interventions in general or at-risk populations were excluded. For the purposes of this Review, we focused on outcomes that were an assessment of symptoms of anxiety, depression, or both, rather than general mental or emotional wellbeing or participants' views of the intervention (appendix).

The 109 studies identified in the scoping review were screened a second time to remove articles based on an adult population and with no reported effectiveness data. Systematic reviews were considered first and 861 individual studies across 50 systematic reviews were reviewed against the inclusion and exclusion criteria, which resulted in the identification of 34 individual studies (referenced across 21 systematic reviews). The remaining 59 individual studies identified by the scoping review were then considered against the inclusion and exclusion criteria and four were included in this Review, which resulted in a total sample of 38 studies. All included and excluded studies were reviewed by a second reviewer (MW) with agreement on all but one paper. A third member of the research team (DL) assessed this paper and a decision was made to include the study based on a consensus between team members.

Data extraction was done by one experienced reviewer (RU) and cross-checked by the second reviewer (MW); an agreement was reached on all papers. Information on participant and study characteristics and mental health outcomes were extracted directly into evidence tables comprising the following when available: study characteristics included the country, and content and structure of the intervention, control conditions, and numbers of participants were also included when available. Participant characteristics included age, gender, and type of primary disorder. Data for depression or anxiety outcomes were extracted. Depression outcomes were extracted from studies that focused on children and young people with depression and anxiety outcomes from those that focused on anxiety in these populations. Both sets of outcomes were extracted in studies that focused on the two conditions. When a systematic review provided additional analysis of the data for an individual study, this analysis was also included, which is reported in the evidence table.

The overall quality of evidence for each outcome was assessed using the GRADE approach¹⁷ (appendix) by one experienced reviewer (RU) and 25% of these studies were randomly selected and independently assessed by a second experienced reviewer (DH) (Cohen's κ coefficient=0.76). Any discrepancies were resolved by agreement.

The following factors were considered for the classification of evidence: risk of bias (considering selection, performance, detection, attrition, and reporting bias); inconsistency of results (heterogeneity between study effect sizes, defined as $I^2 > 50\%$); indirectness (poor applicability of the study population, intervention, control, or outcomes, [eg, when there was uncertainty about the degree of therapist input]); imprecision of the results (based on the width of confidence intervals, adequacy of the sample size, or both); or publication bias. After all factors had been considered, an overall evidence rating (appendix) was assigned for each intervention outcome as follows: high (high certainty that the true effect is close to the estimated); moderate (moderate certainty that the true effect is close to the estimated); low (restricted certainty of the estimated effect and the true effect might be substantially different from the estimated effect); and very low (very little certainty of the estimated effect and the true effect is likely to be substantially different from the estimated effect).¹⁸

Key data were extracted in relation to all 38 studies. Those studies in which standardised mean differences data were available were included in a meta-analysis. However, it was noted from the outset that these reviews were not intended primarily to do a meta-analysis, and that because of the heterogeneity of the studies and poor level of certainty of most, this analysis was done to allow an overall picture of the interventions' outcomes rather than detailed inference-building.

| | Target population identified in the literature |
|---|--|
| (Continued from previous page) | |
| Creative writing | Children, young people, and adults |
| Psychoeducation without face-to-face contact with another person | Children, young people, and adults |
| Psychoeducation involving contact or speaking with another person | Children, young people, and adults |
| Psychoeducation with group learning | Children, young people, and adults |
| Listening to music | Children, young people, and adults |
| Dance | Children, young people, and adults |
| Music therapy | Children, young people, and adults |
| Yoga | Children, young people, and adults |
| Tai Chi | Children, young people, and adults |
| Pilates | Children, young people, and adults |
| Drawing or painting | Children, young people, and adults |
| Playing a therapeutic online or computer-based game | Children, young people, and adults |
| Gaming | Children, young people, and adults |
| Laughter or humour | Children, young people, and adults |
| Reflexology | Children, young people, and adults |
| Massage | Children, young people, and adults |
| Light therapy | Children, young people, and adults |
| Prayer | Children, young people, and adults |
| Unsupported or unguided online acceptance and commitment therapy | Adults |
| Email support | Adults |
| Online interventions based on behavioural activation | Adults |
| Virtual reality therapy courses | Adults |
| Acceptance | Adults |
| Developing a balanced sense of self | Adults |
| Finding meaning | Adults |
| Meditation | Adults |
| Ecotherapy, green exercise, green therapy, or horticultural therapy | Adults |
| Going on holiday | Adults |
| Shopping | Adults |
| Herbal or plant-based remedies | Adults |
| Nutrients (dietary supplements) | Adults |
| Chocolate | Adults |
| Chewing gum | Adults |
| Avoiding certain food substances | Adults |
| Chinese herbal medicine | Adults |
| Fasciatherapy | Adults |
| Hydrotherapy | Adults |
| Fragrance | Adults |
| Aromatherapy | Adults |
| Sleep phase advance | Adults |
| Sleep deprivation or wake therapy | Adults |
| Negative air ionisation | Adults |
| Fortune teller | Adults |
| Crystal healing or charm stone | Adults |
| Spiritual or energy healing | Adults |
| Faith or religious beliefs | Adults |
| Faith healing | Adults |

Table 1: Results of scoping review of strategies or approaches not accompanied by a mental health professional to support and manage anxiety and depression in children, young people, and working-age adults

