

# Mental Health Promotion for the 'in-betweeners': The Rationale and Effectiveness of Community-Based Mentoring and Coaching Schemes for Primary School-Aged Children.

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## Abstract

**Background:** There are relatively few research publications of mental health promotion initiatives for primary school aged children that are based in community rather than educational settings.

**Aims:** To describe developmental frameworks and models of mentoring, coaching and mental health promotion and to summarize any evidence for the efficacy of community initiatives.

**Methods:** An umbrella review was undertaken of publications on theories and models, and a synthesis of findings from reviews of outcomes of mentoring, mental health promotion initiatives undertaken outside of school time for children aged 5-11 years.

**Results:** Developmental mentoring on its own or in combination with outside school activities is potentially more flexible in terms of delivery and targets than school-based programs. Pooled effect sizes (range about 0.2 -0.4) suggest modest but significant gains across several key domains (cognition, emotion, physical health, and social connectedness) that equate to about 10 percentile point on the developmental evaluations employed. Mediators of benefits include the level environmental or individual risk of the child and parental involvement. It is noteworthy that poor quality, atheoretical programs can have detrimental effects.

**Conclusions:** Children aged 5-11 years may be more accepting of, and could make significant gains from, community-based mental health promotion interventions such as developmental mentoring. However, there are some significant gaps in the knowledge-base that need to be addressed through more systematic research.

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## Introduction

Recent decades have witnessed the introduction of promotion and prevention initiatives to improve mental health and reduce mental disorders in children, adolescents and young adults. Typical approaches during the pre-school period include community-based health promotion interventions for toddlers such as Head Start and Sure Start<sup>1,2</sup>. Promotion and prevention interventions for adolescence include mentoring schemes to optimise well-being within and outside school environments and clinical youth mental health services that offer care and treatment for emerging mental disorder<sup>3,4</sup>. Overall, about 80% of peer reviewed publications outline programmes that target either pre-school children or adolescents. Fewer health promotion initiatives have been targeted at children aged about 5-11 years who fall in between the toddler and post-pubertal groups (and sometimes referred to as the 'in-betweeners'), and even fewer publications have assessed the impact of the latter set of programmes<sup>5</sup>. This is disappointing as it can be hypothesised that effective promotion of health and well-being in childhood may increase resilience to adversity in children, which may then act as a protective factor, reducing the likelihood of onset of mental disorders in adolescence<sup>6</sup>. Recognition of this gap in provision has led to more mentoring and youth development schemes being introduced for primary school aged children. However, many of the initiatives that have been implemented and most of the published evaluations relate to programmes that are incorporated within the school curriculum (such as 'healthy school' initiatives)<sup>7</sup>. Whilst these programmes are welcome, their introduction is dependent on the support of key stakeholders within a school or local education system and on the allocation of appropriate funding. These may represent barriers to introducing school-based schemes.

Given the extensive literature now available on pre-school, school-based programmes and/or adolescent programmes, we determined that it is useful to extend the knowledge-base by reviewing what universal, community-based, 'developmental' mentoring and/or outside school-time (OST) activity programmes have been offered to children in their early school years and what is known of their effects. Whilst not all primary schools can or wish to offer programmes, it can be argued that opportunities to promote the development

of physical, cognitive, psychological-emotional and social competencies in 5-11 year olds could instil a positive sense of self-esteem, mastery, identity, and social connectedness. All of these potential benefits could determine future health and well-being<sup>8</sup>.

This paper begins by briefly summarizing key elements of a developmental framework that provides a rationale for health promotion in primary school children, and then discusses pathways by which mentoring, coaching or similar developmental interventions might theoretically promote well-being. It then examines evidence for any social-emotional, academic or physical health benefits associated with participation in these programmes, and any influence on social connectedness, micro- or macro-systems or neighbourhood networks (as advocated by the World Health Organisation). Also, the limited data on potential moderators of outcomes and health economics of such programmes are explored.

## Brief Overview of Key Elements

### Developmental Framework Relevant to Promotion and Prevention

O'Connell et al<sup>9</sup> identified four key features of normal development that need to be considered when designing promotion and prevention interventions, these are:

Age-related patterns of competence and disorder- it is recognized that the development of specific competencies occurs throughout life but that competencies acquired in early childhood (also referred to as developmental assets) establish a foundation for developing other competencies in the future. Failure to develop certain competencies at an early age may affect a broad range of functional domains (e.g. physical, cognitive), and/or behavioural decision making at a later age (e.g. risk taking behaviour). It is suggested that the more competencies developed, the greater the individuals' ability to tolerate adversity in the future<sup>10,11</sup>.

