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A systematic review of the long-term benefits of school mental health and wellbeing interventions for students in Australia

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Background: Over the last decade there has been increased recognition about the role of school staff in preventing mental ill health and promoting wellbeing in young people. Despite this, information regarding the long-term benefits of school mental health programs is not widely available.

Aims: The aim of this systematic review was to synthesize the evidence for school-based mental health and wellbeing programs which are available in Australia and have been shown to have long-term benefits for children and adolescents.

Results: This systematic review of the literature identified 74 articles reporting long-term outcomes for student mental health and wellbeing, distributed across 29 unique programs. Common features of efficacious programs included cognitive behavioral interventions, mental health literacy, and social-emotional skills programs.

Conclusions: Some of the identified school-based interventions for student mental health and wellbeing demonstrated long-term positive impacts on students' physical and psychological health and wellbeing.

KEYWORDS

wellbeing, students, schools, interventions, mental illness, mental health

Introduction

A significant proportion of children and young people will experience a mental illness before the age of 25. However, three-quarters of young people do not access professional help for their mental health concerns (Calear et al., 2017). Schools are opportunistic settings to promote children's mental health, and identify and intervene with those who may be exhibiting signs of mental illness. It is therefore imperative that school staff have access to current and evidence-based information on interventions that support the mental health and wellbeing of children and youth. The purpose of this systematic review was to explore the literature on the long-term outcomes of mental health and wellbeing programs aimed at promoting students' mental health and preventing mental illness among children and adolescents in schools.

Approximately 44% of Australians experience a mental disorder in their lifetime [Australian Bureau of Statistics (ABS), 2022]. Moreover, approximately one in four, or 26% of youth in Australia experience a mental illness [Lawrence et al., 2015; Australian Bureau of Statistics (ABS), 2022]. In the USA, Merikangas et al. (2010) found 40% of adolescents aged 13–18 years experience a mental illness, with anxiety disorders being the most common (31.9%), followed by behavior disorders (19.1%), depressive disorders (14.3%), and substance use issues (11.4%). The same study found just over 11% of adolescents suffer severe mental illness, a figure which is higher than the most common physical conditions in adolescence, such as asthma.

Since the 1940s, many mental health conditions, such as major depressive disorders, have been diagnosed increasingly earlier with each subsequent generation (Klerman and Weissman, 1989; Allen and McKenzie, 2015). In the 1960s, the average age of onset for depression was 29 years; however, Seligman (2012) suggests initial diagnosis rates of depression have fallen to 14.5 years. There is widespread agreement that the average age of onset for many mental illnesses occurs during mid to late adolescence (Bowman et al., 2017). Moreover, the [World Health Organisation (WHO), 2018] reported that depression is the leading cause of illness and disability among adolescents, and suicide is the third highest cause of death. McGorry and Mei (2018) wrote that early intervention to address youth mental health has made significant progress over the past two decades, however, suggest that a broader range of interventions, targeting different youth mental health concerns are required.

Mental illness in childhood and adolescents leads to social, emotional, and behavioral impairments, poor academic, educational, and employment outcomes, and disadvantage, physical, and psychological disorders later in life (Leach and Butterworth, 2012; Bowman et al., 2017). Young people with mental illness and developmental delay are at greater risk of school failure and absenteeism, disruptive classroom behavior, and suspensions and expulsions from school (Panayiotou and Humphrey, 2017; Wigglesworth et al., 2017). Long-term complications for these children include dependence on welfare, unemployment, and involvement with the criminal justice system (Dalsgaard et al., 2013; Aebi et al., 2014; Bowman et al., 2017). Accordingly, mental illness in youth has consequences for fostering lifelong mental and physical health, productivity, thriving, and flourishing (Currie et al., 2013).

There are many reasons why school staff should be involved in promoting the mental health and wellbeing of young people. Most children and adolescents attend school and Reupert (2019) described schools and family as more influential on children's development than any other social institution. Increasingly, there has been a strong emphasis on school-based prevention and early intervention programs to address student mental health. These programs aim to promote children's social and

emotional competence and wellbeing, identify at risk students, and provide early intervention to prevent child and adolescent mental illness. However, with such a large number of programs, it is imperative that teachers, other school staff, and mental health service providers receive information that guides them to identify evidence-based programs available to them. It is also important that schools receive this information across a range of mental health interventions, addressing a range of youth mental health concerns. For the purpose of this review, we use the terms mental health, wellbeing, mental illness, and mental health conditions to refer to any psychologically-based aspects of functioning that have the potential to negatively impact young people. Through this review, we aimed to identify school prevention and early intervention programs designed to prevent mental ill-health and/or promote wellbeing of children and adolescents. The present systematic review seeks to provide this important information by responding to the following research question:

1. What school-based mental health prevention and early intervention programs available to Australian schools have been shown to be effective in improving students' mental health and/or wellbeing?

Method

Search strategy and search terms

A review of the literature was conducted on school-based mental health prevention and early intervention programs in primary and secondary schools. No restrictions were placed on the country of origin of the programs; however, programs needed to be evaluated and/or available for Australian schools to access. Each program identified through the search was evaluated to check if the program manual/materials were freely available online or available for purchase by Australian schools. This was achieved by manually checking each program's webpage to ensure that teachers and school staff in Australia could access the materials. Evidence was sourced from four peer-reviewed journal databases: (1) The Cochrane Library; (2) PsycINFO; (3) Ovid MEDLINE(R); and (4) Scopus.