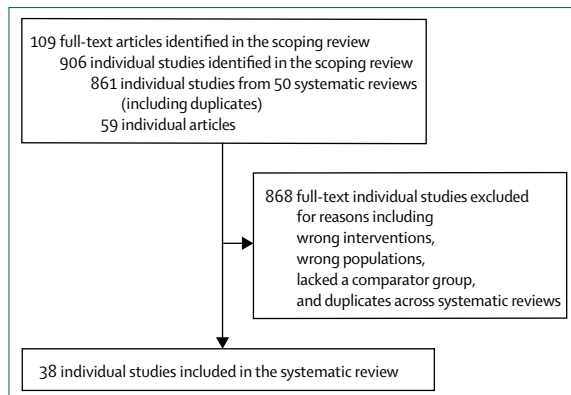


Figure 2: PRISMA diagram for systematic review

Statistical analysis

Because of the small number of studies and their heterogeneous nature, we did meta-analyses to provide a preliminary overview of the size of effect being found. When data were available, we considered standardised mean difference (SMD) for studies focused on children and young people with depression ($n=12$) separately from those focused on children and young people with anxiety ($n=5$). Given the small sample sizes of many studies, we applied a Hedges g correction to the SMD estimates. Analyses were done with the `metan` command in Stata, version 14. For depression, heterogeneity between studies included in the meta-analysis (appendix) was high ($I^2=74.8\%$, heterogeneity χ^2 test= 43.57 , $p<0.0001$). Based on a random effects model, the overall treatment effect was -0.76 (95% CI -1.23 to -0.29) for studies focusing on depression. For anxiety, heterogeneity was low ($I^2=33.33\%$, heterogeneity χ^2 test= 6 , $p=0.199$). The overall treatment effect was -0.21 (-0.50 to -0.09).

Results

Scoping review results

A total of 132 different approaches were identified as being used, or were suggested for use, as a means of improving symptoms of anxiety, depression, or both without input from a professional or paraprofessional; and 103 of these studies specifically focused on children or young people (figure 1, table 1, appendix). The varied studies found in the scoping stage were not grouped by intervention to provide an overview as detailed as possible and not to impose any pre-existing schema, based on professionally derived categorisations, on the results. Additionally, the information found was not censored or judged (eg, self-harm came through the Review as a strategy to cope with depression and anxiety).

Systematic review results

38 studies met the criteria for inclusion for this Review by describing seven types of approaches not mediated by a mental health professional: dietary supplements (vitamin C, omega 3, hops), light therapy, aerobic exercise,

massage, contact with a dog, peer support (online), and training informed by cognitive principles, behavioural principles, or both (figure 2). Few studies included children under the age of 12 years, with most studies focused on adolescents (aged 12–18 years) or older adolescents (aged 19–25 years). There was little information available on the ethnic origin of participants included in the studies and when information was available, ethnicity was generally dominated by white populations. Overall, more female than male participants were included in the studies (table 2).

In terms of differential evidence of effectiveness of approaches, the seven types of approach that had been tested in the literature in children or young people with anxiety or depression and not involving professionals were mostly based on cognitive or behavioural principles. 16 studies (42% of included studies) were based on cognitive or behavioural principles (15 digital and one bibliotherapy), ten focused on physical exercise, five on light therapy, three on dietary supplements, two on massage, one on online peer support, and one on the contact with a dog (table 3).

Overall, the treatment effect (when data were available) for the different self or community approaches for depression was moderate (-0.76), whereas for anxiety no overall effect was found (-0.21). Evidence suggested that light therapy can be effective for seasonal depression and that digital interventions based on attention bias modification are ineffective for anxiety. Mixed evidence was available on the effectiveness of computerised cognitive behavioural therapy for depression and anxiety, and of physical exercise for depression. All other included interventions studied (dietary supplements comprising vitamin C, omega 3, or hops extract; massage; pet-contact, and online peer support) had insufficient certainty of evidence to draw conclusions about effectiveness.

Discussion

The present study is the first review, to our knowledge, to systematically scope and review the evidence of effectiveness of strategies for helping children and young people with depression or anxiety which are explicitly non-professionally mediated. Results from our scoping review showed a wide range of strategies for helping people with anxiety, depression, or both. Of the 132 approaches identified, 103 were referenced in relation to children and young people. Yet in the systematic review only 38 effectiveness studies were identified. Few studies looked at children under the age of 12 years, with most studies focused on adolescents (12–18 years) or older adolescents (19–25 years). Evidence on ethnically mixed populations was also scarce.

The strongest evidence was for effectiveness of light therapy for seasonal depression and of ineffectiveness of digital interventions based on attention bias modification for anxiety. Evidence of effectiveness of