*Developmental Tasks*- this refers to expectations regarding an individuals' behaviour in given social contexts; these may vary with age, gender, culture and across generations or over time (decade by decade). Examples include developing secure attachments, appropriate conduct, etc. The young person and/or other people judge the level of success in completion of

these tasks and perceived failures affect subjective or observer views of competence and self-confidence<sup>10</sup>. For example, children who failed to learn behavioural self-regulation and manifested conduct problems in early schooling were more likely to experience academic failure in adolescence and this group had a higher risk of depression in early adulthood<sup>12</sup>.

**Ecology-** individual development at different ages occurs in multiple contexts: family/home, school, neighbourhood, community, and culture etc. These micro-, meso- and macro-systems, influence developmental processes and the acquisition of competence requires individuals to adapt to the demands of different contexts and to negotiate transitions between elements of the system (e.g. between family and school, etc.).

Interactions between Biological, Psychological & Social Factors- many complex interactions occur between different factors, (e.g. genes and environment can influence developmental trajectories, offering potential opportunities to understand and/or intervene in selected processes or pathways). Also, it is known that temperament and personality characteristics can influence the events to which a person is exposed and/or how they react to these.

In summary, mental health promotion attempts to establish specific competencies, increase the completion of developmentally-appropriate tasks, enhance the chances of positive development, and strengthen an individuals' adaptability and tolerance of adversity<sup>9</sup>. Theoretically, several different 'promotion' models can address the elements highlighted in the developmental framework. In practice, the most commonly employed interventions all include some form of mentoring or coaching.

### **Rationale and Theory of Developmental Mentoring**

The terms developmental mentoring and coaching are used in diverse ways, but in this review, they are used to describe a stable, supportive, created relationship with an 'attuned' unrelated adult<sup>13,14</sup>, where the main goal is to use this relationship as a vehicle to facilitate social, emotional and academic skills development, etc<sup>15,16</sup>. As compared to other models or prevention strategies, developmental mentoring or coaching is usually used for children without pre-existing evidence of mental disorders or problems (and is the most relevant universal mental health promotion

approach for this review).

Developmental mentoring and coaching can be delivered as a single intervention or as part of a multi-component 'youth development' strategy<sup>6</sup>. According to the National Research Council and Institute of Medicine<sup>17</sup>, the approach should be undertaken in a positive development setting, which are characterized by: physical and psychological safety; appropriate structure; supportive relationships; opportunities to belong; positive social norms; support for efficacy and mattering; opportunities for skill building; and integration of family, school and community efforts. Lerner et al<sup>18</sup> identify that such settings support developments in five 'C' domains: confidence, competence, character, connectedness and caring.

As summarized in Box 1, Rhodes and colleagues have proposed that once a strong emotional bond exists between the mentor and mentee, the relationship may contribute to positive outcomes via three interacting developmental processes: social-emotional, cognitive and identity<sup>15,18,19</sup>. For example, the mentor may enhance social skills and emotional well-being by modelling effective communication, and helping the child understand, express, and regulate their emotional responses. The mentor may help to improve cognitive skills through dialogue and listening (and by modelling problem-solving skills in situations involving alternative choices). In addition, the mentor can serve as both a role model and advocate by demonstrating appropriate actions and behaviours<sup>15</sup>. Importantly, the model assumes that the positive social-emotional learning experiences will generalize to interactions with other people and other environments<sup>19</sup>. For example, studies have shown that mentees who developed a close relationship with a mentor then developed improved relationships with their parents and the latter mediated an improvement in academic performance<sup>18</sup>.

Dolan and Brady<sup>20</sup> argue that effective models of mentoring or coaching involve both a positive, high quality relationship and engagement in regular shared activities over an extended period of time. Further, they comment that the rationale for using formal programmes stems from several recent observations, not least of which is that 'natural' (or informal) mentors are less available than in the past. As such the opportunities for informal interactions between younger and older people have diminished (probably because of changes in social structures such as family make-up,

parental employment patterns, family mobility, and contact with members of the extended family or others less likely to terminate the interaction prematurely than adolescents (who may be less trusting or committed to

**Box 1: Developmental Mentoring- definition, processes and potential mediators (based on Rhodes<sup>15</sup>)**

Mentoring is-

*'a relationship between an older, more experienced adult and an unrelated, younger mentee (protégé)...in which the adult provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the mentee'.*

It is hypothesized that mentoring operates through three inter-related processes:

enhancement of social relationships and emotional well-being through a stable and enduring emotional bond that provides a secure attachment, a corrective emotional experience and companionship\*

improvement in cognitive skills through instruction and conversation

promotion of positive identity development through serving as a role model and advocate.

Mentoring processes are influenced by mediating variables that are external to the mentoring relationship such as:

interpersonal history (e.g. traumatic experiences)

social competencies (e.g. communication skills)

developmental stage (e.g. pre-school, primary school age, adolescent)

demographics (e.g. culture, socio-economic status)

ecology (e.g. neighbourhood, community)

Mentoring outcomes may be mediated by parental and peer relationships.