The search terms and structure used in the literature search are presented in Table 1. Relevant search limits were adopted according to the options provided within each database, and included the application of parameters for publication dates, age-ranges, article types (e.g., peer-reviewed articles), and search subject areas (e.g., *Child Health; Developmental, Psychosocial and Learning Problems*), where possible. The review was not registered with a systematic review registration database (e.g., PROSPERO) prior to conducting the review. However, the search terms and strategy was reviewed by all of the authors and consultants from the NSW Department of

TABLE 1 Structure of search terms applied in the literature review.

Search 1	Prevention OR “early intervention” OR intervention OR program
Search 2	School OR “early childhood” OR educat* OR kindergarten OR reception OR “early learning”
Search 3	“mental health” OR wellbeing OR “well-being” OR psycho* OR “mental illness” OR “social emotional” OR social-emotional OR “mental health literacy” OR “help-seeking” OR “help seeking” OR “social emotional learning” OR “social-emotional learning” OR depression OR anxiety OR “conduct disorder” OR “oppositional defiant disorder” OR “attention deficit-hyperactivity disorder” OR “attention deficit hyperactivity disorder” OR self-harm OR self-injury OR suicide OR “eating disorder” OR “substance use” OR “social skills”
Search 4	evaluat* OR effect* OR trial OR comparison OR impact OR outcome OR efficacy OR effectiveness
Search 5	1 AND 2 AND 3 AND 4

Education to ensure the search was robust and to limit potential researcher bias.

Inclusion and exclusion criteria

Studies were included if they: (1) were published in English; (2) were published from October 2012 to October 2019; (3) investigated student outcomes three or more months post-intervention; (4) delivered a prevention or early intervention program with students; and (5) delivered interventions in primary and secondary schools. No limits were placed on the type of intervention, such as interventions targeting social skills, coping, resilience, self-injury and suicide, body image, or anxiety and depression. In addition, programs targeting substance abuse and physical activity were eligible to be included if they had a mental health and wellbeing component. Programs targeting students with mental health, mental illness, and wellbeing concerns across special needs, disabled, culturally and linguistically diverse groups, and Indigenous people were also eligible to be included. Programs delivered in tertiary settings were not included in this review.

Search process and outcomes

The systematic literature search returned 6,574 published records found across the four databases. Among the records returned were 963 duplicates. All 5,611 unique records were screened by a member of the research team for eligibility to be included in the review, with the previously outlined inclusion criteria applied. This team member consulted regularly with other members of the research team to ensure appropriate articles were retained or removed during screening. This occurred through regular meetings and cross-checking of articles by members of the team. The first stage of screening involved checks of the article title and abstract, which identified 354 articles that were potentially eligible for inclusion. The second stage of screening involved assessing the full-text of

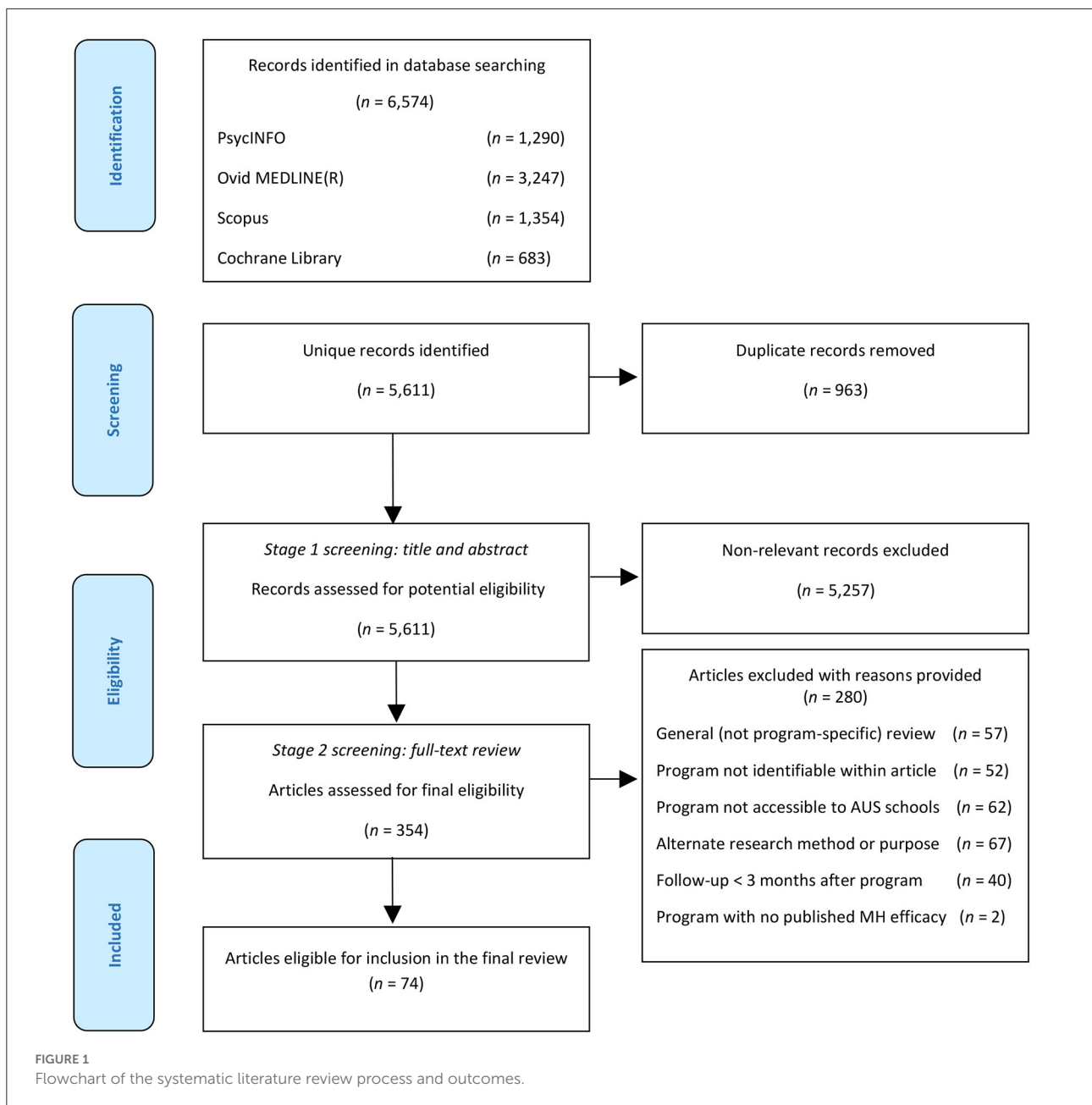
each article, with 74 articles deemed eligible for final inclusion, relating to 29 unique school-based mental health programs. The search process and outcomes are presented in [Figure 1](#).