| | Study type and country | Anxiety or depression (how was diagnosed) | Participants | Intervention | Comparator | Key findings | Certainty based on Grading of Recommendations Assessment, Development and Evaluation |
|---|-------------------------------------|---|--|---|---|---|--|
| Nemets and colleagues ¹⁹ (2006) | RCT, Israel | Depression (major depressive disorder diagnosed by a professional) | N=28 (20 completed); age 6–12 years; mean age 10 years | Omega 3 (1000 mg daily) for 16 weeks | Placebo | CDRS scores: greater improvement in depression for omega 3 group (7 [70%] of 10 children had a >50% score reduction) compared with the placebo group (no children had >50% score reduction) | Very low |
| Amr and colleagues ²⁰ (2013) | RCT, Egypt | Depression (major depressive disorder diagnosed by a professional) | N=24; mean age 10 years; 63% male participants | Vitamin C used with fluoxetine | Placebo | CDRS, CDI: vitamin C group showed significantly larger decrease in depressive symptoms compared with the placebo group | Very low |
| Folse and colleagues ²¹ (1994) | Quasi-experimental study, USA | Depression (scores above threshold on BDI, threshold not reported) | N=44; median age 21 years | Pet contact 45 min per week for 7 weeks (alongside group therapy) | Waitlist (no pet); time with dog (without therapy) | BDI: pet contact without group therapy showed significantly improved depression symptoms compared with waitlist; no significant difference was found between pet with group therapy vs waitlist group | Very low |
| Kyrou and colleagues ²² (2017) | RCT, Greece | Depression and anxiety (DASS-21 cutoff, threshold not reported) | N=36; mean age 24.7 (SD 0.5); 86% female participants | Hops extract | Placebo | DASS-21: significantly greater decrease in anxiety and depression in hops vs placebo (9.2 [SD 7.3] vs 5.1 [5.9] for anxiety; 11.9 [7.9] vs 9.2 [7.4]; and 19.1 [8.1] vs 11.6 [8.1] for depression; all p<0.05) | Moderate |
| Sonis and colleagues ²³ (1987) | RCT | Depression (scores above threshold on BDI, threshold not reported) | N=9 (five for intervention and four for comparison) | Light therapy: 2 h/day for 1 week | Relaxation audio tape | Significant improvement of depressive symptoms in children and young people with winter depression in the light therapy group but no improvement in those with non-seasonal depression; details from Hazell and colleagues ²⁴ | Low |
| Swedo and colleagues ²⁵ (1997) | RCT, USA | Depression (assessment by mental health professional) | N=28 | Light therapy: 2 h in the evening and 1 h in the morning for 1 week | Clear goggles for 1 h plus 5 min of low intensity dawn simulation; sham dawn (2 lx for 5 min) | Significant improvement in parents' reports of symptoms of depression. Parent report of symptom reduction ≥50% in 20 [71%] of 28 children and young people who received light therapy vs 25% in the placebo group; no trend of improvement in symptoms reported by children | Low |
| Niederhofer and colleagues ²⁶ (2012) | Randomised crossover trial, Germany | Depression (BDI>9) | N=28; age 14–17 years | Light therapy (2500 lx) for 1 h daily during 1 week | Placebo (50 lx) | BDI significantly decreased with light treatment; no serious adverse effects reported | Moderate |
| Janas-Kozik and colleagues ²⁷ (2011) | RCT, Poland | Depression (HDRS≥17) in patients with anorexia | N=24; age 15–20 years; all female participants | Light therapy (10 000 lx) 30 min daily with CBT for 6 weeks | CBT only | HDRS ≤8 at 6 weeks: depression ratings showed significantly greater improvement in light therapy group compared with CBT only group (remission [HDRS ≤8]: 75% vs 8%) | Moderate |
| Spezzano ²⁸ (2006, dissertation) | RCT, USA | Depression | N=40; age 18–22 years | Light therapy (10 000 lx) for 30 min per day for 3 weeks | Exposure to a deactivated negative ion generator for 30 min per day for 3 weeks | BDI: remission (>50% reduction in symptoms) greater in the light therapy group compared with control group (80% vs 0%); details from Hazell ²⁴ | Very low |
| Hemat-Far and colleagues ²⁹ (2012) | .. | Depression | N=20; age 18–25 years | Exercise: 40–60 min of supervised running, 3 times per week | Inactive comparison | BDI: significant reduction of depression symptoms in the exercise group compared with inactive comparison group (16.6 [SD 6.9] vs 22.8 [4.9], SMD -0.99 [95% CI -1.93 to -0.05]) | Low |
| McCann and colleagues ³⁰ (1984) | .. | Depression (BDI score for mild depression >11). | N=43; undergraduates; all women | Exercise: group running, jogging, or dancing for 1 h twice weekly for 10 weeks | Muscle relaxation for 15–20 min, 3 times per week (n=15); and waitlist control (n=16) | BDI: statistically significantly greater decrease in depression symptoms with aerobic exercise compared with relaxation or waitlist; exercise vs no treatment: 9.3 [SD 4.8] vs 11.85 [4.5], SMD -0.53 [95% CI -1.29 to 0.22]; exercise vs relaxation: 9.3 [4.8] vs 3.65 [7.5], SMD=0.73 [-0.02 to 1.49] | Low |
| Bonnet and colleagues ³¹ (2005) | RCT, USA | Depression (MDD, dysthymia, or depressive disorder), diagnosed by counselling service | N=11; mean age 23 years; 83% female participants | Exercise: walking on a treadmill for 20 min twice a week for 6 weeks, alongside CBT | CBT only (one session per week) | No significant effect of adding aerobic exercise to CBT (24.46 [SD 10.9]) vs CBT alone (10.5 [5.8], SMD 1.51 [95% CI 0.09–2.93], favours CBT alone); details from Cooney and colleagues ³² | Low |

