

The Effectiveness of School-Based Mental Health Interventions

Zunaira Arooj¹, Noor Fatima^{1*}

¹ Department of Education, University of Karachi, Pakistan

*Corresponding author: Noor Fatima, Email: noorfatima4556@gmail.com

Abstract

Schools are increasingly serving as key gateways to mental health support for children and youth, both as part of broader well-being programs and as targeted support for those at risk. There is fair evidence that such programs are effective, specifically educational programs that promote social-emotional learning and interventions to prevent depression and anxiety. However, their impact is typically limited, and their effectiveness tends to diminish when implemented in real-world settings. A recent study of universal school-based mindfulness training reported no significant impact. This review suggests that much of the disagreement in the field stems from mixing up three different dimensions in the single term “embedded”: who delivers the program, how “deeply” it is embedded in the school day, and which students it is designed for. Comparisons among studies that combine these dimensions are therefore akin to comparing apples and oranges. With integration depth considered in isolation, a more distinct pattern emerges: programs integrated into the regular school day are more effective than similar programs delivered as additions to the school day, despite both being universally implemented by teachers. This indicates that the commonly assumed trade-off between the number of students reached and the impact of an intervention is not necessarily fixed. It may reflect the fact that many programs are only shallowly integrated into school routines, rather than a real limitation on what schools can achieve. The review proposes a simple agenda for future research: reach, fidelity, and integration depth should be reported as central outcomes rather than secondary details; the three dimensions of “embedding” should be kept distinct in study design; and researchers should move away from expecting a single universal program to serve both broad prevention and targeted treatment purposes.

Keywords: school-based mental health interventions; social-emotional learning; universal prevention; implementation fidelity; depression and anxiety prevention

1. Introduction

The majority of mental disorders have their first onset before adulthood, and a significant proportion of cases emerge during school age [1], which is both a challenge and an opportunity. There is a chronic treatment gap—few (or no) youth in need ever seek help from a clinic; access is limited by income, place, and stigma. The opportunity lies in the fact that almost every child experiences a single institution for a good part of his/her childhood. This reasoning supports what has currently become the prevailing school-based mental health approach of providing a spectrum of care with varying levels of contact between mental health providers and students, moving from a universal program to clinical services [2,3].

There are reasons why schools have such a broad reach: staff members are in regular day-to-day contact

with students, help-seeking is not necessarily seen as pathological, and the fundamental purpose of the school involves a commitment to well-being. In response, governments and health systems have allocated significant resources to school-based programs, and there has also been an increasing body of research on school-based health interventions. If a ministry mandates a program for all children, or if a small amount of funding for well-being is allocated to a particular curriculum at the district level, this is not simply an academic error resulting from an overstated effect size [4,5].

Embedded has been a term of little interest so far. In practice, it is a term which refers to actions ranging broadly. Embedded can be a psychologist working in a spare classroom running a manualized anxiety group, a teacher implementing a scripted well-being lesson with 30 students, or a cultural change throughout the entire school through the scheduled delivery of these interventions—all are different [6]. The current review focuses on the effectiveness of mental health programs, and a conditional response is between the unbridled optimism of advocacy and the discarding of the past by the skeptics. The embedded programs can be effective when properly integrated and truly embedded, but most large-scale programs have to make a compromise between reach and integration/fidelity.

2. Embedding: Working Taxonomy

The idea of embedding should be unpacked in the context of dealing with the “issue of effectiveness.” Three dimensions (**Table 1**) are discussed. The first dimension is the individual who implements the intervention program directly. It can be external personnel not in the school system (a mental health professional or researcher) or someone inside the school system (a classroom teacher) [7]. The second dimension is how well integrated into a stand-alone, add-on, or pull-out session, or into the curriculum, day-to-day life, and school culture it is. The third dimension is the population the program is targeted towards: universal (the program will be offered to all regardless of need), selective (the program will be delivered to those at risk), or indicated (the program will be delivered to students with symptoms) [8,9]. These dimensions are typically merged into one: Do mental health interventions in schools help? Much of the confusion stems from that. A universal program can be delivered virtually anywhere; apart from specialist lessons, few teachers have the qualifications to undertake specialist content, and often a class of 20 children is unable to focus for a long period on specialist content. There is a greater likelihood of delivery of specialist targeted programs. Therefore, conclusions about the effectiveness of targeted vs. universal programs based on meta-studies may be incorrect, as targeting is not only related to effectiveness, but also to the target population and integration depth. The validity of effectiveness is dependent on keeping the dimensions separate.