Data extraction and evidence rating

Data were extracted from each article according to the PICO categories (P = patient, problem or population explored, I = Intervention delivered, C = Comparison, control or comparator used in the evaluation, and O = Outcome(s) of the intervention). Additional categories of author name, date of publication, study methodology, duration of program, and timing of follow-up assessments were also collated. Each article was rated on a quality of evidence from the National Health and Medical Research Council guidelines for levels of evidence [[National Health and Medical Research Council \(NHMRC\), 2009](#)]. Studies with a rating of Level I (systematic reviews of Level II evidence) are identified as providing the strongest evidence, while studies rated at evidence Level II, III-2, and III-3 represent randomized controlled trials and comparative studies with control groups, and studies with a rating of Level IV indicate that the study involves pre- and post-test analysis of program outcomes.

Results

This review identified 74 studies representing 29 distinct programs. The majority of studies were conducted in the USA ($n = 32$), followed by Australia ($n = 20$), the UK ($n = 8$), the Netherlands ($n = 6$), Sweden ($n = 2$), 10 EU countries ($n = 1$), and finally, one study conducted each in the countries of Belgium, Turkey, Israel, Croatia, and Switzerland. The setting of these studies included secondary (high) schools ($n = 37$), followed by primary (elementary) schools ($n = 25$), combined primary and secondary school settings ($n = 5$), combined primary and pre-school (early childhood for children aged 0–5 years) settings ($n = 4$), pre-schools ($n = 2$), and one study conducted in a specialist school (setting for students with



additional learning, social, emotional, and/or behavioral needs) setting. Regarding the National Health and Medical Research Council (NHMRC) (2009) ratings, 63 studies were randomized controlled trials with an evidence rating of II, seven were non-intervention (waitlist) control studies with a rating of III-2, two used a pre- and post-test design (rating of IV), and one used a quasi-experimental design (rating of III-3).

The results have been organized by type of mental health or wellbeing concern targeted by the program (e.g., anxiety and depression, self-injury, and suicide) and by whether the program outcomes were observed 3 to 11 months post-intervention or >12 months post-intervention. [Supplementary Table 1](#) lists the programs and outcomes of the programs.

Three to 11-month post-intervention programs

Anxiety and depression

Aussie optimism programme-positive thinking skills

Designed and evaluated in Western Australia, the Aussie optimism programme-positive thinking skills (AOP-PTS) program targets depression and anxiety in children and adolescents through a cognitive behavioral framework. [Cheng et al. \(2018\)](#) found the program to be an effective intervention for symptoms of depression and anxiety, benefiting both students with regular levels of vulnerability to mental health problems, as well as students living in vulnerable circumstances

(i.e., parent with mental illness, adverse family situations) at a 6-month follow-up.

MoodGYM

MoodGYM (MG) is an online self-directed anxiety and depression program aimed at young people aged 16 years and older. It is based on a cognitive behavioral model of intervention, allowing users to engage in an interactive program to explore the link between their thoughts, feelings, and actions. [Calear et al. \(2013\)](#) trialed the MG program in 30 schools, Australia-wide, with students aged 12–17 years. The program significantly reduced students' depressive and anxious symptoms compared to a control group at 6 months. The intervention effect was stronger for students who demonstrated higher adherence to the exercises and program quizzes compared with students whose adherence was low. Students enrolled in Year 9 and students who lived in rural locations were most likely to adhere to the MG modules.

Resourceful adolescent program

Resourceful Adolescent Program (RAP) is focused on fostering individual, family, and school-based protective factors to prevent depression in teenage students with autism. [Mackay et al. \(2017\)](#) showed a significant maintained effect at 6 months post-intervention compared to the control condition on Australian parents' reports of child and adolescent coping, but not on adolescents' depressive symptoms or general mental wellbeing. [Stallard et al. \(2013\)](#) and [Anderson et al. \(2014\)](#) in the UK found that the RAP program had no impact on the mood of 12–16-year-old students at 6 months.

Resilience and social-emotional wellbeing

BounceBack!