(Table 2 continues on next page)

| | Study type and country | Anxiety or depression (how was diagnosed) | Participants | Intervention | Comparator | Key findings | Certainty based on Grading of Recommendations Assessment, Development and Evaluation |
|--------------------------------|--|---|---|--|--|--|--|
| (Continued from previous page) | | | | | | | |
| | Nabkarsorn and colleagues ³³ (2005) | RCT, Thailand Depression (CES-D>16) | N=59; age: 18–20 years; mean age 19 years; all female participants (student nurses) | Exercise: group jogging, mild intensity, 50 min a day, 5 days a week for 8 weeks | Usual (routine) activity | CES-D: significant improvement in depression for aerobic group vs comparison group (14.4 [SD 4.12] vs 17.5 (4.23), SMD=–0.73 [95% CI –1.31 to –0.14]) | Moderate |
| | Orth ³⁴ (1979, dissertation) | RCT, USA Depression (MMPI, threshold not reported) | N=11; mean age 22 years; 73% male participants | Exercise: jogging for 30 min, five times per week for 4 weeks | Meditation; self-chosen activity; or self-monitoring control | DAC, MMPI: significant improvement in depression for jogging group (7 [SD 6.6]) vs comparison group (16.5 [2.12], SMD –1.25 [95% CI –3.71 to 1.21]; details from Cooney and colleagues ³²) | Very low |
| | Reuter and colleagues ³⁵ (1984, dissertation) | .. Depression (student receiving counselling for depression) | N=18 | Exercise: supervised running for at least 20 min, three times per week for 10 weeks, alongside counselling | Counselling only | BDI: significant improvement in depression for jogging compared with counselling only (5.1 [SD 4.75] vs 18.56 [7.7], SMD –2.00 [95% CI –3.19 to –0.82]); details from Cooney and colleagues ³²) | Low |
| | Brown and colleagues ³⁶ (1992) | .. Depression (psychiatric diagnosis) in inpatients of a psychiatric unit | N=27 (11 completed); mean age 16 years; 59% male participants | Exercise: running or aerobic exercise 3 days per week for 9 weeks | Regular physical activity class | BDI: no significant difference in depressive symptoms between groups (SMD 0.78 [95% CI –0.47 to 2.04], p=0.2) | Very low |
| | Cohen-Kahn ³⁷ (1995, dissertation) | RCT, USA Depression (psychiatric diagnosis) in inpatients of psychiatric unit also with conduct disorder | N=19; age 12–18 years | Exercise: outdoor high-intensity weight training programme, 60 min, three times per week for 8 weeks | Weight training below recommended intensity (40% maximum heart rate) | BDI: no significant difference between high intensity and low intensity exercise (SMD –0.14 [95% CI –0.83 to 0.54], p=0.2); details from Larun and colleagues ³⁸) | Low |
| | Kanner ³⁹ (1991, dissertation) | RCT, USA Depression (psychiatric diagnosis) for inpatients in psychiatric unit | N=68; age 8–18 years | Exercise: high-intensity aerobic (70–85% of maximum heart rate) for 1 h, three times per week during 8 weeks | Low intensity aerobic exercise | BDI: no significant difference between high intensity and low intensity exercise (SMD –0.46 [95% CI –1.12 to 0.19]; p=0.2); no significant difference between exercise and recreational therapy (SMD –0.31 [95% CI –0.97 to 0.35]; details from Larun and colleagues ³⁸) | Moderate |
| | Hughes and colleagues ⁴⁰ (2009) | .. Depression (diagnosed MDD by a mental health professional) | N= 15; age 12–22 years | Exercise: aerobic, 90% adherence to protocol, during 12 weeks | Low-intensity stretching | CDRS-R: 100% participants responded (CDRS-R<28 or greater than 50% reduction from baseline) in the exercise group vs 70% in the comparison group; 80% remission in the exercise group (CDRS-R <28) vs 60% in the comparison group; follow-up: both exercise groups remained in remission at 6 months and 12 months | Low |
| | Freeman and colleagues ⁴¹ (2008) | RCT, UK Feeling “low” ⁴¹ (self-determined) in response to advert | N=283 (141 intervention, 142 comparison); white (71%), Asian (10%) | Online mutual support group alongside digital information delivered over 10 weeks | Digital information about common student problems only delivered over 10 weeks | CORE-OM: no significant difference between intervention and comparison groups | Very low |

(Table 2 continues on next page)