Table 1. A working taxonomy of “embedded” school-based mental health interventions. The three dimensions are usually collapsed, which confounds effectiveness comparisons.

Dimension	Primary	Alternative	Central trade-off	Reference
Delivery agent	External clinician or researcher	Classroom teacher or school staff	Skill and fidelity versus sustainability and cost	[10–13]
Integration depth	Stand-alone add-on or pull-out session	Integrated into curriculum, routines, and school culture	Ease of study versus ecological potency	[10]
Target population	Universal (all students)	Selective or indicated (screened at-risk)	Coverage and de-stigmatization versus effect magnitude	[2,10,11]

3. The Overall Vision

The most frequently cited evidence involves social-emotional learning (SEL). In relation to school-wide SEL programs, Durlak *et al.* reviewed 213 SEL programs with over 270,000 children participating during the school year and identified social-emotional skill and attitude gains, as well as behavioral and academic achievement gains, equivalent to 11 percentile points in academic achievement [13]. A follow-up study was conducted; some long-term benefits were observed (months to years), and effectiveness decreased with time [14]. Generally, small but significant moderations were identified with content, context, and high-quality implementation in a recent meta-analysis (including 424 studies with over 575,000 students from 53 countries) [15]. The variability in the mean is considerable, and how a program is implemented is as important (if not more) as what is implemented.

In clearly defined school-based interventions aimed at preventing depression and anxiety, results showed low effectiveness and even smaller effects at follow-up, and there is evidence of superiority for targeted over universal delivery, as well as for clinician or trained professionals over school staff delivery [12]. A meta-analysis of mental health services provided to children in elementary schools, primarily by school personnel, showed an overall small-to-moderate effect with somewhat better effects for classroom-based delivery [10], given that children are more often the target of mental health services due to their risk of mental health problems.

The standardized effects usually lie within a typical range, between 1/5th and 2/5th of a standard deviation, and are typically considered small-to-moderate effects. For example, the reduction in disruptive behavior was recently found to be around $g = 0.22$ [15]. However, the effect is not enough to warrant an overhaul of in-program marketing.

The effects of task- and lesson-based interventions can be significant, but are low and more likely to be repeated (**Table 2**). The effects are greater when programs are targeted, specialist-delivered, and deeply integrated, while universal coverage, non-specialist delivery, and shallow integration mitigate these effects.

Table 2. Summarized evidence for embedded school-based mental health interventions

Study	Scope	Population	Key effect	Critical caveat
[13]	213 universal SEL programs	~270,000 K–12 students	Gains in skills, behavior, attitudes; ~11-percentile achievement gain	Universal only; short follow-up; older programs
[14]	82 universal SEL programs, follow-up	~97,000 students	Benefits detectable 6 months to 18 years later; skills predict later well-being	Few studies with long follow-up; effects attenuate
[11]	RCTs, depression/anxiety prevention	Children and adolescents (5–19)	Small effects; targeted > universal; clinician > teacher	Effects diminish by follow-up
[12]	Updated RCT meta-analysis	Children and adolescents	Small effects confirmed on updated evidence	Universal effects especially weak; power concerns
[10]	School-delivered services meta-analysis	~50,000 elementary children	Overall $g \approx 0.39$; integrated-into-instruction $g \approx 0.59$	Elementary only; overlapping components
[16]	Pre-registered cluster RCT, universal mindfulness	>8,000 adolescents, 84 schools	Null on all primary outcomes at post-test and 1 year	Signal of worsening among at-risk students
[15]	424 studies, universal SEL	~575,000 students, 53 countries	Significant but modest gains across domains	Implementation quality strongly moderates effects

4. The Translation Gradient: From Effectiveness to Real-World Impact

Before this pattern is traced in detail, it is worth clarifying what is meant by a translation gradient. The term is not an established construct; it is used here as an organizing label for a well-documented pattern in implementation science, the tendency for an intervention’s measured benefit to shrink at each step as it moves out of the tightly controlled conditions in which it was first tested and into the ordinary conditions of everyday practice. This pattern is captured by two established ideas. The first is the efficacy-effectiveness gap: a program shown to work under ideal, closely supervised conditions (efficacy) does not automatically work when offered under routine conditions (effectiveness), because the two research traditions are built around different priorities [17]. The second is what implementation scientists have termed the “voltage drop,” whereby the measured benefit of an intervention is expected to fall as it passes from efficacy to effectiveness to routine implementation and long-term sustainability [18]. The gradient described here arranges these steps in sequence for the school setting: effectiveness (does the program work when tested?) → implementation (is it delivered as intended in real schools?) → scale-up (does the benefit hold when it is rolled out widely, by ordinary staff, to all students?) → real-world impact (does a measurable benefit survive at the population level?). At each step, some of the supervision, training, and participant selection that protected the original effect is stripped away, and part of the effect tends to go with it [19]. The literature shows a strikingly consistent trend: The impact of interventions is reduced progressively over the pipeline from highly