Bounceback! is a universal program that focuses on social and emotional learning and has demonstrated efficacy over 3-months after delivery of the program with Australian primary school students and across a range of domains including psychological wellbeing, resilience, improved student behavior, and academic achievement ([Anthony and McLean, 2015](#)).

Challenging horizons program

Challenging Horizons Program (CHP) is an after-school or consultation-based program whereby schools either: (1) engage students in an after-school program to improve their organization, social skills, and other academic behaviors, or (2) consultation is provided to educators to work with students regarding their executive functioning. In the USA, the program has been evaluated in studies by [Evans et al. \(2016\)](#), [Langberg et al. \(2016\)](#), and [Schultz et al. \(2017\)](#) and found to improve adolescent executive functions of organization and time management, homework completion and attentive behavior, reduce disruptive behaviors and levels of anxiety, and improve grades relative to the control conditions at 6 months

follow-up. Strong school mental health provider/adolescent working alliance, as rated from the adolescent perspective, and lower levels of parenting stress and parent-adolescent conflict consistently predicted an increased likelihood of positive outcomes ([Langberg et al., 2016](#)).

FRIENDS, FRIENDS for Life, and Fun FRIENDS

These programs are a collection of social skills and resilience-based interventions designed to teach pro-social behaviors, awareness of emotions and thoughts, relaxation techniques, and cognitive behavioral techniques to primary school children. [Iizuka et al. \(2014\)](#) found the FRIENDS program reduced Australian children's symptoms of separation anxiety at 3 months, but not at 6 months, following the intervention for students with low levels of emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems. However, the program reduce anxiety scores in students with high levels of these difficulties at the 6-month follow-up.

Learn 2 breathe

Learn 2 Breathe (L2B) is a mindfulness-based curriculum for adolescents. The program aims to improve student mental health and emotional coping by becoming mindful, accepting, and non-judgemental toward daily emotions and changes in emotional experiences and bodily sensations. The curriculum is given to students in classroom and group settings and is delivered across either 6, 12, or 18 sessions by classroom teachers. In a US study, the L2B program reduced student behavioral problems, anxious and depressive problems, and emotional expression and coping, as reported by the parent or child involved in the intervention at 3 months follow-up compared to the control group ([Fung et al., 2016](#)).

Penn resiliency program

The Penn Resiliency Program (PRP) in the UK (and the adapted Op Volle Kracht program from the Netherlands) provides training for secondary school students about resilience, wellbeing, optimism, and strategies to build on a student's personal strengths. The Op Volle Kracht program was observed by [Wijnhoven et al. \(2014\)](#) to reduce secondary school students' symptoms of depression at 6 months post-intervention in comparison to a control group.

Promoting alternative thinking strategies

The Promoting Alternative Thinking Strategies (PATHS) program is aimed at primary school children and aims to promote social and emotional competencies and reduce aggression. In [Fishbein et al.'s \(2016\)](#) study in the US, teachers reported that the behavior of students in the PATHS program had improved significantly at 6 months post-intervention.

Mental health literacy programs

Adolescent depression awareness program

The Adolescent Depression Awareness Program (ADAP) is designed to educate the school community, including parents, teachers, and students, and reduce stigma regarding depressive disorders and bipolar disorder. ADAP was evaluated in a cohort of US high school students and found to improve students' depression literacy in comparison to the control group. However, no changes were observed in students' levels of depression-based stigma (Swartz et al., 2017; Townsend et al., 2019). The effects of this program found for help-seeking among students were sustained 4 months after delivery of the program.

HeadStrong 2.0

HeadStrong 2.0 (HS2) is a resource aimed at Year 9 and 10 students. Students are taught about mental health, wellbeing, resilience, and help seeking through five modules that are linked to Health and Physical Education curricula. In the single available study on the efficacy of the HS2 program, Perry et al. (2014) investigated 6-month post-intervention outcomes in a cohort of secondary school students across 10 schools in NSW, Australia. Results indicated that the program was efficacious, with improvements observed in students' mental health literacy and levels of stigma, compared to controls.

Teen mental health first aid

The Teen Mental Health First Aid (TMHFA) course aims to teach Year 9 and 10 students how to provide mental health first aid and support to their peers in three classroom-based sessions. In a pilot trial of the program, Hart et al. (2016) investigated 3-month post-intervention efficacy across a large sample of students attending four secondary schools in the Victoria, Australia. The program led to improvements in students' mental health literacy, a reduction in stigmatizing attitudes, and increased confidence in both seeking assistance for mental health concerns and helping peers with mental health concerns. However, the preliminary trial of the program did not include a comparison group to assess these improvements against, and a high rate of student drop-out from the study was noted.

Self-injury and suicide

Signs of suicide

Signs of Suicide (SoS) is designed to educate students and teachers about adolescent suicide and help-seeking for suicidal thoughts and behaviors. Two outcome evaluations in the US of the SoS prevention initiative for early or middle adolescent students found the program reduced rates of suicidal behavior and thoughts, improved student help-seeking for themselves and peers for suicidal behavior, and improved student knowledge and attitudes toward depression and suicide 3 months following the intervention (Schilling et al., 2014; Schilling et al., 2016).

Changes in help-seeking attitudes of students was only found in one of Schilling et al.'s evaluations (Schilling et al., 2014). Additionally, changes were observed in this study regarding students with a history of suicide attempts as they were significantly less likely to report planning suicide at the 3-month follow up compared to the lower-risk adolescent group.