| Study type and country | Anxiety or depression (how was diagnosed) | Participants | Intervention | Comparator | Key findings | Certainty based on Grading of Recommendations Assessment, Development and Evaluation |
|---|--|--|---|---|---|--|
| (Continued from previous page) | | | | | | |
| Field and colleagues ⁴² (1992) | RCT, USA Depression (psychiatric diagnosis) in inpatients in a psychiatric unit | N=36 (26 intervention, 10 comparison); age 7–18 years; 40% white, 40% Latino, and 20% black; all male participants | Massage received 30 min per day for 5 days | Relaxing videotapes, 30 min per day for 5 days | Depressed mood improved more in the massage intervention compared with comparison group over 5 days; no sustained benefit over 5 weeks | Very low |
| Field and colleagues ⁴³ (1996) | RCT, USA Post-partum depression (psychiatric diagnosis, BDI >16) | N=32; mean age 18 years | Ten 30-min massage sessions over 5 weeks | Ten 30-min relaxation therapy sessions over 5 weeks | Only massage group showed a reduction in self-reported depression | Very low |
| Stasiak and colleagues ⁴⁴ (2014) | RCT, New Zealand Depression (self-defined) self-referred to school counsellors | N=34; age 13–18 years; mean age 15 years; 71% of participants were “New Zealand Europeans”, 12% were Maori, 12% Chinese or Taiwanese, and 12% from Pacific Island; 59% male participants | cCBT through the game <i>The Journey</i> : fantasy game-like with problem solving, conflict resolution, challenging unhelpful thoughts, and relaxation techniques; seven modules (30 min) completed in school over 10 weeks | Psychoeducation computer program delivered at school with guidebook | CDRS-R: significantly greater reduction in depression in cCBT group compared with psychoeducation group (mean change 17.6 [95% CI 14.13–21.00] vs 6.1 [2.01–10.02]); effect size 1.7; significant difference in response at the end of treatment: 88.2% for cCBT group (30% plus reduction in CDRS-R score) vs 47.1% for the comparison group, p=0.025; no significant difference at 1-month follow-up (76.5% for cCBT vs 52.9% for comparison); no significant difference in remission at end of treatment (47.1% for cCBT vs 35.3% for comparison) or at 1 month (47.1% vs 41.2%) | Moderate |
| Fleming and colleagues ⁴⁵ (2012) | RCT, New Zealand Depression (CDRS-R scores over 70th percentile) | N=32 (20 intervention, 12 comparison); age 13–16 years; mean age 14.9 years; 34% of participants were Maori and 38% from Pacific Islands; 56% male participants | cCBT: fantasy game SPARX completed in seven sessions over 5 weeks | Waitlist | CDRS-R: significant differences in depression symptoms (mean change after cCBT vs waitlist at end of treatment: -14.7 vs -1.1, p<0.001; remission: 78% vs 36%, p=0.047); RADS: significant differences in depression symptoms (-4.6 for cCBT vs 3.2 for waitlist, p=0.05); intention-to-treat at 10 week follow-up: significant differences in CDRS-R (not RADS) difference for cCBT vs waitlist | Low |
| Merry and colleagues ⁴⁶ (2012) | RCT non-inferiority trial, USA Depression (scored 10–19 on the PHQ-9 or troubling symptoms of depression) | N=187 (94 intervention, 93 comparison); age 12–19 years; mean age 16 years; 66% female participants | cCBT: fantasy game SPARX completed over seven sessions during 4–7 weeks | Active control, treatment as usual, usually face-to-face therapy | CDRS-R: significant differences in remission for cCBT (n=31, 43.7%) vs comparison (n=19, 26.4%, p=0.03) and response rates did not differ; remission not significantly different between cCBT (66.2%, n=47) vs comparison (58.3%, n=42, p=0.33); post-treatment CDRS-R and RADS-2 at 3 months showed no difference between groups | Moderate |
| Clarke and colleagues ⁴⁷ (2009) | RCT, USA Depression (PHQ-8 scores or use of mental health support) | N=160 (83 intervention, 77 comparison); age 18–24 years; mean age 22.6 years; 83% of participants were white; 80% female participants | cCBT <i>MoodHelper</i> program: monitoring depression, diary, counter-thought generator, behaviour therapy tutorials, and automated feedback, used as frequently as wished by the participant | Treatment as usual | PHQ-8: at 32 weeks, significant between-group effect (n=160, d=0.20 [95% CI 0.00–0.50]) and greater effect among female participants (n=128, d=0.42 [0.09–0.77]); PHQ-8 score: 9.1 [SD 0.7] for intervention vs 10.1 (0.7) for comparison; SMD -1.42 [95% CI -1.77 to -1.07]; details from Richards and Richardson ⁴⁸ | Moderate |

(Table 2 continues on next page)

| | Study type and country | Anxiety or depression (how was diagnosed) | Participants | Intervention | Comparator | Key findings | Certainty based on Grading of Recommendations Assessment, Development and Evaluation |
|---|---------------------------|---|--|--|--|--|--|
| (Continued from previous page) | | | | | | | |
| Pinto and colleagues ⁴⁹ (2013) | RCT, USA | Depression (diagnosis by mental health professional) | N=28; age 18–25 years; mean age 22 years; 83% of participants were not white; 64% female participants | cCBT avatar-based self-management via eSMART-MH at 4 weeks and 8 weeks | Information on healthy living (sleep hygiene, physical activity, and nutrition) via screen-based education | HAD-S: no significant difference between cCBT and comparison groups; at 3 months change in HADS-R mean score for cCBT from 8.1 (SD 4.73) to 6.5 (4.23) vs comparison group from 8.5 (3.82) to 8.53 (3.30) | Low |
| Wright and colleagues ⁵⁰ (2017) | RCT feasibility trial, UK | Depression (≥20 mood and feeling questionnaire) | N=91 (45 intervention, 46 comparison); age=12–18 years; all participants were white; 33% male participants | cCBT <i>Stressbusters</i> completed in eight sessions | Information only intervention with self-help websites for low mood | Mood and feeling questionnaire: feasibility trial | Moderate |
| Deady and colleagues ⁵¹ (2016) | RCT, Australia | Depression (DASS-21 ≥7) with co-occurring alcohol problems | N=104; age 18–25 years; mean age 21.74 (SD 2.22); 60% female participants | cCBT with <i>DEAL</i> with four modules of 1 h each over 4 weeks with automated reminders | Information and surveys about various health concerns | DASS-21: no significantly different changes in depression scores at 6-month follow-up | Moderate |
| Sethi and colleagues ⁵² (2010) | RCT, Australia | Depression or anxiety (diagnosis by a mental health professional) | N=38; age=18–23 years; mean age=19.47 years; 66% female participants | cCBT: <i>MoodGYM</i> . five modules of 45 min of personal workbook and interactive game | Face-to-face CBT; <i>MoodGYM</i> with face-to-face CBT; or waitlist control | DASS-21: significantly greater reductions in anxiety and depression as rated by the DASS-21 in the <i>MoodGYM</i> with face-to-face CBT vs waitlist and <i>MoodGYM</i> alone, at 5 weeks; <i>MoodGYM</i> alone was better than waitlist for anxiety but not for depression; <i>MoodGYM</i> with face-to-face CBT was better than face-to-face CBT alone for anxiety but not depression | Low |
| Fitzpatrick and colleagues ⁵³ (2017) | RCT, USA | Depression or anxiety (self-identified) | N=70 (34 intervention, 36 comparison); age 18–28 years; mean age 22 years; 79% participants were white and 7% were Hispanic; 67% female participants | cCBT: self-help in conversational format with <i>Woebot</i> up to 20 sessions over 2 weeks | Information only based on: <i>Depression in College Students</i> (leaflet) | PHQ-9: significantly more reduction in depression but not for anxiety for CCBT vs comparison; moderate between-groups effect size (d=0.44); effect robust after Bonferroni correction for multiple comparisons (p=0.04); no other significant differences were found between groups | Moderate |
| Botella and colleagues ⁵⁴ (2010) | RCT, Spain | Anxiety (diagnosis of social anxiety by mental health professional) | N=127; mean age 24 years; 52% male participants | cCBT: <i>Talk to Me</i> (programme) exposure to anxious situation through use of videos, available over 8 weeks, self-administered at home | Face-to-face session, twice a week; or waitlist | SAD: significantly more improved anxiety symptoms in cCBT group vs waitlist (SMD -0.56 [95% CI -1.01 to -0.11]); cCBT was not worse compared with face-to-face: 8.29 [5.14], SMD -0.11 [-0.52 to 0.30]); treatment improvements were maintained at 1-year follow-up | Low |
| Ackerson and colleagues ⁵⁵ (1998) | .. | Depression (HDRS of 10+) | N=30 | Cognitive bibliotherapy: <i>Feeling Good</i> (Burns, 1980) ⁵⁶ during 4 weeks | Waitlist | HDRS: at end of treatment significantly greater reduction in depression for bibliotherapy vs waitlist, SMD -2.57 (95% CI -3.69 to -1.46) | Low |

