The effectiveness, feasibility and scalability of the school platform in adolescent mental healthcare

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Purpose of review
Schools are increasingly at the forefront of mental healthcare for young people internationally. This review aims to describe recent developments in school-based mental health activities to respond to mental health needs in adolescents, with a focus on empirical studies aimed at preventing, ameliorating or treating mental disorders.

Recent findings
The field is characterized by substantial heterogeneity in program design and research methods. Evidence for effectiveness of single-faceted school-based mental health programs is equivocal. Recent systematic reviews and meta-analyses have reported mixed findings across a variety of single-faceted universal and targeted programs at post-intervention, short-term and long-term follow-up. The largest and most recent review and network meta-analyses conclude there is limited evidence in support of these forms of school-based anxiety and depression prevention programs. Feasibility studies, which include consideration of appropriate service providers, suggest a need to consider schools as complex systems when designing interventions. Recent models adopting whole-school approaches appear feasible, effective and potentially sustainable with modest levels of resourcing.

Summary
Greater evidence is needed regarding long-term impact and sustainability of interventions. Recent trials of multifaceted and multilevel interventions show particular promise. Future research should further explore strategies embedded within school systems and processes.

Keywords
adolescence, effectiveness, mental health, prevention, school-based program

INTRODUCTION

Mental health problems amongst adolescents appear to be increasing [1] and now present one of the major public health challenges of our time. Mental disorders in children aged 5–14 years in Europe and the Americas are now a leading cause of disability-adjusted life-years [2]. Furthermore, half of all adult mental health problems are diagnosed before the age of 14 years and 75% by 24 years [3], making the school years essential in prevention and early intervention for mental disorder.

Providing at least minimally effective mental healthcare is challenging given adolescents use health services less than other age groups [4]. Barriers to accessing care include knowing when and where to go for help, concern around cost, fears about lack of confidentiality, and non-empathetic or judgmental clinicians [5]. Schools are where students spend most of their time away from home, rendering education settings a potential platform for identification, support and referral for youth mental health problems [6,7], along with actions in mental health ranging from prevention to mental health service provision [4]. Equally, mental health problems are on the agenda for education systems, with recent national surveys in the United States and Australia showing that students with mental disorders have poorer academic outcomes [6,8▪].

School-based health centres (SBHC) provide services ranging from medical and dental to mental health and are in place in various countries internationally [8▪]. In the United States, the number of

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KEY POINTS

- School-based adolescent mental health programs are diverse, operating along a continuum from prevention to treatment of disorders, and including both universal and targeted interventions delivered by a range of providers.
- Recent studies are characterized by substantial heterogeneity in focus of intervention, program design and research methods.
- There is mixed and limited evidence of effectiveness of single-faceted school-based anxiety and depression prevention programs for adolescents; major gaps persist in the evidence base.
- More rigorous, high-quality trials with appropriate controls are needed; future studies should further explore multilevel, whole-school approaches and longer term effects.

SBHCs expanded from the 1970s to more than 2300 nationally; schools are now the most common provider of mental healthcare to youth [8▪]. SBHCs have been shown to increase access to mental healthcare and reduce use of emergency services by as much as four-fold [9]. However, mental healthcare within schools is inconsistent across regions, with very few models subjected to rigorous evaluation [6,7].

The current review synthesises recent literature on empirical studies examining the breadth and range of school-based mental healthcare, the effectiveness of these programs and their feasibility and acceptability. We used a combination of bibliographic database searching, reference checking and citation searching to identify relevant articles. We focused primarily on articles reporting original research, reviews and meta-analyses. Articles describing interventions in secondary school settings aimed at preventing, ameliorating or treating mental disorders were examined. Several key themes were identified across this body of work, reflecting contemporary trends in school-based mental health (SBMH) actions.

A CONTINUUM FROM PREVENTION TO TREATMENT

SBMH actions can range from primary prevention to avert illness onset (via universal, selective and indicated interventions), through secondary prevention focusing on early detection and treatment, to tertiary programs aimed at reducing disability and preventing illness relapse [10]. In practice, most SBMH programs have been universal (offered to all students) or targeted interventions (offered to those with existing symptoms or risk factors) [7,11▪▪,12▪]. Schools are increasingly expected to offer a continuum of mental health services to students covering the spectrum from universal to selective and indicated (targeted) programs [13▪▪].