The youth aware of mental health program

The Youth Aware of Mental Health (YAM) program was designed to improve the mental health and resilience of adolescents and to reduce depression, anxiety, and suicidal thoughts and attempts among adolescents aged 14–16 years. The YAM program was compared with adolescents in 10 European Union countries against two alternative suicide prevention programs. No significant differences were found between the intervention groups and the control groups at the 3-month follow-up (Wasserman et al., 2015).

Post-traumatic stress symptoms

Bounce back

In 12 US elementary (primary) schools, parent- and child-reported symptoms of posttraumatic stress, depression, and anxiety symptoms (Langley et al., 2015), and adaptive coping (Santiago et al., 2018) improved following delivery of Bounce Back, a cognitive behavioral intervention to address symptoms of posttraumatic distress. Furthermore, student gains were found to be significantly better in comparison to outcomes for students in waitlist control groups. These evaluations were conducted 3–6 months after the intervention.

Body image and eating disorders

Body image in the primary school

Halliwell et al. (2016) conducted a study of the Body Image in the Primary School (BIPS) program in primary schools in the UK with an intervention group and control group and found that after the program and 3 months post-intervention, females in the intervention group reported greater body-related self-esteem compared to the control group at 3 months post-intervention. However, in contrast, males in the intervention group internalized media ideals at greater levels compared to the control group at this time-point.

Happy being me co-educational program

In Australia, the Happy Being Me Co-educational (HBMC) program was found to reduce secondary school students' body dissatisfaction and psychological risk factors, including poor self-esteem and internalization of media ideals in cohorts of students from both single-sex classes and co-educational classes at a 6-month follow-up (Dunstan et al., 2017).

Twelve or greater months post-intervention programs

Anxiety and depression

Aussie optimism programme-positive thinking skills

Rooney et al. (2013a,b) and Johnstone et al. (2014) reported that the AOP-PTS reduced levels of depressive symptoms and parent-reported emotional difficulties of students; however, at a 30-month follow-up and at 42- and 54-month follow-ups, no differences were found between the intervention group and control group in relation to anxiety and depressive symptoms, although a difference was found for changes in parents' reports of student hyperactive behaviors (Rooney et al., 2013a,b). No significant treatment effects were observed for student's attribution style or parent-reported prosocial behaviors compared to a control group at these follow-up time-points across the three studies (Rooney et al., 2013a,b; Johnstone et al., 2014).

Creating opportunities for personal empowerment (COPE TEEN)

Creating Opportunities for Personal Empowerment (COPE) is a 15-session manualised program based on cognitive behavior therapy for 12- to 18-year-olds. Since 2013, the efficacy of the COPE program has been investigated by Melnyk et al. (2013, 2015), and in a Turkish adaption of the program by Ardic and Erdogan (2017). Melnyk et al.'s (2013) study did not find the program significantly reduced students' levels of anxiety or depression in comparison to the control group when followed-up at 6 months. However, the next follow-up at 12 months produced a different result, finding a reduction in students' levels of depression symptoms (Melnyk et al., 2015). In contrast, Ardic and Erdogan's (2017) results did not mirror Melnyk et al.'s 12-month depression finding but instead found a positive impact on students' anxiety levels post 12 months.

Get lost Mr Scary

Get Lost Mr Scary (GLMS) is a program based cognitive behavioral therapy to foster primary school students' capacities to adaptively manage feelings of anxiety and worry. Ruocco et al. (2016) evaluated the GLMS program with 5 to 7-year-old children in 23 schools in New South Wales, Australia. At a 12-month post-intervention assessment, compared with those from a comparison waitlist group, both parents and teachers in the intervention group reported their students/children exhibited fewer symptoms of anxiety and behavioral problems.

Resilience and social-emotional programs FRIENDS, FRIENDS for Life, and Fun FRIENDS

Lee et al. (2016) in the US found the FRIENDS program reduced symptoms of students' anxiety, as reported by their parents, and this effect was maintained at 3-year follow-up.

However, in contrast, students did not self-report the same effect on anxiety in this study. Studies by Stallard et al. (2014) and Skryabina et al. (2016) reported on the performance of the FRIENDS program in a UK cohort of primary school students and concluded that levels of social anxiety and generalized anxiety had significantly reduced at 12 months after the FRIENDS intervention, but only in the context of the program having been delivered by a health professional. The FRIENDS for Life program was also shown to decrease anxiety and depression levels in the intervention compared to the control group, among 8–13 year olds in the Netherlands, and these effects were sustained at 12 months follow-up (Kösters et al., 2015). However, children with higher levels of depression were only found to benefit 12 months following the program in the evaluation by Ahlen et al. (2018, 2019) in Sweden. Fun FRIENDS was investigated by Anticich et al. (2013) in children aged 4–7 years in Australian schools. Anticich et al. (2013) found, at the 12-month follow-up, improved student behavior control, reduced student disruptive behaviors, improved students overall social and emotional competencies and parent-child relationships, and reduced parent distress.