\*Companionship is defined as a supportive relationship in which fun activities provide both recreation and respite

in the neighbourhood, etc.). Also, it has been suggested that primary school age children may be more receptive to an adult mentor, develop a closer relationship, and be the relationship, or more vulnerable to peer pressure) <sup>5,21</sup>. In summary, all these approaches assume that

addressing basic developmental needs across multiple contexts through personal relationships and constructive activities can promote healthy outcomes and protect against engagement in risky behaviours. Having noted the theoretical models and rationale, we then examined the evidence for community-based mentoring or coaching for children aged 5-11 years. In addition, we highlight any reports that examine some of the proposed mediators or moderators of benefit.

### **Evidence-Mapping: Is developmental mentoring or coaching effective in children?**

For the purposes of the evidence mapping exercise, we used a published definition of mentoring or coaching<sup>15</sup>, which described as 'a relationship between an older, more experienced adult and an unrelated, younger mentee (protégé)...in which the adult provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the mentee'.

Whilst there are an enormous number of individual studies and large-scale reviews of mentoring, very few reviews directly address OST programmes for 5-11 year olds, or report on any differences in effectiveness due to the age of mentees and/or the context/structure or primary goals of the programme. Furthermore, many studies that address some of these issues are published as book chapters rather than peer reviewed papers, whilst other publications are not of the quality required for inclusion in a systematic review. Interpretation of the data is also hampered by the wide range and varying reliability and validity of the subjective or observer rated measures employed, and many studies do not use objective data (such as physical health measures, national school records, etc.). We therefore undertook an umbrella review (or a 'review of reviews') to synthesize the 'state of the art'. The review aimed to document contextual information on how mentoring for young children has been organised, implemented and delivered. We used an 'umbrella review' methodology as this has increasingly been shown to be useful in public health and has been found to provide important insights into the social determinants of health and medical illnesses. The approach uses a typical systematic review methodology but focuses on locating, evaluating and synthesizing published 'review-level' evidence (narrative reviews, systematic reviews and meta-analyses) and then extracts information on specific studies that may be

pertinent to answering the key questions being addressed.

This approach enabled us to build an evidence-map of the findings from previously published, peer reviewed meta-analyses of outcome data in which some or all of the eligible studies included-

- (a) primary school age children engaged in developmental mentoring programmes delivered in the community/OST,
- (b) mentoring interventions that were undertaken on a one-to-one basis or as one component of a youth (child and adolescent) development programme,
- (c) similar interventions (not necessarily referred to as mentoring) that were explicitly based on the developmental framework and conceptual model outlined (i.e. social learning; positive youth development [PYD]; self-esteem/self-concept; physical health promotion),
- (d) outcome data for more than one domain associated with mentoring processes was reported (i.e. social-emotional, cognitive, identity, developmental competencies, etc.), or an intervention that addressed one domain was assessed by outcomes in another domain (e.g. the influence of exercise on self-esteem or self-concept).

Thirty-three systematic reviews were screened, of which nine were meta-analyses that met criteria for inclusion in the evidence map. As shown in Table 1, eight publications<sup>13,22-28</sup> focused on outcomes of individuals participating in programmes: two reviews specifically examined mentoring programmes, two examined OST programmes and four examined health promotion, social competence and/or self-esteem (or self-concept). A further review<sup>29</sup> examined the effects of development programmes from the perspective of the social systems involved (family, school, community).

The evidence is reported from three perspectives:

Do the interventions work?

As the studies included in each meta-analysis used many different pre-post intervention measures, outcome data were grouped into broad categories. These included: academic competence, self-esteem/self-confidence, connectedness/relationships, or global outcome (which represents a composite measure that the researchers derived from all the assessments), etc. What is the magnitude of any effect (reported as effect

Table 1: Evidence map of interventions based on a developmental framework that promote health and well-being in primary school age children