controlled effectiveness studies to scaling up in routine settings. Often targeted, closely supervised, and specialist-delivered, effectiveness studies are at the top. When teacher-delivered SEL is used as a universal intervention, the effectiveness is even lower for real-life, large-scale pragmatic prevention studies. The last step of the gradient is a pragmatic universal study (in the real world) [22].

The largest study conducted so far of universal school well-being mindfulness is the My Resilience in Adolescence (MYRIAD) trial. The study was randomly assigned to 84 schools and over 8,000 adolescents, pre-registered and cluster-designed (well above the field average). It did not find any advantages to mindfulness training compared to the current provision in schools for its three primary outcomes of depression risk, social-emotional-behavioral functioning, and well-being, and there were hints that those most at risk might have done a little worse [16]. In the accompanying editorial [15], a stark question was posed: is universal depression prevention a blind alley or a tough crossroad?

There are several ways that the gradient could be explained. For all of them to be delivered at once, there will be many students who have little scope for improvement, thus reducing the average impact. However, adolescents might not work on skills like mindfulness at home. Many studies also rely on self-report measures shortly after interventions, which are susceptible to demand effects that may make interventions appear effective initially but show diminishing effects over time [23]. The gradient is thus not an artifact to be explained away but is the signal. As such, it reveals that effectiveness is fragile and that the conditions in which real-world embedding occurs are precisely those under which effectiveness itself is most likely to be lost. Part of this pattern is the loss of effects that occurs when a program with demonstrated benefits in a specialized research environment is introduced into routine systems, a phenomenon addressed by the field of implementation science [19]. As the level of supervision decreases, the amount of training decreases, and the extent to which the program is passed on to staff who already have numerous other responsibilities diminishes, and so do fidelity, reach, and impact. Scale embedding is one step on this scale. The further a program is integrated into the context of everyday school practice, the more vulnerable it becomes to the erosion of its effectiveness through routine implementation. Hence, the most favorable results reported in studies may provide the least representative picture of how a program is likely to perform within a real-world system.

5. The Embeddedness Paradox

The characteristics of an intervention that yields the largest number of students' participation (universal coverage, delivery by current personnel, and minimal add-on to the school day) are the features linked to smaller intervention effects. On the other hand, the factors that maximize effect, namely those who need it, specialist delivery, and closer supervision, will minimize reach and maximize cost. The goals of reach and effectiveness conflict [22].

If this were a paradox, then the policy implications would be dire, with the underlying assumption that it is not possible to meet the needs of a large number of students while also providing in-depth support to a smaller number of students. However, there were indications that this was not a fundamental contradiction, and there was a reason why it might not be: the taxonomy revealed an ambiguity in the concept of "embedded." Embedding can refer to location, such as interventions being developed on school premises, delivered by school teachers, and provided to whole classes. Alternatively, embedding can refer to integration, whereby interventions are incorporated into what teachers are teaching and

into the routine activities of the school day. It is generally thought that these two senses go hand in hand [23,24]. Compared with pull-out and add-on services provided in schools by school personnel, the difference between being integrated and either of these models was substantial [10]. As integration became deeper, the reach of the intervention could increase without a corresponding loss in potency. This casts the paradox in a new light. Shallow embedding includes bolt-on lessons, lessons delivered separately from the regular school day, and programs conducted outside school hours. In contrast, deep embedding can be implemented for both large and small groups and can provide the additional benefit of greater continuity and security [25,26].

