Research Directions: Depression

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The place of school-based strategies for universal, selective and indicated prevention for depression

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Abstract

In response to the question, 'What is the place of universal, selective and indicated prevention strategies for depression and other mood disorders?' posed by Hickie et al. (2024), we examine the role of school-based strategies for universal and targeted (including selective and indicated) prevention of depression. Schools represent a unique opportunity for systematic evidence-based depression prevention, targeting key developmental risk periods before peak depression onset. However, the realisation of this potential has been challenging particularly for universal approaches. We summarise the evidence for each of these tiers of prevention, including recent large-scale trials of universal prevention in high-income countries. Targeted approaches show more consistent preventive effects on depression however hold significant implementation challenges in the school context. We provide recommendations about the next steps for the field including a continuum of support across all levels of prevention outlined above and broadening current strategies to focus on the school contexts and structural factors in which prevention programs are delivered, as well as teacher mental health.

Impact Paper

Cite this article: Birrell L, Grummitt L, Christensen H, and Teesson M (2025). The place of school-based strategies for universal, selective and indicated prevention for depression. *Research Directions: Depression*. **2**, e2, 1–7. https://doi.org/10.1017/dep.2025.1

Received: 23 October 2024
Revised: 19 December 2024
Accepted: 30 December 2024

Keywords:
prevention; depression; universal; targeted; selective

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Impact paper in response to the following question: What is the place of universal, selective and indicated prevention strategies for depression and other mood disorders?

Introduction

Depression strikes early, with a substantial number of cases (13%) emerging before age 18 and median age onset of 30 years (Solmi et al., 2022). This means depression impacts people on the verge of adulthood, with significant follow-on disruption to employment, education, relationships and future life trajectory. Rates of depression are increasing across the globe, with the highest rates of increase observed among youth (McGorry et al., 2024; Twenge et al., 2019). Alongside timely access to effective treatment, prevention of depression is critically needed.

Education settings, especially schools, offer the potential to provide systematic evidence-based prevention of depression to the vast majority of the youth population at a key developmental time, before the peak onset of depression (Solmi et al., 2022). They also afford the opportunity to deliver developmentally appropriate strategies, targeted at different ages and year levels and can utilise any of the three tiers of prevention: universal, selective or indicated. The significant challenge is how to realise this potential. In a field where the evidence base is growing exponentially, delivering the most effective prevention at the right time in an education setting is critical but not simple. Importantly, some of the largest universal prevention trials have failed to demonstrate effects on depression outcomes (Kuyken et al., 2022; Teesson et al., 2024).

Here, we summarise the existing evidence base for the different tiers of school-based strategies to prevent depression (including programs with impacts on more precursive symptomology such as emotional symptoms and more recent programs with broader, novel targets). We conclude with recommendations for schools, researchers and policymakers. We focus our summary on depression outcomes, noting that the prevention approaches described below can also impact other related factors including, but not limited to, anxiety, substance misuse, self-harm and overall health literacy.

Universal school-based prevention

Universal prevention approaches are a key opportunity for schools with several strengths. They enable broad reach to the whole cohort of students, thereby promoting equitable access to prevention. This is further amplified with the use of new technologies, such as digital programs and adjuncts (e.g. mobile phone apps), text-to-speech and translation technologies to deliver prevention messaging to students from a range of backgrounds and literacy levels. Universal programs can improve mental health literacy (knowledge) among all students (Teesson et al., 2020) and have the potential to normalise seeking support for mental health difficulties,

including depression. Universal approaches also avoid the potential stigmatising effect of identifying groups or individuals at greater risk of depression, a potential disadvantage of targeted approaches. Moreover, universal programs are often preferred by schools themselves, as they are generally easier to implement and cost-effective and align with school priorities to address mental health and wellbeing in all students (Beames et al., 2021). Finally, due to their broad reach and cumulative impact, universal programs need only to demonstrate modest effects to have a substantial impact in reducing the burden of depression at a population level (Matthay et al., 2021).