Penn resiliency program

No significant treatment effects were found between the control and intervention group of students aged 11–16 years on depression symptoms at the 12-, 18-, and 24–25-month follow-up for the Op Volle Kracht program (as well as at 3 and 6 months post program) (Kindt et al., 2014; Tak et al., 2014, 2016; Poppelaars et al., 2016). Furthermore, Challen et al. (2014) in the UK found that the PRP demonstrated no significant effect on depression, anxiety, or problematic behavior between the experimental and control groups at either 1 or 2 years following the intervention. In the US, Brunwasser et al. (2018) explored efficacy of the program at 36 months for reducing students' depressive symptoms across three middle-years schools that were comparable on a range of demographic factors, but found the program was only effective in two of the schools and not the third.

Positive action

Positive Action (PA) is a social-emotional program containing over two thousand different 15-min lessons for students from Kinder to Year 12. PA has been the subject of a program of research in a large cohort of Chicago high school students over a 6-year period. Key longitudinal findings from this research include that, compared with a control group, students who had participated in the program experienced lower levels of anxiety and depressive symptoms and fewer behavioral problems in the 6 years after the program (Lewis et al., 2013) and risky behaviors over a 5-year period (Snyder et al., 2013). Further benefits included better academic engagement and outcomes (Bavarian et al., 2013), greater social emotional learning over a period of 6 years (Duncan et al., 2017), more

health-promoting behaviors 6 years post intervention (Bavarian et al., 2016), and greater life satisfaction (Lewis et al., 2013). In a different cohort of US students, it was found that after 36 months in the PA program, students had better self-esteem in comparison to a control group; however, the program did not result in significant reduction in aggressive behavior or internalizing symptoms (Guo et al., 2015; Smokowski et al., 2016).

Promoting alternative thinking strategies

Shoshani and Steinmetz (2014) reported that, in comparison to a control group, the PATHS program resulted in positive mental health outcomes at 12 months for both low-risk and high-risk students in Israel, which included decreases in distress, anxiety, and depression coupled with improvements in self-esteem and optimism. The study from Novak et al. (2017) did not replicate Shoshani and Steinmetz's (2014) overall results, finding instead that the efficacy of the program in Croatia was limited to low-risk primary school-aged students 12 months after the intervention. Finally, Crean and Johnson (2013), Schonfeld et al. (2015), Averdijk et al. (2016), Humphrey et al. (2016), and Panayiotou et al. (2020) investigated outcomes of the program over two or more years and found the effects to be typically small, but have included increases in teacher-rated social-emotional competence, and emotional and psychological wellbeing (Humphrey et al., 2016; Panayiotou et al., 2020). After 3 years of the program, a reduction children's aggression and behavioral problems were reported by teachers (Crean and Johnson, 2013). Outcomes observed beyond 4 years included better academic achievement in literacy and maths at some primary school grade levels only in Switzerland (Averdijk et al., 2016) and the USA (Schonfeld et al., 2015).

Resilient families program

The Resilient Families Program (RFP) is aimed at equipping secondary schools to assist parents in their relationships with their children. An Australian-based study with students aged ~12 years by Singh et al. (2019) reported no significant improvements between the intervention and non-intervention control group on social-emotional awareness and adolescent depression. However, family attendance at parenting education programs was associated with reduced student depressive symptoms at 12 and 24 months.

Resourceful adolescent program

In two Australian evaluations, Rose et al. (2014) and Mackay et al. (2017) found that this program did not demonstrate efficacy for reducing student depression symptoms compared to a control group at 12 months following the program. However, when the program was delivered in conjunction with a friendship-building skills program (the Peer Interpersonal Relatedness program), RAP did result in significantly increased school satisfaction and improved social functioning compared to the intervention and the control group (Rose et al., 2014).

Stallard et al. (2013) and Anderson et al. (2014) found that the RAP program had no impact on the mood of 12–16-year-old students at 12 months following the intervention.

Second Step

Second Step (SS) is a social and emotional learning program for children in primary to middle school. Espelage et al. (2013, 2015a,b) investigated behavioral outcomes of the program at 12, 24, and 36 months respectively in the US. Compared with a control group, students in the program made improvements in their behavior, including reduced aggression and bullying, at both 12 and 24-month assessments; however, no significant effects were reported at 36-month follow-up. Low et al. (2015, 2019) found similar modest improvements related to behavior at 12 and 24 months for students in the US, including emotional regulation, hyperactivity, and social emotional learning. Cook et al.'s (2018) USA study did not find the program provided any additional benefits for student behavior after 12 months compared with a control group. Similarly, Upshur et al. (2017) found the program did not have a significant positive impact on students' social or emotional skills; the study did find that the program fostered students' executive functioning development 2 years after program delivery.

Secret agent society

Secret Agent Society is a computer based social thinking intervention designed to educate students with autism spectrum disorder (ASD), attention deficit/hyperactivity disorder (ADHD), and conduct problems, as well as students with anxiety disorders, about how to notice, observe, and respond to the emotions of others, to notice and respond to how their behavior can impact on themselves and on other people, how to communicate and work cooperatively with others, develop friendships and notice bullying with others, and finally regulate their emotions in social situations and during transitions. In Australia, Einfeld et al. (2018) investigated the program among children aged 8–14 years and found an improvement in parent and teacher reported social skills and emotional regulation, and children's social problem solving at the follow up 12 months following the program compared to the control group.

Good behavior game

The Good Behavior Game (GBG) program is designed to reduce disruptive, off-task and defiant behaviors in the classroom, and to improve overall pro-social behaviors of students through: (1) assigning students to teams and assigning awards to teams for good behavior; and (2) giving rewards to teams that exhibit the lowest number of inappropriate behaviors. Variations in the delivery of the program have also been reported. As a behavior management and regulation program, the GBG program was evaluated by Leflot et al. (2013). In this Belgium study, GBG was shown to reduce aggressive behavior and sustain changes in aggressive behavior over 2 years in

children with a mean age of 7 years and who had low-level on-task behavior at baseline.