However, there is one important counterargument that supports the universal approach but also highlights its limitations. In the field of prevention, the principle is that shifting the risk level of the entire population, even slightly, can reduce overall risk and prevent more cases than focusing efforts exclusively on the high-risk segment of the population, because most cases arise from the larger group of individuals who are not at particularly high risk [27]. This means that a low-level intervention delivered to every student could be more effective in preventing disruptions and disorders than a high-level, high-impact intervention provided to a smaller number of students. The former reaches everyone, whereas the latter is limited to students identified as being at risk, and many at-risk students may remain unidentified. In this context, the needs of the broader population cannot be disregarded [28,29]. Therefore, a more productive approach would be to restrict the use of the term “universal, teacher-delivered” to interventions that reflect a substantive rather than a superficial sense of the term. Effectiveness appears to be related to integration, reach, and depth of integration, whereas reach represents a distinct dimension. As noted above, if an intervention is genuinely integrated into instruction, allocated sufficient time, and implemented as intended, it can achieve high levels of both reach and effectiveness. The issue is not necessarily that the field is deliberately aiming for shallow integration; rather, because the field often settles for superficial integration of interventions into existing educational practices, it may end up reporting small effects when such outcomes reflect the limits of what schools are realistically able to implement.

6. Methodological Fault Lines

There are several issues that one has to get “out on the table” as to effectiveness—who delivers is at the top of the list. Targeting, delivery agent, depth, and setting go hand in hand, so it is difficult to disentangle the enhanced effectiveness advantage of targeted programs from the targeted dimension alone, from the other specialists and increased depth typically associated with targeted programs. Dismantling and factorial studies that change only one dimension at a time are limited and in great need [30,31].

Secondly, effectiveness is being measured and designed in a way that exaggerates it. Demand effects are known to occur in many studies that rely on self-report symptom scales immediately after the program and where students are aware of having received an intervention (lack of blinding). Follow-up is typically short, and true long-term results are assessed in very few studies [14]. Whole-school programs should be tested using a cluster-randomized design; this requires large numbers of clusters to reliably identify the small effects of interest in the study, and accordingly small-effect studies are common.

Third, the average is challenging, both due to the heterogeneity and the reporting bias. Program features and implementation quality were found to be powerful moderators of outcomes (the most comprehensive SEL research found a moderating effect in the full pooled effect size; the effect the school is likely to experience is described below). The reason is that publication bias and small-scale studies would likely exaggerate the reported effects; the sensitivity results would provide some confidence in the direction of the analysis, but caution is warranted in an attempt to understand the precise effectiveness of the outcomes [32,33]. Another criterion that is appreciable but not necessarily quantified is cost-effectiveness. As it happens, at the most effective end there are highly targeted specialist programs, and at the cheaper end there are programs implemented as universal add-on programs that consume curriculum time with a large cohort of students; but the good news is that there is no universal, one-size-fits-all strategy that is guaranteed to positively affect outcomes. One small but actual effect can turn out to be non-cost-effective in comparison to the expenses of teacher preparation time, time lost due to lost instructional time, and materials. It is difficult to conclude on cost-effectiveness due to the very few studies conducted in schools, and the additional costs remain unknown to the decision-makers [34,35].

7. Equity and Adolescence

Equity is not a separate concern that sits outside this review's framework; it runs through all three dimensions of embedding and shapes how each should be weighed. Along the target-population dimension, the choice between universal, selective, and indicated delivery is itself an equity decision: universal coverage avoids the labeling and stigma that can fall hardest on marginalized students, yet it may under-serve those with the greatest need, whereas screening and targeting can concentrate help where it is most needed but risk singling out and further marking already-vulnerable groups [27,36]. Along the integration-depth dimension, shallow pull-out and add-on models carry a design-level equity cost: withdrawing a struggling student from class for a session trades instructional time for support, a trade that falls hardest on students who can least afford lost learning, whereas deeper integration into the ordinary school day distributes support without removing anyone from instruction [10,25]. Along the delivery-agent dimension, who delivers a program has equity consequences of its own: teachers embedded in a school community may be better placed to read behavior in context, but without a culturally responsive care pathway they may also misread ordinary distress in disadvantaged students as pathology [37,38], while specialist delivery, though often more skilled, is precisely what under-resourced schools are least able to fund [12]. Two further considerations cut across these three dimensions. The first is accessibility: the strongest equity argument for school-based delivery is that it reaches young people, particularly racial and ethnic minority and low-income youth, who face the steepest barriers of cost, transport, and stigma to community services [39–41]. The second is the risk of unintended harm, which is unevenly distributed and can quietly widen the very gaps that embedding is meant to close [16]. The remainder of this section examines these tensions in turn. Equity is often used as a basis for supporting embedding, and it is believed that support in the school will allow this to happen. This is a promise that can be true, but has not been consistently tested in the scientific evidence base. The reviews also suggest that common research approaches do not account for racial or socioeconomic differences or disability when statements are made that the benefits of embedded

program exposure are equal for all racial subgroups or for people with disabilities. Design-level equity costs exist as well and can be overlooked. Taking a struggling student out of class for a mental health session may contribute to the educational disadvantage that the system cannot tolerate.