Despite the promise of universal prevention of depression through schools, the existing evidence base is mixed. Systematic reviews have reported the overall benefits of universal school-based programs for depression, noting effect sizes are small and short term (Hetrick et al., 2016; Werner-Seidler et al., 2021). However, due to problems with the methodological quality of some studies included in these reviews, it has been argued that it is difficult to make the conclusion that universal approaches for depression prevention are effective or not (Cuijpers, 2022). Since this review, three recent large trials in the UK and Australia, with a rigorous methodology, have found null effects of universal interventions on depression outcomes. The UK My Resilience In Adolescence (MYRIAD) trial (n = 8,376) (Kuyken et al., 2022) utilised teacher-led mindfulness exercises. In contrast, the Australian trials included the Climate Schools Combined (CSC) trial (n = 6,386) (Teesson et al., 2020), which employed a digital program based on cognitive behavioural therapy (CBT) principles targeting anxiety, depression and substance use, and the Health4Life study (n = 6,639) (Smout et al., 2024), which targeted key lifestyle risk factors (e.g. diet, sleep, physical activity) known to interact with mental health. All three of these large, well-powered trials found no significant improvement in depressive outcomes at the primary trial timepoints for students who received the interventions compared to those in control conditions. However, the CSC trial (Teesson et al., 2020) demonstrated significant increases in mental health literacy, including depression knowledge, and the indirect Health4Life study (Smout et al., 2024) observed short-term improvements in depression symptoms (not maintained at later follow-up). The reasons these trial results were not consistent with previous studies are not clear, but the fact they were larger than most earlier trials raises questions about the ability to sustain positive preventive effects when prevention programs are taken to scale. It is also of note these trials occurred in high-income countries in which mental health education in schools is relatively commonplace; therefore, it is likely the control group also received some form of mental health education, making effects harder to demonstrate. Only a small number of large-scale school-based trials have been undertaken in low- and middle-income countries (LMIC). A 2019 review of school-based prevention for depression and anxiety found that of 76 studies, only 5 were conducted in LMIC (Caldwell et al., 2019). Another review of universal prevention in LMIC found the evidence base was weak, largely due to the small study size and methodological weaknesses (Bradshaw et al., 2021). Given global disparities in access to care and education, more research in LMIC is urgently needed. In summary, the current landscape of existing universal prevention shows limited evidence of lasting long-term positive effects for depression prevention when interventions are delivered at scale.

An inherent difficulty with universal prevention is varying levels of risk and pre-existing symptoms of depression within the whole population of students. Universal programs must strive to be engaging for all, or at least, most students. Yet most students do not show elevated symptoms or risk of depression. This has resulted in universal interventions typically being low-intensity interventions, aiming to promote knowledge of depression, positive coping strategies and help-seeking behaviours. For students already exhibiting elevated symptoms of depression, it has been suggested that universal programs may serve to raise awareness or discomfort around these feelings, without providing the skills or resources required to manage these feelings effectively (Montero-Marin et al., 2022). However, it is noted that universal programs that have actively taught psychological skills (such as cognitive behavioural techniques) have been shown to be effective, at least in smaller trials in the short term (Werner-Seidler et al., 2021). Future directions for universal prevention of depression in the school context might include a better understanding of how depression prevention programs are implemented in the school setting and the role of school climate (including existing mental health supports and a sense of belonging) as well as other mediating factors when these programs are adopted by schools.

It is also important to clarify the objective of prevention trials, which is inherently different from that of treatment. A treatment program is deemed effective when symptoms or cases reduce pre- to post-program delivery (and compared to those in a control condition, who would be expected to worsen or remain stable without treatment). In contrast, prevention research is looking to establish a lower rate or lack of *increase* in symptoms in the intervention group, compared to a control group (who also worsen) (Nehmy & Wade, 2014). Genuine prevention trials, particularly universal trials delivered to students with mostly low overall risk/symptoms, aim to flatten the overall curve of increase, rather than reduce symptoms as their key goal. It has further been suggested that universal prevention may be better placed to target broad aetiological mechanisms that are transdiagnostic as a way to impact depression outcomes (among others) (Nehmy & Wade, 2014). Some of these targets may include individual factors such as low effortful control and high negative affect, as well as broader environmental factors such as adverse life events and familial mental illness (Lynch et al., 2021), noting the latter factors may not be as closely linked to the current remit of schools.