Universal programs have potential advantages given their reach and antistigmatizing approaches [14], however targeted prevention programs may be more effective. Fazel and Kohrt [15▪] recently argued that true prevention programs need to target new incidence of case-level mental illness. In contrast, Pössel *et al.* [16▪▪] contest that assessing program effectiveness solely on the basis of preventing diagnosable mental illness would require unrealistically large sample sizes because of the relatively low-point prevalence of mental disorder in the general population and that examining changes in symptom profile is more defensible. They summarize findings from several studies assessing the preventive effects of a manualized, universal school-based cognitive-behavioural program to prevent adolescent depression. Overall, the program had positive impacts on depressive symptoms, with those in intervention groups reporting greater symptom reductions and/or lower likelihood of worsening depressive symptoms at follow-up relative to controls.

EFFECTIVENESS

Arora *et al.* [13▪▪] completed a systematic review of school-based interventions targeting depressive symptoms among youth. They located 119 relevant studies from 1990 to 2017, arising from 57 unique programs across the full spectrum of prevention types: universal (aimed at preventing emotional/behavioural disorders and often delivered to whole school or class populations), selective (offered to youth at risk of emotional/behavioural disorders and often delivered in small group settings) or indicated (targeting youth with existing emotional/behavioural disorders and typically delivered individually). A majority of studies reported benefits. Most selective programs (representing 60% of studies) reported positive findings with effect sizes ranging from 0.10 to 2.24. Amongst indicated interventions (16% of studies), a slightly higher proportion (78.9%) described benefits (effect sizes 0.14–1.49). Limited data were available on how enduring positive effects were. Study quality was also variable with a third of studies not having a control group.

Feiss *et al.* [17▪▪] conducted a systematic review and meta-analysis to examine the efficacy of SBMH programs aimed at reducing adolescent internalizing problems (stress, anxiety and depressive symptoms). They reviewed 42 USA-based studies published from 1990 to 2018 and concluded that

programs aimed at reducing depression and/or anxiety symptoms in adolescents are generally effective, with significant reductions observed postintervention relative to controls. Age, race and dose were found to moderate program effects. They also concluded that targeted depression programs were more effective than universal.

An earlier review and meta-analysis of school-based prevention programs for depression and anxiety in children and adolescents found that treatment gains were maintained in short-term follow-up [7]. In this study, 81 randomized controlled trials (RCTs) of SBMH programs based on manualized psychological or psychoeducational interventions found small effect sizes for depression and anxiety both immediately post intervention (effect sizes = 0.23 and 0.20, respectively) and after 12-month follow-up (effect sizes = 0.11 and 0.13, respectively). Identified programs included a mixture of universal (54%) and targeted (comprising indicated (31%), selective (11%) and mixed (4%)) interventions, with most (78%) delivered to adolescents. As in the Feiss *et al.* [17▪▪] review, targeted depression programs were more effective than universal programs (although this was not the case with anxiety programs). In addition, depression programs delivered by external personnel rather than school staff were found to be superior. Program effects were lowest for older adolescents (14–19 years) compared with younger adolescents (10–14 years) and children (5–10 years). Overall, the quality of the included studies was considered poor, limiting generalizability of findings.

Across the field there is a great deal of study and intervention heterogeneity making general conclusions difficult. SBMH programs differ in focus (e.g. depressive disorders, conduct disorder, trauma, suicide, anxiety, stress, externalizing behaviours, general mental health, social skills, substance use, social and emotional learning); frequency (weekly versus multiple times per week); format (school-wide, whole class, small group, families, individuals); provider (including teachers and school staff, nursing staff, graduate students, researchers, mental health clinicians and student peers); and approaches (including cognitive behavioral therapy, social-emotional learning, mindfulness, social skills training, behaviour therapy, psychoeducation, family therapy, interpersonal therapy and positive psychology). These differences present particular problems in metaanalyses [11▪▪].

To address the shortcomings of previous metaanalyses, Caldwell *et al.* [11▪▪] conducted the largest known systematic review and network meta-analysis of school-based programs for preventing anxiety and depression amongst youth. Network meta-analysis allows assessment of the comparative effectiveness of disparate interventions and takes account of program heterogeneity. The study examined 137 randomized and quasi-randomized controlled trials and included both universal and targeted (selective or indicated) interventions involving over 56 000 participants aged 4–18 years; 108 of these studies were included in the network meta-analysis.