(Table 2 continues on next page)

| Study type and country | Anxiety or depression (how was diagnosed) | Participants | Intervention | Comparator | Key findings | Certainty based on Grading of Recommendations Assessment, Development and Evaluation |
|---|---|--|---|---|--|--|
| (Continued from previous page) | | | | | | |
| Bar-Haim and colleagues ⁵⁷ (2011) | RCT, Israel Anxiety (top 50th percentile of SCARED) | N=34 (18 intervention, 16 comparison); mean age 10.1 years | Attention bias modification: dot probe task with face stimuli, four sessions of 60 min over 2 weeks | Neutral training: four 1 h sessions over 2 weeks | Some evidence of greater reduction in trait anxiety with attention bias modification training vs neutral training 2 weeks after treatment | Moderate |
| Waters and colleagues ⁵⁸ (2013) | RCT, Australia Anxiety (anxiety disorder interview schedule for children and parents scores ≥ 4) | N=37; age 7–13 years; 59% male participants | Attention bias modification: dot probe task with face stimuli, four sessions a week for 3 weeks | Attention training, four sessions a week for 3 weeks | No significant difference in clinician rated diagnoses of anxiety with attention bias modification training (50% of participants recovered) vs attention training (8% of participants recovered); anxiety scores at 3 weeks after treatment were -0.45 (95% CI -1.13 to 0.24) | Moderate |
| Li and colleagues ⁵⁹ (2008) | RCT, China Anxiety (social anxiety as defined on social interaction anxiety scale) | N=24; age 18–22 years; 58% male participants | Attention bias modification: dot probe task with face stimuli, one 20-min session per day for 1 week | Neutral training, one 20-min session per day for 1 week | No significant difference in social anxiety in intervention group (SMD -0.26 [95% CI -1.06 to 0.54]) at 1 week after treatment | Moderate |
| Fu and colleagues ⁶⁰ (2013) | RCT, China Anxiety (SCARED >23) | N=28; age 12–17 years; mean age 14.5 years | Cognitive bias modification of interpretations: word fragment completion, single session | Neutral training, single session | No significant difference in anxiety between the comparison and the intervention group after the session (SMD 0.39 [95% CI -0.37 to 1.15]); details from Pennant and colleagues ⁶¹ | Moderate |
| Sportel and colleagues ⁶² (2013) | RCT, Netherlands Anxiety (RCADS >10 girls, >9 boys) | N=240; age 12–15 years; mean age 14 years; 72% female participants | Attention bias modification: dot probe task; cognitive bias modification of interpretations: word fragment completion; two sessions per week for 10 weeks | No treatment; or group CBT delivered by a therapist, 3–10 children or young people per group, one session of 1.5 h per week, for 10 weeks | No significant difference in anxiety between intervention group and non-therapeutic comparison group 1 week after treatments (social anxiety -0.05 [95% CI -0.36 to 0.27]) or the active therapeutic comparison group (-0.20 [-0.50 to 0.11]); details from Pennant and colleagues ⁶¹ | Moderate |
| Amount of detail for each study reflects data available in the paper. RCT=randomised clinical trial. CDRS=children's depression rating scale. CDI=children's depression inventory. BDI=Beck depression inventory. DASS=depression anxiety stress scales. HDRS=Hamilton depression rating scale. CBT=cognitive behavioural therapy. SMD=standardised mean difference. MDD=major depressive disorder. CES-D=Center for Epidemiological Studies-Depression. CORE-OM=Clinical Outcomes in Routine Evaluation-Outcome Measure. MMPI=Minnesota Multiphasic Personality Inventory. DAC=depression advice clinic. cCBT=computerised cognitive behaviour therapy. RADS=Reynolds adolescent depression scale. PHQ=patient health questionnaire. HAD-S=hospital anxiety and depression scale. DASS: depression anxiety stress scales. SAD=social avoidance and distress scale. SCARED=screen for child anxiety-related disorders. RCADS=revised children's anxiety and depression scale. | | | | | | |
| Table 2: Studies included in systematic review of interventions available to children and young people with depression or anxiety, without professional or paraprofessional help | | | | | | |