Targeted prevention

Targeted prevention strategies are those specifically targeted towards certain individuals and include both selective and indicated prevention. Selective prevention targets groups or individuals considered at higher risk of disorder based on known risk factors, while indicated prevention is directed at those with subthreshold symptoms (but not yet disorder). Selective and indicated school-based programs typically produce larger effect sizes compared to universal programs (Conrod, 2016; Hetrick et al., 2016; Werner-Seidler et al., 2021). These strategies can be cost-effective, by delivering prevention resources to where they're most needed and producing larger benefits for the time and money invested. Additionally, by targeting prevention based on the presence of risk factors, programs and messaging can be tailored to meet the specific needs of the at-risk population.

Despite these benefits, there are several disadvantages to targeted prevention. Unlike universal approaches, targeted prevention necessitates the identification of individuals or groups who are at greater risk of developing a disorder or who are already

Table 1. Summary of universal and targeted approaches for school-based depression prevention

	Universal	Targeted
Advantages	• Broad and equitable reach to all children and young people attending school • Avoids stigma • Often preferred by schools • Easier to implement	• Delivers resources to where they are most needed • Typically produce larger effect sizes • More tailored to the specific needs and risk factors of the group being targeted
Disadvantages	• Challenging to maintain relevance to all, including varying levels of risk and pre-existing symptoms	• Potential for stigma • Require good identification of 'at-risk' groups or individuals • Implementation challenges – need to screen for risk and schedule delivery to only part of the cohort • Can be costly where more training or resources for screening are required
Strategy	• Improve mental health literacy • Normalise help-seeking • Introduce all students to psychological skills such as CBT or mindfulness practice	• Help students cope with risk factors (selective) or elevated symptoms (indicated) to prevent progression to depressive disorder • May include CBT skills, motivational interviewing, and other therapeutic techniques
Examples of successful programs	• The Climate Schools Combined program, a CBT-based program, demonstrated improvements in depression knowledge (Teesson et al., 2020) • The Health4Life program demonstrated short-term improvements in depressive symptoms indirectly, by targeting key lifestyle risk factors (e.g. diet, sleep, physical activity) (Smout et al., 2024)	• The Preventure program (selective) has shown reduced depressive symptoms in two randomised controlled trials (Newton et al., 2020; M. O'Leary-Barrett et al., 2013). It helps students to manage personality risk factors (hopelessness, anxiety sensitivity, impulsivity and sensation seeking) • The High School Transition Program (indicated) has been shown to reduce depressive symptoms among those with elevated levels by promoting student's ability to cope with stressors such as school transition (Blossom et al., 2020)

experiencing symptoms. For selective approaches, this requires research to not only identify factors that affect mean differences in the risk of disorder across groups but also further establish the predictive value of that risk factor at the individual level (Arango et al., 2018). As an example, while decades of research have shown that adverse childhood experiences (ACEs) are a risk factor for depression, not all children who experience ACEs develop a depressive disorder, and exposure alone is a poor predictor of which children will develop problems (Baldwin et al., 2021; Meehan et al., 2022). Thus, despite knowledge of mean differences in the risk of depression across groups based on ACE exposure, we are a little closer to being able to accurately predict individual psychopathology from this risk factor (Baldwin et al., 2021; Meehan et al., 2022). In addition, by identifying those at greater risk or already experiencing symptoms of depression, targeted prevention has the potential to stigmatise or detrimentally label groups or individuals if implemented poorly. Finally, implementation of targeted prevention in schools is more challenging compared to universal approaches, with generally a greater cost per person required for screening, facilitator training and difficulties with scheduling when only some students need to attend intervention sessions. It can also be more difficult to obtain parental consent, which is often mandated as opt-in for selective/targeted approaches versus opt-out for universal prevention. This extra barrier to participation in targeted programs means this approach can be more difficult to implement, especially when parental support is low, meaning students may miss out even if they wish to participate.