Amongst targeted programs (45% of studies) and those taking place in secondary schools (62% of studies), the authors found little evidence of effectiveness in reducing anxiety and depression immediately post-program or at follow-up, and where evidence existed it was based on single trials. Even when studies at risk of bias were eliminated from analyses, these findings remained unchanged. Further, no single intervention type could be identified as superior to others. Across all studies (including those in primary and secondary schools, as well as universal and targeted interventions) the authors concluded there was limited evidence to suggest that SBMH interventions were effective for preventing anxiety or depression amongst young people. Fazel and Kohrt [15▪] suggested this conclusion may be premature, and that assessment of effectiveness should be based on longer term new incidence of case-level mental illness. The authors acknowledge these findings are at odds with earlier meta-analyses but suggest that previously reported positive findings may be because of disparate control conditions being combined in those analyses.

Active controls (including attention controls), as opposed to 'school-as-usual' or waitlist controls, have been advocated for in SBMH evaluations [7,11▪▪]. For example, a recent RCT compared Interpersonal Psychotherapy–Adolescent Skills Training (IPT-AST) to group counselling, following-up 186 adolescent students with elevated depression symptoms to 24-month post-intervention [18]. Internalizing symptoms were significantly lower in the IPT-AST group relative to the group counselling group post-intervention [19], whereas at 24-month follow-up both groups demonstrated comparable and significant improvements in depressive symptoms and overall functioning, indicating that the primary treatment was not superior to the active comparison condition over this time period.

A similar cluster RCT in Finnish secondary schools randomized 55 adolescents with depressive disorder to either interpersonal counselling or brief psychosocial support as an active control condition [20▪]. Both interventions reduced depressive symptoms, with medium-to-large effect sizes observed both at immediate post-treatment and at 6-month follow-up. The authors conclude that both forms of

school-based treatment are equally effective in reducing symptoms of mild-to-moderate depression.

Studies to date highlight major gaps in the evidence base regarding selection bias, statistical power, persistence of early benefits, and heterogeneity of service models [8▪]; internalizing disorders are also a clear focus, with limited investigation of SBMH programs targeting low-prevalence disorders such as early psychosis [21]. They also typically involve episodic interventions targeting discrete (single-faceted) outcomes. In contrast, recent high-quality studies involving multilevel school system interventions in high- [22▪▪] and low-income countries [23▪▪] show promise as feasible, efficient, low-cost and effective platforms that can be delivered at scale. The INCLUSIVE trial [22▪▪], a cluster randomized trial of a whole-school intervention across 40 UK secondary schools and involving almost 6000 students, found positive effects for mental health, psychological wellbeing and bullying at 36-month follow-up. The SEHER cluster-randomized trial [23▪▪], a multicomponent whole-school intervention involving 74 secondary schools and over 13 000 participants in Bihar, India, reported positive impacts on school climate, depression, bullying, violence and other health-related outcomes for programs delivered by counsellors.

FEASIBILITY AND ACCEPTABILITY

The success of SBMH programs relies on their feasibility and acceptability. Receiving mental health support within the school environment generally appears acceptable to students. For example, in Australia, 40% of students with mental health problems received some type of help or support from their school (such as individual or group counselling, a special class or contact with a school nurse) [6]. However, to maximize engagement, consultation with students ensures that content is acceptable and relevant, and barriers to participation are understood [7]. Missing classes, for example, may be of concern to students [24], and addressing this in program design can increase retention.

Evidence on stigma (both anticipated and experienced) in SBMH programs is limited and mixed, but strategies such as minimizing clinical or biomedical language, increasing student choice and control, and building trust and confidentiality can improve participation [25]. Appropriate consideration and time must also be given to building relationships with parents and school staff to facilitate buy-in prior to initiation, to acquiring physical space for the work and scheduling for minimal disruption, and to implementing systems to maintain confidentiality [24].

Schools require guidance in the selection and implementation of interventions suitable for use in a school setting [13▪▪]. Consideration must be given to the feasibility of SBMH programs within time and resource-constrained school environments. For example, programs delivered by external personnel may burden schools with higher costs unless embedded in school systems. Further, school-based services should be delivered during periods when school is in session and impacts on students' time both within and outside classroom hours should be limited [17▪▪,26]; flexibility of delivery and brevity of programs are therefore important considerations to support implementation [20▪]. Interventions that effectively reduce mental health symptoms within a short timeframe [18,26] or those that target several comorbidities or groups of symptoms within a single program [19] may be particularly suitable for the school environment. However, although brief interventions may be attractive to school decision-makers, questions remain as to whether benefits persist over time and whether programs can be sustained beyond the trial period [27]. These challenges are pronounced for schools in rural regions or lower socioeconomic areas, where resources for mental health programs may be limited [17▪▪,26].