For at-risk adolescents, whilst perhaps universal delivery is not wrong [16], it potentially leads to a deterioration in their condition. In some contexts, group programs targeting problematic children can focus on difficulties, rather than spread and diffuse the difficulties. There is also a risk of misdiagnosing common distress as pathology and of the fact that a class of students will learn to pay attention to mental states, which could get them to notice things they would not otherwise notice and exacerbate what they are looking for. The following does not say anything in favor of embedding. It favors humility, and the most careful assessment of harm, as well as benefit, and it favors the reporting of results of individual subgroups rather than hiding them in an average [37,42].

There is also a more subdued equity issue; what is being considered successful? Given that several SEL outcomes at the classroom level are heavily dependent on regulating emotions and cooperatively interacting with others, it is important to ask the following: can SEL without a cultural care pathway pathologize the “normal” responses of the students who are most likely to feel frustrated and disheartened by school [15]? Any effectiveness (fewer disruptions) carefully targeted is not effectiveness (good mental health) and does not get in sync without anybody realizing it.

Adolescence is a significant developmental stage where about 50% of all mental health conditions are experienced before age 14, and 75% appear by mid-twenties. According to recent epidemiological statistics, mental illnesses impact almost one out of five adolescents worldwide, and the prevalence of depression, anxiety, and behavioral disorders continues to rise over the last 10 years. COVID-19 has also contributed to this crisis, and there are high rates of mental health symptoms and suicide among adolescents reported in several countries. The effects of unresolved mental health issues in adolescence have a far-reaching impact that continues into adulthood, with projections of poor employment rates, relationship issues, physical health, and the risk of mortality [43,44].

Conventional community-based mental health services have several limitations to their effectiveness with adolescents, such as poor capacity, excessive wait times, geographic accessibility, financial barriers, transportation issues, and the stigma surrounding the use of specialized mental health services [39]. A significant treatment gap exists, with only about 20% of adolescents with diagnosable mental health conditions receiving adequate treatment. Inequality is especially severe in racial and ethnic minority youth and youth from low socioeconomic backgrounds, who are not only more likely to have mental health issues but also have less access to services. School-based interventions have proven to be a viable approach to helping to overcome these issues through mental health care in a natural setting where youths spend much of their time, lowering costs, transportation, and stigma associated with accessing health services, and facilitating early detection and treatment [40,41].

8. Recommendations on Effectiveness

As this review suggests, if schools are to be abandoned, the only option would be to look for a new frame of action: redesigning the programs themselves, architectures of program effectiveness, or reconfiguring the ways program effectiveness is communicated and reported. Several priorities follow: Programs should aim to achieve deep integration or embedding into teaching and school practice rather

than to achieve add-on delivery, as this seems to increase effectiveness without loss of reach. The dimensions should be separated in dismantling designs and/or factorial designs to find out which dimension is driving the effect. A tiered logic is appealing: a true and correct “universal” logic for all students, as well as selective and indicated supports for those who require additional support. Instead of implementing a single program to cover both reach and effectiveness, a “stepped care” approach would aim to achieve reach and effectiveness at different levels [45]. Recommendations for evaluations include extended follow-up time, avoiding self-report measures, and proactive evaluations of equity subgroups; cost-effectiveness and opportunity cost should be taken into account since limited school time cannot accommodate implementing more than one program.

The recommendations are similar to those for clinical research on drugs or psychotherapy conducted in educational institutions: describe the dosage, compliance, immediate and long-term outcomes, costs, and effectiveness explicitly. This is significant as youth’s time and resources are scarce, and a program that was hyped may be chosen over one that may have done more. Most importantly, the field must move away from a narrow understanding of effectiveness. A program may have an impact on every child while producing only a modest improvement in the average outcome, whereas another program may substantially change the trajectory of a small number of children who are struggling. Both can be considered effective; however, they are not necessarily “equally effective,” and recognizing this distinction is crucial to avoiding the inefficient use of scarce resources. School-based mental health interventions that are embedded within educational settings can be effective. The key issue is not whether they work, but rather how comprehensively they are implemented, how much intervention is delivered, and how well it is delivered. Based on the current evidence, these factors largely determine the outcomes.