Despite these concerns, the evidence base for targeted prevention in schools shows benefits for depression prevention. Meta-analyses and reviews show more consistent and larger effect sizes compared to universal approaches (Conrod, 2016; Hetrick et al., 2016; Werner-Seidler et al., 2021). This is to be expected, given these programs target groups at higher risk who are also more likely to report higher symptoms, with more room to move. One selective program, *Preventure*, targets personality risk factors for substance use and co-occurring emotional (including negative affect) and behavioural problems. The program is delivered across two sessions with an external clinical psychologist running sessions in school, tailored to four personality profiles and has demonstrated reductions in adolescent depressive symptoms across three randomised controlled trials in the UK and Australia (Castellanos & Conrod, 2006; Newton et al., 2020; Maeve O'Leary-Barrett et al., 2013). Another indicated program, the High School Transition Program, targets students with elevated depressive symptoms at the transition point to high school. It is a brief, skill-based program shown to reduce depression in those with elevated depressive symptoms through enhancing student's abilities to manage environmental stressors such as school transition (Blossom et al., 2020).

Whole-of-school approaches

As summarised in Table 1, there are advantages and disadvantages to both universal and targeted prevention of depression. Rather than picking one strategy over another, ideally, schools would provide a continuum of support across the different levels above, as it is unlikely a single program or strategy will be able to prevent depression for every student. For some students, whole-of-school approaches to promote wellbeing and universal programs that equip students with basic literacy and skills may be enough. For others, greater intervention and proactive selective and targeted prevention are needed. It is also important to note that to date, nearly all school-based programs, whether universal or targeted, have only shown short-term preventive effects, with lasting long-term benefits elusive. This may in part reflect the dynamic nature of depression, particularly during childhood and youth, which may require ongoing prevention across school years, especially at key transitions and points of stress (e.g. transitions from primary to

high school, key exam periods) rather than one-off programs. This is often the case for prevention of physical health conditions. For example, effective skin cancer prevention involves ongoing SunSmart education from early childhood to high school, adjustment of key lifestyle risk factors, screening and extra follow-up for those at high risk (e.g. with family history), as well as daily preventive measures for both students and teachers (e.g. application of sunscreen, protective clothing and indoor play when UV levels are high).

Another key consideration is that student depression is known to be impacted by broader structural school factors such as the school environment (also referred to as 'school climate' or 'school culture') and teacher wellbeing. It is possible the somewhat limited impact of individual student depression prevention programs to date is in part due to their sole focus on students, without addressing the school environment or climate in which they are embedded. There is a consistent link between school climate (i.e. the socio-cultural factors such as the norms, values, interpersonal relationships and organisational structures within a school) (Jamal et al., 2013; Wang & Degol, 2016) and student outcomes, including mental health (Aldridge & McChesney, 2018). In particular, school climate might be particularly important for transgender and sexually diverse youth, with young people in schools with more positive school climates reporting lower depressive symptoms (Ancheta et al., 2020). However, there is still more work to be done to clarify the varying definitions of school climate, as well as the use of consistent measurement across studies in the field (Grazia & Molinari, 2021; Jessiman et al., 2022), with causal links also yet to be established (Leurent et al., 2021).

Consideration of teachers' mental health and wellbeing should also be a key pillar in school-based depression prevention initiatives. Poor teacher wellbeing (including teacher depression) has been shown to negatively impact student outcomes such as poor performance, absenteeism, student depression and other mental health outcomes (Harding et al., 2019). It has been hypothesised that poor wellbeing and depression in teachers may lead to underperformance at work, which in turn impacts negatively their relationships with students and lead to lower student wellbeing and depression (Harding et al., 2019). Many teachers report struggling with mental health and report high levels of depression (Agyapong et al., 2022). Supporting teacher wellbeing should be a priority for schools and should start at the school leadership level; those teachers who feel valued, are given agency and have meaningful professional development opportunities provided by school leadership report enhanced wellbeing (Cann et al., 2021). There are examples of prevention strategies that combine individual student programs with interventions at the school climate level. For example, a multi-component whole school health promotion intervention (SEHER) run in over 13,000 Indian secondary school students showed moderate to large improvements in depression symptoms, as well as improvements in school climate, compared to students in a control condition over an 8-month period (Shinde et al., 2018). Effects were sustained at 2 years, but only when the intervention was delivered by a lay counsellor (compared to a teacher or control) (Shinde et al., 2020).