computerised cognitive behavioural therapy for depression and anxiety and of physical exercise for depression was mixed. Most studies had evidence of insufficient certainty to draw conclusions as to effectiveness or ineffectiveness of the intervention. Given the large number of potential strategies identified by the scoping review, our systematic review exposes a gap in the research already available on approaches to address anxiety and depression for children and young adults, without professional help. We argue that these results highlight the need for a whole new research

agenda to consider these under-researched strategies. To develop this new research agenda, it might be helpful to consult with young people and those who support them (including professionals, paraprofessionals, friends, and family) to understand whether other strategies that were not captured online or in the published literature might be considered for further research. Some of the current authors (MW, LG, and KD) have started a study involving engagement with young people with anxiety or depression to identify approaches they have used and those that should be the

For more on self-help websites see <http://www.youngminds.org.uk>, <http://www.depressioninteenagers.com>, <http://www.RU-OK.org.uk>, <http://www.healthtalk.org>

| | Subcategory of intervention | Summary of main findings | Implications for clinical practice |
|----------------------------------|-------------------------------------|---|---|
| Cognitive behavioural principles | Digital interventions based on cCBT | 9 studies ⁴⁴⁻⁵³ in total (including one feasibility trial), ⁴⁹ results from 5 ^{44-47,52} studies (4 moderate certainty, ^{44, 46, 47, 52} 1 low certainty ⁵³) showed that cCBT is more effective than no intervention, and might not be inferior to face-to-face therapy, for depression; results from 3 studies ^{48, 50, 51} (2 low certainty, ^{48, 51} 1 moderate certainty ⁵⁰) showed no effect of cCBT on depression, of which results from 2 studies ^{48, 51} (low certainty) showed that cCBT was more effective than no intervention, and either better or not worse than face-to-face therapy, for anxiety; and results from 1 study ⁵⁰ (moderate certainty) showed no effect of cCBT compared with information only | Mixed evidence for effectiveness of digital interventions based on cCBT for depression or anxiety |
| Cognitive behavioural principles | Digital interventions based on ABM | Results from 5 studies ⁵⁵⁻⁵⁹ (all moderate certainty) showed that ABM does not to have an effect on children and adolescents with anxiety | Evidence for ineffectiveness of digital interventions based on ABM in reducing anxiety |
| Cognitive behavioural principles | Cognitive bibliotherapy | Results from 1 study ²⁴ (low certainty) showed some evidence of the effect of cognitive bibliotherapy on depression | Insufficient evidence for or against cognitive bibliotherapy for depression |
| Physical exercise | .. | 10 studies ^{29-31, 33-37, 39, 40} in total; results from 6 studies ^{29, 30, 33-35, 40} (1 very low certainty, ³⁴ 4 low certainty, ^{29, 30, 35, 40} 1 moderate certainty ³³) showed an effect of physical exercise on depression compared with no exercise; and results from 4 studies ^{31, 36, 37, 39} (1 very low certainty, ³⁶ 2 low certainty, ^{31, 37} 1 moderate certainty ³⁹) showed no effect of physical exercise on depression | Mixed evidence for effectiveness of exercise for depression |
| Light therapy | .. | Results from 5 studies ^{23, 25-28} (2 moderate certainty, ^{26, 27} 2 low certainty, ^{23, 25} 1 very low certainty ²⁸) found light therapy effective for children with seasonal depression but no evidence for non-seasonal depression | Evidence that light therapy is effective for children with seasonal depression; insufficient evidence for light therapy effectiveness for non-seasonal depression |
| Dietary supplements | Vitamin C | Results from 1 study ⁷⁰ (very low certainty) showed some evidence of the effect of vitamin C for depression | Insufficient evidence for or against vitamin C for depression |
| Dietary supplements | Omega 3 | Results from 1 study ⁷⁹ (very low certainty) showed some evidence of the effect of omega 3 for depression | Insufficient evidence for or against omega 3 for depression |
| Dietary supplements | Hops | Results from 1 study ⁷² (moderate certainty) showed some evidence of the effect of hops for depression and anxiety | Insufficient evidence for or against hops extract for depression and anxiety |
| Massage Therapy | .. | Results from 2 studies ^{42, 43} (very low certainty) showed some evidence of the effect of massage therapy for depression | Insufficient evidence for massage therapy for depression |
| Peer support | Online peer support | One study ⁴¹ (very low certainty) found no evidence of the effect of online peer support for depression | Insufficient evidence for or against online peer support for depression |
| Contact with pets | Contact with a dog | One study ⁷¹ (very low certainty) found some evidence of the effect of having contact with a dog for depression | Insufficient evidence for or against pet therapy for depression |

cCBT=computerised cognitive behavioural therapy. ABM=attention bias modification.

Table 3: Summary of evidence from systematic review on interventions (without professional help) for children and young adults with depression and anxiety, and implications for clinical practice

focus for further research. The study involves both a survey and focus group work.

A key aspect of moving the agenda forward is finding a way of categorising all the different approaches identified by the scoping review. A decision was made not to impose categories at the outset on the very varied group of approaches, but we have since embarked on working with

young people and professionals to develop possible categories (appendix). However, we have found that suggested categories (appendix) are not reliable and would argue that rigorous and collaborative work is required to move towards the development of a meaningful taxonomy.