9. Conclusion

Two common positions on school-based mental health interventions turn out to be overly simplistic. One argues that these programs are a powerful solution; however, the evidence does not support this view, as effects are consistently small, tend to diminish over time, and the best available pragmatic study found no significant effects. The other argues that school-based programs are too diluted to be worthwhile; this is also inaccurate, since programs that are properly integrated into teaching clearly produce larger effects without necessarily requiring fewer students to participate. The way forward is to stop treating “embedded” as a single concept. Instead, it comprises three distinct dimensions: who delivers the program, how deeply it is integrated into the school day, and whom it targets. Studies that combine these dimensions can produce findings that appear inconsistent when, in fact, they are not. Once the depth of integration is considered independently, it emerges as an important and potentially underexamined moderator of intervention effectiveness, more so than where a program is delivered or who delivers it.

Three implications follow from this. First, asking whether school-based mental health programs “work” is not a fair question on its own; the answer depends on where a program falls along each of the three dimensions. These dimensions therefore need to be reported separately rather than combined into a single summary outcome. Second, reach, fidelity, and depth of integration should be treated as key variables rather than background details, and studies should be designed to examine their individual

effects. Third, schools are likely to benefit more from a tiered approach—a genuinely universal layer that accepts modest effects across the whole population, combined with more intensive, specialist support for students who need it—than from expecting a single light-touch program to fulfill both functions. School-based mental health support is neither a proven success story nor a failure. Based on the available evidence, its effectiveness appears to be proportional to the extent to which it is integrated into the school day. The next priority for the field is therefore to measure this integration more rigorously rather than treating “embedded” as a single, undifferentiated label.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Zunaira Arooj: Conceptualization, Writing – original draft, reviewing and editing, Finalization.

Noor Fatima: Conceptualization, Writing – original draft, reviewing and editing.

All authors have approved the final version of the manuscript.

Copyright and License

Copyright in the article remains with the authors. Upon acceptance and publication, the authors grant Cytelix Press LLC. a non-exclusive license to publish, reproduce, distribute, display, and make the article available online as part of the journal’s scholarly record.

Unless otherwise stated on the journal website or in the publishing agreement, the published article will be distributed under the Creative Commons Attribution 4.0 International (CC BY 4.0) license. This license permits sharing and adaptation provided appropriate credit is given to the authors and the source, a link to the license is provided, and any changes are indicated.

References

- [1] Costello, E. J., Egger, H., & Angold, A. (2005). 10-year research update review: The epidemiology of child and adolescent psychiatric disorders: I. Methods and public health burden. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(10), 972–986.
- [2] Fazel, M., Hoagwood, K., Stephan, S., & Ford, T. (2014). Mental health interventions in schools in high-income countries. *The Lancet Psychiatry*, 1(5), 377–387.
- [3] Stephan, S. H., Weist, M., Kataoka, S., Adelsheim, S., & Mills, C. (2007). Transformation of children's mental health services: The role of school mental health. *Psychiatric Services*, 58(10), 1330–1338.
- [4] Lear, J. G. (2007). Health at school: A hidden health care system emerges from the shadows. *Health Affairs*, 26(2), 409–419.
- [5] Madhavan, H., & Gaudilliere, J.-P. (2026). Frugal innovations and health system resilience: The conceptualization, policy support and forms of frugality during COVID-19 in South India. In *Capitalism, innovations, and health after COVID-19: An Asian perspective* (pp. 243–278). Springer.
- [6] Gould, K., Collier-Meek, M., Coddington, R., Hayden, L., Melo, B., & DeFouw, E. (2026). Impact of a math problem-solving intervention alone and with embedded socio-emotional learning. *Contemporary School Psychology*, 1–20.