Current challenges and recommendations

For schools

One key challenge for the field of school-based depression prevention is taking effective programs to scale while maintaining preventive effects on depression. This includes examining program mode of delivery, which may be a key factor in improving prevention success. School-based prevention is commonly delivered by school teachers, which has many advantages including the existing relationship with students and low cost associated with delivery compared to the involvement of professionals external to the school. Thus, implementation by teachers may be seen as an equitable model given the variability in schools' geographic location, access to funds and other resources (Kelly et al., 2021; M. O'Leary-Barrett et al., 2013). Conversely, teachers are frequently overburdened and time-poor, and program implementation can vary widely depending on teachers' training, time demands, buy-in and opinion on whether delivery of mental health prevention programs should be within their remit (Baffsky et al., 2022; Stapinski et al., 2017). Moving forward, if we are to improve upon prevention effects to date, schools and teachers must be better resourced to deliver evidence-based prevention strategies in their schools. This includes supporting existing school staff through training, dedicated funding and time to select, implement and evaluate prevention programs. Alternatively, external prevention facilitators could be commissioned to co-deliver and support the roll-out of evidence-based programs in schools, taking away the burden from a workforce already under significant strain and facing increasing responsibility in their remit. In LMIC settings, non-governmental organisations (NGOs) are key players in delivering supports in schools, including mental health support. In these contexts, it might be particularly important to collaborate with existing NGOs providing as a way of delivering mental health prevention in schools in low-resource settings (Human et al., 2024). Either way, it is important that funds and resources are directed to programs with proven benefits and that schools and teachers are supported to deliver these programs at scale, given evidence that prevention programs reduce the incidence of depression by an average of 22% (Cuijpers et al., 2008).

We also note the focus of this article has been on the prevention of depression outcomes, noting that schools are rarely so singular in their focus and will look to implement programs with a range of benefits to students. This includes outcomes such as increasing student knowledge, reducing risky behaviours such as substance use and self-harm and improving positive wellbeing.

Recommendations

- Schools continue to adopt evidence-based whole-school approaches for depression prevention, including a focus on the overall school climate.
- Schools and teachers are supported in delivering prevention programs, including adequate time, training and funding.
- Teacher wellbeing is prioritised, alongside student prevention initiatives.
- Schools select evidence-based programs and collect regular data to evaluate program outcomes.

For researchers and research funders

To date, depression prevention initiatives are frequently developed and evaluated without considering contextual school factors or teacher wellbeing. Future directions may represent a radical change to our approach to the prevention of depression in schools including a move away from discrete programs teaching psychological therapy skills aimed at single disorders (i.e. depression) to strategies that consider environmental, contextual and cultural climates in which prevention programs are

delivered (including teachers' mental health), multiple mental health targets (vs single clinical disorders) and solutions that are designed and delivered in partnership with young people themselves. It is also acknowledged that parents and caregivers play a crucial role in supporting young people's mental health. While there is a well-established literature on the role of parental attachment, parenting practices and the importance of parental involvement for child mental health treatment in schools (Shucksmith et al., 2010), the involvement of parents in school-delivered mental health prevention is less well understood, and the engagement of parents in school-based prevention has proven challenging.

Given the current state of evidence, there is a pressing need for innovation in school-based prevention of depression outcomes. While targeted programs have demonstrated effectiveness, there is still huge potential to make inroads with universal prevention. This includes more longitudinal research and long-term follow-up studies to better understand mediators and mechanisms of change over time for universal approaches. It is also crucial to better identify the components of effective depression prevention programs, recognising that these may differ from those used in depression treatment programs. Further research is needed to determine whether CBT, mindfulness and other therapeutic skills should play a role in universal preventive contexts or whether these are best confined to targeted prevention and treatment. Another future direction includes testing indirect prevention methods targeting key risk factors for depression in large-scale trials. These risk factors could include sleep, social connection and other lifestyle risk factors for depression.