Self-injury and suicide

The youth aware of mental health program

The YAM program was compared with adolescents in 10 European Union countries against two alternative suicide prevention programs. At a 12-month follow-up, the YAM Program was shown to significantly reduce incidents of suicide attempts and severity of suicidal thoughts compared with the control group (Wasserman et al., 2015).

Body image and eating disorders

Media smart

The Media Smart (MS) intervention has been evaluated in a series of studies by Wilksch and Wade (2014), Wilksch (2015), and Wilksch et al. (2015) in Australia. The program was found to have reduced risk factors associated with eating disorders in adolescents aged ~13 years, including concerns about body shape and weight, internalizing media images, and concern with dieting. However, these results varied across male and female students, and Wilksch (2015) only found an effect on peer weigh-related teasing among female students compared to students in the control groups. Students scored significantly lower on shape and weight concern at 12 months and 2.5-year follow-up periods.

Alcohol and drug abuse

CLIMATE schools (CLIMATE)

CLIMATE is an online prevention program primarily targeted at reducing drug and alcohol use and creating healthy attitudes toward alcohol. CLIMATE in Australia was reported to reduce truancy, anxiety, and depressive symptoms, and moral and antisocial conduct of students (referred to as moral disengagement) in secondary school students compared to a control group 12 months following the program (Newton et al., 2014).

Discussion

This review was conducted to examine the long-term efficacy of mental health and wellbeing programs available in Australian educational settings on student mental health outcomes. Many of the programs targeting anxiety and depression, and resilience and social-emotional learning employ cognitive behavioral therapy (CBT) and evidence suggests that these programs are generally effective in reducing students' symptoms of anxiety and depression at 3 and/or 12 months after delivery of the program. The Aussie Optimism program for primary and secondary school students

incorporates CBT, along with psychoeducation and aspects of positive psychology, although evidence regarding the efficacy of this program is mixed. One of the Aussie Optimism evaluations found that the initial reduction in student depression symptoms was not maintained 6 months post-program (Rooney et al., 2013b), and two additional evaluations found no change in anxiety and depression symptoms 30 months after program delivery (Rooney et al., 2013a), and 42–54 months post-program delivery (Johnstone et al., 2014). Further evidence regarding the Aussie Optimism program is required.

The FRIENDS programs (including FRIENDS, FRIENDS for Life, and Fun FRIENDS) also demonstrate mixed effectiveness, with several of the evaluations demonstrated no or minimum change across time (6–36 months) on student anxiety and/or depression scores (Iizuka et al., 2014; Stallard et al., 2014; Lee et al., 2016; Skryabina et al., 2016). Stallard et al. (2014) and Skryabina et al. (2016) found that the FRIENDS program was only effective when delivered by health care providers, while Ahlen et al. (2018) found that the FRIENDS for Life program reduced self-reported depression of children but only for those with elevated levels of depression. The Fun FRIENDS program for pre-school and early primary school-aged children was reported at 12 month follow up to improve the social, emotional, and behavioral competencies of young children (Anticich et al., 2013). Get Lost Mr Scary is also a program for younger children and this program was found by Ruocco et al. (2016) to reduce children's anxiety at 12 months follow-up as rated by the child's parent and teacher. Program adherence also appeared to reduce anxiety and depressive symptoms in secondary school students who participated in the MoodGYM program (Calear et al., 2013).

Similarly, across the three studies of the Creating Opportunities for Personal Empowerment (COPE) program, mixed findings regarding the efficacy of this program for reducing depression at 12 months were observed in US and Istanbul secondary schools (Melnik et al., 2015; Ardic and Erdogan, 2017). However, levels of stress, anxiety, and physical health appeared to improve for secondary students in Istanbul 12 months after delivery of the program (Ardic and Erdogan, 2017). There were other studies that demonstrated improvements in depression, mental health literacy, and student help seeking (but not stigma); however, these changes for the Adolescent Depression Awareness Program (ADAP) were only measured 4 months post program (Swartz et al., 2017; Townsend et al., 2019). The Teen Mental Health First Aid (TMHFA) program also showed these effects of student's mental health literacy in Australian secondary schools; however, this program also reduced mental illness stigma, but changes were only observed at 3 months post-intervention (Hart et al., 2016). At 6 months post-intervention, Perry et al. (2014) found that Australian secondary school students experienced greater mental health literacy and reduced stigma (but not changes in

help-seeking, psychological distress, and suicidal ideation) after delivery of the HeadStrong 2.0 (HS2) program.

Challenging Horizons Program is a targeted after-school program for improving the social skills and academic behavior of secondary school students with ADHD; Good Behavior Game is a universal primary school classroom tool to promote on-task behaviors and appropriate interaction with others; Secret Agent Society is an online intervention to promote social and emotional awareness in primary school students who present with challenging behaviors (and was the only intervention delivered to students in a specialist school for children with ASD). Each of these programs has been found to reduce rates of disruptive classroom behaviors and improve social-emotional skills at least 6-months post-program (Leflot et al., 2013; Evans et al., 2016; Langberg et al., 2016; Schultz et al., 2017; Einfeld et al., 2018). Similar to CBT-based programs, interventions in schools targeting children's awareness of their own and other people's emotions, the impact of children's behavior on other people, and how children can engage socially with others are gaining a strong evidence-base in the research.