- [7] Beames, J. R., Spanos, S., Roberts, A., McGillivray, L., Li, S., Newby, J. M., O'Dea, B., & Werner-Seidler, A. (2023). Intervention programs targeting the mental health, professional burnout, and/or wellbeing of school teachers: Systematic review and meta-analyses. *Educational Psychology Review*, 35(1), 26.
- [8] Elsayed, A. H., Pajuelo, M. L., Almaghaireh, I., Chaaban, K., Homsy, I., & Elmassri, M. (2025). Fostering sustainability leadership through SDG 13 integration in business curricula. *Sustainability*, 17(18), 8297.
- [9] Fathurrochman, I., Asnawan, Monita, D., & Hasan, M. F. (2025). Integration of local wisdom in elementary school local content curriculum: A study in rural areas of Indonesia. *The Curriculum Journal*.
- [10] Sanchez, A. L., Cornacchio, D., Poznanski, B., Golik, A. M., Chou, T., & Comer, J. S. (2018). The effectiveness of school-based mental health services for elementary-aged children: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 57(3), 153–165.
- [11] Werner-Seidler, A., Perry, Y., Calear, A. L., Newby, J. M., & Christensen, H. (2017). School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis. *Clinical Psychology Review*, 51, 30–47.
- [12] Werner-Seidler, A., Spanos, S., Calear, A. L., Perry, Y., Torok, M., O'Dea, B., Christensen, H., & Newby, J. M. (2021). School-based depression and anxiety prevention programs: An updated systematic review and meta-analysis. *Clinical Psychology Review*, 89, 102079.
- [13] Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405–432.
- [14] Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, 88(4), 1156–1171.
- [15] Cipriano, C., Strambler, M. J., Naples, L. H., Ha, C., Kirk, M., Wood, M., Sehgal, K., Zieher, A. K., Eveleigh, A., & McCarthy, M. (2023). The state of evidence for social and emotional learning: A contemporary meta-analysis of universal school-based SEL interventions. *Child Development*, 94(5), 1181–1204.
- [16] Kuyken, W., Ball, S., Crane, C., Ganguli, P., Jones, B., Montero-Marin, J., Nuthall, E., Raja, A., Taylor, L., & Tudor, K. (2022). Effectiveness and cost-effectiveness of universal school-based mindfulness training compared with normal school provision in reducing risk of mental health problems and promoting well-being in adolescence: The MYRIAD cluster randomised controlled trial. *Evidence-Based Mental Health*, 25(3), 99–109.
- [17] Glasgow, R. E., Lichtenstein, E., & Marcus, A. C. (2003). Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. *American Journal of Public Health*, 93(8), 1261–1267.
- [18] Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implementation Science*, 8(1), 117.
- [19] Wakschlag, L. S., Finlay-Jones, A. L., MacNeill, L. A., Kaat, A. J., Brown, C. H., Davis, M. M., Franklin, P., Berkel, C., Krogh-Jespersen, S., & Smith, J. D. (2022). Don't get lost in translation: Integrating

- developmental and implementation sciences to accelerate real-world impact on children's development, health, and wellbeing. *Frontiers in Public Health*, 10, 827412.
- [20] Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International*, 26(Suppl. 1), i29–i69.
- [21] Black, D. S. (2015). Mindfulness training for children and adolescents. In *Handbook of mindfulness: Theory, research, and practice* (pp. 246–263). Guilford Press.
- [22] Cortes, K. E., Kortecamp, K., Loeb, S., & Robinson, C. D. (2025). A scalable approach to high-impact tutoring for young readers. *Learning and Instruction*, 95, 102021.
- [23] Avelar, A. B. A., Mitchell, S., & Sandes-Guimarães, L. V. d. (2025). Integrating sustainable development goals in management education: Impact on student knowledge, attitudes, and behaviors. *The International Journal of Management Education*, 23(2), 101116.
- [24] Crișan, E. L., Beleiu, I. N., Salanță, I.-I., Bordean, O. N., & Bunduchi, R. (2024). Embedding entrepreneurship education in non-business courses: A systematic review and guidelines for practice. *Management Learning*, 55(4), 553–575.
- [25] Mintrop, R., Zumpe, E., Jackson, K., Nucci, D., & Norman, J. (2022). *Designing for deeper learning: Challenges in schools and school districts serving communities disadvantaged by the educational system*. Carnegie Foundation for the Advancement of Teaching.
- [26] Zohar, A. (2023). *Scaling-up higher order thinking: Demonstrating a paradigm for deep educational change*. Springer Nature.
- [27] Rose, G. (2001). Sick individuals and sick populations. *International Journal of Epidemiology*, 30(3), 427–432.
- [28] DeTore, N. R., Balogun, O., Choi, K. W., & Holt, D. J. (2026). Transdiagnostic prevention in youth mental health, Part II: Interventions. *Neuropsychopharmacology*, 51(1), 310–322.
- [29] McGovern, R., Balogun-Katung, A., Artis, B., Bareham, B., Spencer, L., Alderson, H., Brown, E., Brown, J., Lingam, R., & McArdle, P. (2024). The effectiveness of preventative interventions to reduce mental health problems in at-risk children and young people: A systematic review of reviews. *Journal of Prevention*, 45(4), 651–684.
- [30] Frick, T. A., Schnitz, A. G., Cosand, K., Horn, E. M., & Zimmerman, K. N. (2023). Dosage reporting in early intervention literature: A systematic review. *Topics in Early Childhood Special Education*, 43(1), 5–16.
- [31] Vaivada, T., Lassi, Z. S., Irfan, O., Salam, R. A., Das, J. K., Oh, C., Carducci, B., Jain, R. P., Als, D., & Sharma, N. (2022). What can work and how? An overview of evidence-based interventions and delivery strategies to support health and human development from before conception to 20 years. *The Lancet*, 399(10337), 1810–1829.
- [32] Cai, L., Wu, D., Fan, H., & Guo, S. (2026). Promoting social and emotional learning in K-12 students through digital-based interventions: A systematic review and meta-analysis. *BMC Psychology*.
- [33] Lin, Z., Huang, C., & Shi, J. (2026). Promoting holistic student development through universal school-based social-emotional learning in China: A meta-analysis. *Behavioral Sciences*, 16(3), 368.
- [34] Baffsky, R., Ivers, R., Cullen, P., Wang, J., McGillivray, L., & Torok, M. (2023). Strategies for enhancing the implementation of universal mental health prevention programs in schools: A systematic review. *Prevention Science*, 24(2), 337–352.