Some feasibility concerns, such as sustainability of effects and resources for implementation, might be better addressed if the whole school system, from policy to curriculum and health service delivery, is orientated toward mental health promotion, as suggested in the World Health Organization's [28] Health Promoting Schools framework and reflected in recent, successful whole-school interventions [22▪▪,23▪▪]. More trials with a pragmatic focus, including economic evaluations, measures of cost-effectiveness and consideration of ongoing resourcing, are urgently needed to facilitate wide-scale school adoption of longer term, sustainable programs [7]. In addition, trials from a wider representation of countries are needed; the literature is dominated by evidence from the United States, which may not generalize to other countries. Both the SEHER [23▪▪] and INCLUSIVE [22▪▪] trials from India and the United Kingdom, respectively, are fulfilling this need.

SERVICE PROVIDERS

A wide range of providers are engaged in SBMH programs including personnel based within the school (e.g. teachers, nursing staff, school psychologists) and those sourced externally (e.g. graduate students, researchers, mental health clinicians). Peers may also be engaged as facilitators [29] and codesigners [30], offering opportunities both to

reduce stigma and improve student mental health outcomes in resource-limited schools [17▪▪]. For example, the large SEHER trial [23▪▪] used peer groups in discussion of sensitive topics and to promote a sense of positive connection to school. Further work examining the mental health and well-being impacts of peer-led school interventions is currently underway [31]. Computer-delivered therapies also offer a promising new avenue for service delivery, though evidence of effectiveness is limited [7].

Universal SBMH interventions are often delivered by school staff, whereas targeted interventions have been commonly implemented by mental health professionals [13▪▪]. In their review of 81 RCTs of SBMH programs designed to prevent depression and/or anxiety, Werner-Seidler *et al.* [7] reported that external facilitators were more likely to be involved in delivering targeted programs compared with universal (74 versus 64%). In a more recent review of 137 universal and targeted school-based depression and anxiety-prevention studies, Caldwell *et al.* [11▪▪] noted that most programs (54%) were delivered by personnel external to the school and one-fifth by teachers. These trends highlight doubts around feasibility and scalability of more intensive interventions. As students' mental health needs increase, teachers are often tasked with program delivery [32], though the appropriateness of teacher involvement in diagnosing and treating mental disorders has been called into question [6]. For students whose needs surpass those that can feasibly be addressed in the school setting, school psychology or student welfare personnel require referral pathways to community mental health providers. Formal procedures for communication and information sharing, parental involvement, support from school administrators and a shared understanding of roles are all essential [33]. Telehealth opens up further opportunities for students to access external mental healthcare, particularly for those living in rural or underserved areas [17▪▪,34].

There are differences across providers in costs, training required and sustainability of programs. For specific kinds of programs the type of facilitator may influence effectiveness. For example, amongst depression prevention programs, effect sizes were stronger for those delivered by external providers – such as mental health professionals and researchers – compared with school staff [7], and in the large, multisite SEHER trial, programs delivered by lay counsellors were more successful than those provided by teachers in improving mental health and social outcomes for students [23▪▪]. Other recent evidence suggests that programs provided by school personnel may sustain outcomes over the longer term. In an SBMH RCT comparing group counselling (delivered by school counsellors) to Interpersonal Psychotherapy – Adolescent Skills Training (delivered by clinical psychologists who had no further contact with participants after the intervention), those in the former group experienced benefits for a longer period than those in the IPT-AST arm [18,19]. The authors hypothesized that this may be because of the ongoing relationships developed between students and school counsellors. In contrast, the Caldwell *et al.* [11▪▪] review found little evidence that the type of provider involved in program delivery impacts effectiveness.

CONCLUSION

Mental health and education are intimately linked: being in school is essential for the social and emotional development of children and adolescents, and mental health problems have a devastating impact on learning and school engagement [35]. Considerable research has highlighted potential benefits of specific and discrete interventions, but little is known about sustainability of any gains for the individual or ongoing feasibility for the institution.

Recent trials of multifaceted and multilevel interventions show promise [22▪▪,23▪▪]. Such interventions take account of and are more streamlined into complex school and education systems and therefore more likely to be both scalable and sustainable [36]. Their effects on mental health can be far-reaching compared with more narrowly focused interventions, as well as addressing underlying risks, such as bullying and violence, in the school environment.

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Conflicts of interest

There are no conflicts of interest.

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- ▪ of special interest
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