A common characteristic of the programs targeting suicidal ideation and suicide attempts presented here is the emphasis on promoting awareness and knowledge around suicide in order to increase students' capacity to recognize problems and seek help for themselves or others. Current evidence suggests that the Signs of Suicide (SoS) program is efficacious at three-months post-program (Schilling et al., 2014), and the Youth Aware of Mental Health (YAM) program is efficacious at 12-months post-program (Wasserman et al., 2015) in meeting these objectives in US secondary schools. Most importantly, both programs have been observed in large randomized control studies to significantly reduce the number of incidents of students attempting suicide (Schilling et al., 2014; Wasserman et al., 2015). Similarly, each of the evidence-based programs targeting body image and eating problems presented here are designed for implementation in adolescent classrooms and focus on educating students about risks associated with ideals portrayed in today's media. A common outcome observed across these programs was improvements in students' body-related self-esteem, with the Media Smart (MS) program in particular found to have had an effect that was evident 6–2.5 years after delivery of the program in Australian secondary schools (Wilksch and Wade, 2014; Wilksch, 2015; Wilksch et al., 2015). Overall, the evidence suggests that the benefits of these programs are predominantly for female students, while any benefits for male students may be limited.

Implications

This review can be used as a guide for school leaders, education departments, mental health practitioners, and teachers when selecting evidence-based programs to support

the mental health and wellbeing of students. Overall, evidence is mixed regarding the effectiveness of school mental health and wellbeing programs available to Australian schools, which can result in confusion and delivery of ineffective programs to students. This review also highlights clear evidence gaps concerning programs targeting early childhood, specialist schools, and programs targeting suicide and self-injury, posttraumatic distress, alcohol and drug use, body image and eating disorders, as well as students from marginalized and disadvantaged groups (e.g., Indigenous students). It is widely understood that <25% of young people seek help for mental health concerns (Calear et al., 2017), so when they do seek help, it is critical that schools provide evidence-based support.

On the other hand, there is clear oversupply of programs without strong evidence addressing social-emotional skills and resilience, and to a lesser extent, anxiety and depression of students. Further, evidence shows that while many programs can sustain positive outcomes for students within 3–6 months, post-12 month delivery of the intervention, maintaining positive mental health and wellbeing outcomes among students is challenging. Several of the reviewed programs [i.e., Aussie Optimism, Penn Resiliency Program (PRP), Resourceful Adolescent Program (RAP), and Promoting Alternative Thinking Strategies (PATHS)] demonstrated short-term benefits but fewer long-term improvements after 12 months. Second Step (SS) was found to be effective for younger students' social-emotional wellbeing at 12 months (Espelage et al., 2013; Low et al., 2015, 2019), but not secondary students at 36 months (Espelage et al., 2015b), however, other studies did not replicate the benefits of SS for younger children (Upshur et al., 2017; Cook et al., 2018).

School staff and education departments should be aware of the benefits and limitations of programs, the evidence-base for sustained student improvements, and the areas targeted by different interventions prior to program delivery in schools. This review showed that despite the presence of many school-based wellbeing programs, school leaders and staff may find it difficult to select programs, due to vague program descriptions and a lack of rigorous evaluation data. The aim of this review was to identify these programs and provide direction for teachers, other school staff, and mental health service providers seeking to implement evidence-based mental health promotion programs in schools.

Limitations

A limitation of this review is the inclusion of student self-report alongside parent and teacher report about the benefits of the programs for students. Research has found that students, parents, and teachers often provide different ratings concerning child and adolescent mental health concerns (Maybery et al., 2005). It was also not possible for this review

to conduct a meta-analysis because of the heterogeneity of schools and outcomes included in this review. Meta-analyses focused on primary or secondary school students and on single mental health outcomes (e.g., depression or anxiety) would be appropriate to better understand the strength of the programs. However, this review was strengthened by including only programs available and/or evaluated in Australian schools, and inclusion of programs investigating student outcomes three or more months after delivery of the intervention in schools. A review focused on programs that are both available and have been evaluated in Australia would also be beneficial.

Conclusion

This review identified 29 programs for schools, with some demonstrated long-term efficacy for promoting and supporting students' mental health and wellbeing. The benefits of these evidence-based programs included reduced rates of anxiety and depressive symptoms, improved self-esteem and body acceptance, reduced suicidal thoughts and behaviors, and improved social skills and capacity to cope with adversities and challenges among students. This review is unique in that it not only includes programs that have been evaluated and/or are available for Australian schools, but also programs that have been shown to be effective over time. Results of this review will assist school staff in making informed decisions when seeking a program that will best meet the specific needs of their students and with the potential to provide sustained benefits for students over the long term.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Author contributions

EB: conceptualization, methodology, data analysis, writing first draft, and drafting. AR and K-AA: conceptualization,

methodology, data analysis, and writing first draft. TC: methodology, data analysis, and writing first draft. All authors contributed to the article and approved the submitted version.

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A report based on the findings of this article is available via this link: <https://www.saxinstitute.org.au/publications/evidence-check-library/school-based-prevention-and-early-intervention-for-student-mental-health-and-wellbeing/>. The manuscript (including the introduction, results, and discussion) have been significantly changed from this earlier report version to the current version being submitted.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2022.986391/full#supplementary-material>

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