- [35] Cockerill, M., Thurston, A., & O'Keeffe, J. (2023). Using fluency and comprehension instruction with struggling readers to improve student reading outcomes in English elementary schools. *International Journal of Educational Research Open*, 5, 100264.
- [36] Rapee, R. M., Wignall, A., Sheffield, J., Kowalenko, N., Davis, A., McLoone, J., & Spence, S. H. (2006). Adolescents' reactions to universal and indicated prevention programs for depression: Perceived stigma and consumer satisfaction. *Prevention Science*, 7(2), 167–177.
- [37] First, M. B., & Wakefield, J. C. (2013). Diagnostic criteria as dysfunction indicators: Bridging the chasm between the definition of mental disorder and diagnostic criteria for specific disorders. *The Canadian Journal of Psychiatry*, 58(12), 663–669.
- [38] Hall, G. C. N., Ibaraki, A. Y., Huang, E. R., Marti, C. N., & Stice, E. (2016). A meta-analysis of cultural adaptations of psychological interventions. *Behavior Therapy*, 47(6), 993–1014.
- [39] Sharma, M., Sharma, V., & Peeples, D. (2025). Telepsychiatry, access, and equity: Accelerating mental health care for rural and low-income youth. *Frontiers in Public Health*, 13, 1698682.
- [40] Alegría, M., Green, J. G., McLaughlin, K. A., & Loder, S. (2015). *Disparities in child and adolescent mental health and mental health services in the US*. William T. Grant Foundation.
- [41] Lu, W., Todhunter-Reid, A., Mitsdarffer, M. L., Muñoz-Laboy, M., Yoon, A. S., & Xu, L. (2021). Barriers and facilitators for mental health service use among racial/ethnic minority adolescents: A systematic review of literature. *Frontiers in Public Health*, 9, 641605.
- [42] Wakefield, J. C. (2010). Misdiagnosing normality: Psychiatry's failure to address the problem of false positive diagnoses of mental disorder in a changing professional environment. *Journal of Mental Health*, 19(4), 337–351.
- [43] Farrell, A. H., Szatmari, P., & Vaillancourt, T. (2024). Epidemiology of mental health challenges in children and adolescents. *Pediatric Clinics*, 71(6), 999–1011.
- [44] Liu, Y., Ren, Y., Liu, C., Chen, X., Li, D., Peng, J., Tan, L., & Ma, Q. (2025). Global burden of mental disorders in children and adolescents before and during the COVID-19 pandemic: Evidence from the Global Burden of Disease Study 2021. *Psychological Medicine*, 55, e90.
- [45] Paul-Chima, U. O., Ugwu, C. N., & Alum, E. U. (2024). Integrated approaches in nutraceutical delivery systems: Optimizing ADME dynamics for enhanced therapeutic potency and clinical impact. *RPS Pharmacy and Pharmacology Reports*, 3(4), rqa024.