A first step to achieve this taxonomy is agreeing an overarching category for all such interventions. For this

For more on the survey and focus group see <https://www.surveymonkey.co.uk/r/HelpUsHelpOthers>

study, we used the term strategies not accompanied by a professional to include interventions not covered by the existing literature; however, we believe that continuing to define them by what they are not needs to be avoided to prevent them from being further sidelined. Existing terms in use only relate to one aspect of the range of interventions of interest or carry connotations—eg, terms such as self-help or self-care do not reflect approaches that involve others and include a wider system of support, or indeed the system itself. We considered different names (appendix) and having reviewed the different options, we propose the use of the term self or community approaches to address mental health issues.

In this Review, the definitions of unguided or unsupported by a professional or paraprofessional were much stricter than those in the reviewed literature, in which self-help or similar terms often include a degree of therapeutic input. This restriction might mean we missed some professionally accompanied interventions that might still be helpful even without the professional being present, which should be considered in future research. The fact that we excluded studies of at-risk populations (ie, those without evidence of existing anxiety or depression but who were likely to develop such conditions) restricted the evidence available to our systematic review. Some of the lifestyle-related interventions, such as physical exercise, good nutrition, and massage, for which increasingly strong evidence for effectiveness in maintaining wellbeing and positive mental health is available, might also be of use to those with emerging mental health problems. However, we found little evidence of research into these strategies and very low certainty of effectiveness for our specific population (ie, children and young people with depression or anxiety).

Many of the studies included in the Review had relatively low numbers of participants; thus, statistical power was low,⁶³ which means that only moderate to large effects of the interventions would show as significant. Therefore, the full potential of the included approaches might be underestimated in this Review.

Conclusions

This Review presents important findings for the field of interventions for children and young people with depression or anxiety without professional or paraprofessional input. It highlights how few non-professionally mediated interventions have been assessed and when they are evaluated the focus is skewed to digital interventions based on professionally developed models of intervention.

The research implications arising from our findings are outlined as follows. There is a need for a greater research focus on the rigorous assessment of some of the self or community strategies identified in this Review. This involves a new research agenda including the

Search strategy and selection criteria

Before undertaking this Review, the authors searched for other reviews and meta-analyses of strategies not accompanied by a professional, which focused particularly on addressing anxiety and depression in children and young people, and were unable to find any specific review of this topic. When registering the current Review on PROSPERO, the authors did find a review registered by Bennett and colleagues. This review, however, differed substantially from our planned review in that it focused entirely on interventions designed by mental health professionals and considered the difference in effect in terms of whether they were supported or unsupported by mental health professionals. The authors have kindly shared their draft pre-publication to which we refer in the text. For our Review, we did a systematic search for studies in English from Jan 1, 2000, to Jan 29, 2018 in the following databases: Web of Science Core Collection (Science Citation Index Expanded, Social Science Citation Index Expanded, Arts and Humanities Citation Index, Conference Proceedings Citation Index-Science edition, Conference Proceedings Citation Index-Social Science and Humanities, Emerging Sources Citation Index [2015–18], Book Citation Index [2005–18]); MEDLINE; BIOSIS Citation Index; BIOSIS Previews; Cochrane Central Database of Controlled Trials (Cochrane Library); and SciELO Citation Index. Studies were identified with search terms for disorders of “anxiety or depression” combined with terms for “self-help”, “coping strategy”, and “complementary therapy”.

identification of helpful strategies to focus on in extensive consultation with children and young people, as well as those providing support, and collaboratively developing a taxonomy of such non-professionally mediated interventions. There is also a need to consider how different populations of children and young people might use different strategies. In particular, it might be helpful to prioritise attention on some of the most socially excluded youth, to understand differential use and the effect of self, social, or community approaches to addressing mental health issues.

This Review also has clinical implications. Those seeking to help young people with anxiety and depression can use available evidence (although limited) to help guide their advice and support shared decision making with children and young people. These decisions might include sharing the list of relevant strategies identified in the scoping review to prompt conversations about what strategies they use and find helpful. Another clinical implication is the need to support young people with anxiety and depression to find the best way to monitor and review the approaches that work best for them in addressing their mental health issues, including social or community approaches.

This Review represents the first step to unravel the notion of spontaneous improvement and considers the variety of ways that children and young people with anxiety and depression, and those seeking to help them, can best use self or community approaches to help them reach their goals in life.

Contributors

MW designed the study, led the writing of the paper, reviewed included and excluded studies, and provided strategic input and oversight. RU did the scoping search and developed the first draft of the scoping table with identified self-help strategies; did the systematic review (including the literature and website search, deciding inclusion and exclusion of studies,

critical appraisal of included studies and data extraction); developed the evidence tables, GRADE tables, and summarised evidence findings; and drafted the methods section of the paper. KD and LG were involved in the conception and design of the study, the draft of the paper, and final approval of the manuscript. MC and DH did the second screening of reviews, and contributed to and approved the final draft of the paper. PP contributed to summarising the evidence and efficacy estimates, and provided input and final approval of the manuscript. DL was involved in providing clinical expertise to support RU in the scoping search and systematic review, and in the drafting and final approval of the manuscript.

Declaration of interests

DL reports personal fees from Riches and Ullman LLP, during this study, and personal fees from the Child Outcomes Research Consortium and the Anna Freud National Centre for Children and Families and University College London, outside the submitted work. All remaining authors declare no competing interests.

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