Finally, prevention designed for young people in schools should be co-designed with young people, alongside educators and those with lived experience. This includes moving beyond broad, consultative, one-way involvement to more meaningful co-design, as well as measuring the impact of participatory involvement on intervention acceptability and effectiveness (Orlowski et al., 2015). The involvement of young people should also adhere to best practice guidelines on the design and implementation of youth participation (Guo et al., 2024).

Recommendations

- A greater understanding is needed to unpack how depression prevention programs operate for different individuals and in different school contexts (i.e. exploring moderators and mediators of intervention effectiveness).
- Better integration of implementation science methods and co-design principles (i.e. involving key stakeholders, young people and people with lived experience) when evaluating interventions at scale.
- A greater focus on evaluation and development of prevention programs in LMICs.
- Indirect prevention initiatives are a promising avenue for further exploration.
- Selection and implementation of strategies in schools will inevitably be based on the limited resourcing for such programs in schools. Therefore, researchers (and policymakers) should design and prioritise programs with multiple preventive effects on outcomes that are important to schools and that are feasible for schools to implement in real-world conditions.

For policymakers

Prevention of depression through schools will likely require coordination and collaboration across traditionally siloed areas of government. Most notably, depression prevention crosses both health and education and will need a coordinated response involving varying levels of government. To make a meaningful impact on population levels of depression, school environments and school-based initiatives have a key role to play but need to be adequately equipped and resourced to do so. Policymakers should look to increase funding and support for schools to undertake initiatives with scientifically proven benefits. This includes the collection of regular data on depression programs implemented in schools and a focus on early risk factors for depression. In addition, policymakers can actively support schools to implement mental health policy and engage existing NGOs relevant to their national and local contexts. Such collaboration and policy can also influence mental health stigma at a community level, which may be essential for the adoption and uptake of whole-school approaches that seek to engage students, teachers and parents.

Recommendations

- Increased funding to support implementation of evidence-based prevention in schools (e.g. embedding staff responsible for student welfare (Katz et al., 2014).
- Funding to support long-term evaluation of school-based prevention and cost-effectiveness studies.
- Depression prevention (and more broad mental health education) is embedded into pre-service teacher training, so teachers are provided the skills and support to help prevent student mental ill health and have basic awareness of examples of evidence-based prevention strategies, as well as tools to manage their own wellbeing.

In conclusion, schools can play a key role in the prevention of depression. They afford the opportunity to reach a broad range of children and young people in the general population, providing developmentally tailored prevention before the peak period of depression onset. Schools can draw on a range of different strategies for their students, but the most effective are likely to be those encompassed by a whole-school approach that considers contextual and systematic factors, including teacher wellbeing. Future directions include the need to co-design interventions in partnership with young people, teachers and those with lived experience, a greater focus on implementation, moderators and mediators of prevention programs and increased funding to support ongoing implementation, evaluation and long-term follow-up.

Data availability statement. The authors confirm that the data supporting the findings of this study are available within the article.

Author contributions. L.B. and L.G. contributed to the initial conceptualisation, writing, editing and reviewing of this manuscript. H.C. and M.T. contributed to editing and writing after the original draft. L.B. can be contacted for correspondence: louise.birrell@sydney.edu.au.

Financial support. L.B. and M.T. acknowledge support from the National Health and Medical Research Council Investigator Grants. The funders had no input on the current manuscript at any stage.

Competing interests. M.T. is a co-director of Climate Schools Pty Ltd and OurFutures Institute Ltd.

Ethical standards. Ethical approval and consent are not relevant to this article type.

Connections references

Hickie IB, Cuijpers P, Scott E, Skinner A, Iorfino F. What is the place of universal, selective, and indicated prevention strategies for depression and other mood disorders? *Research Directions: Depression*. 2024;**1**:e17. doi: 10.1017/dep.2023.29.

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