Study (1 <sup>st</sup> author, year)	Comments	Effect Sizes (ES) for Differences in Pre- and Post-intervention Ratings on Outcome Measures									
		Global Outcome	Attitudes	Social Competence/ Relationships/ Connectedness	Emotional/ Psychological	Self-Esteem/ Self-Confidence	Cognitive/ Academic	Pro-social/ Positive Behaviours	Problem Behaviours/ Conduct	Physical Health	Follow-up
<b>Mentoring</b>											
<sup>1</sup> Dubois; 2002	Review of 55 studies (1970 -98) of mentoring interventions for individuals aged <18 ys. Includes analysis of predictors of outcome.	.14		.15	.10		.11		.21		.10
<sup>2</sup> Dubois; 2011	Review of 73 studies (1999-2010) of mentoring interventions for individuals aged <18 ys. Detailed examination of potential mediators & moderators.	.21	.19	.17	.15		.21			.06#	.17
<b>Out of School Time (OST)</b>											
<sup>3</sup> Durlak; 2010	Evaluation of 69 OST adult-supervised programmes that promoted personal & social skills in children & adolescents; 46% studies= elementary school-age children	.22		School bonding: .14		.34	.1# to .17	.19	.19		.19
<sup>4</sup> Payton; 2008	Summarizes three previous reviews of 317 studies of which 55 were OST social-emotional learning programmes; 56% studies = elementary school age children	.22	.22		.91		.08	.22	.17		
<b>Health Promotion; Social Competence; Self-Esteem; Academic Competencies</b>											
<sup>5</sup> Beelman; 1994	49 studies of training in social competence for 3-15 years (5 studies= individual training; 5= individual plus group); 8-12 studies provided separate data for 6-8 ys, & 19-34 studies for 9-11 ys). Multimodal programmes were more effective for age >9 ys.	6-8 ys: .33 9-11 ys: .35 (ES, all age groups: .47)		6-8 ys: .29 / .19 9-11 ys: .28 / .17		6-8 ys: .08 9-11 ys: -.06#	Social-Cognitive Skills 6-8 ys: .55 9-11 ys: .35				ES, All Age Groups: ~.15 (-.17 to +.34)
<sup>6</sup> Durlak; 1997	Review of 177 mental health prevention programmes for those aged < 18 ys (mean age ~9 ys); 64 studies classed as health promotion. Examined sub-sets of studies (school v person-centred v parent training). Person-centred approaches are reported separately for 2-7 & 7-11 ys.	Mean ES, all studies: .35 (Person-Centred: .39; School-Based: .35; Parents: .16#)		Person-Centred= Inter-personal problem solving: 2-7 ys: .93 7-11 ys: .36	Person-Centred = 'Affective education' 2-7 ys: .70 7-11 ys: .24						
<sup>7</sup> Eckeland; 2004	Reviewed 23 studies of the use of exercise (used alone or as part of a comprehensive programme) to improve self-esteem in individuals aged 3-20 ys.	All studies: .49; Comprehensive Packages: .51				Healthy v At Risk Children: .53# v .49					
<sup>8</sup> Haney; 1998	116 studies of interventions to improve self-esteem in individuals aged <18 ys. Programmes driven by underlying theory were significantly more effective than those with no clear model. Clinical & non-clinical studies were included.	All studies: .27 (Theory driven: .71; No theoretical model: .11)	Healthy Children: .24 to .25			Self-Esteem as only target: .47 Multi-Focus Package: .57	Healthy Children: .17 to .29	Healthy Children: .15 to .49			.35 to .38

ES are statistically significant unless accompanied by # (indicating non-significant 95% confidence intervals); blank boxes indicate ES unavailable for that category

sizes: ES)?

The ES are reported for as many post-intervention outcome categories as feasible as well as ES for the limited number of follow-up evaluations (see Table 1). The recommendations for educational research suggest that the thresholds for significance are lower for promotion/prevention interventions compared to those applied in clinical trials<sup>30</sup>. As such, ES between .2 and .4 represent a small but significant impact, with ES between .4 and .6 representing a medium level of impact and ES >.6 regarded as a large impact.

What factors influence the effectiveness of mentoring?

Analyses of moderators of mentoring effects were identified and ES or correlations were noted.

As shown in Table 1, two reviews by Dubois and colleagues<sup>13,22</sup> offer important insights into the potential benefits of mentoring. These meta-analyses of mentoring studies in children and adolescents examined several key domains such as emotional/psychological functioning, social competence, academic performance, problem/high risk behaviours, etc. The first meta-analysis was of 55 studies published before 1999, whilst the second reviewed 73 studies published from 2000 onwards.

Dubois et al<sup>13</sup> demonstrated that there were small but definite benefits from participation in mentoring (ES for global outcome= .14) and a limited number of follow-up studies were identified that showed that some of these benefits were maintained post-intervention for up to two years (ES .10). The second meta-analysis<sup>22</sup> showed marginally higher ES for global outcome (.22), and the available follow-up data again suggested that there were small but enduring positive benefits (.17). The later paper also reported a small non-significant effect on physical health (.06), although the data are difficult to interpret as only a small proportion of studies included any measurement of this domain. These two reviews of mentoring interventions provide the most detailed analyses of moderators of mentoring effects. Significant influences on the ES included the presence or absence of parental support/involvement with the intervention (no parental support: .13; support: .27) and the 'risk' status of the mentee (no risk: .15; high risk: .26). When risk was broadly divided according to environmental (e.g. lower socio-economic status) or individual risk (e.g. the presence of emotional or behavioural problems), it was found that the benefits of mentoring were significant for the environmental group

(.17) but not for the individual risk group (.03). Interestingly, further analysis suggested that the individual risk group might benefit if the mentor had a 'helping' profession background (e.g. teaching, health professional, etc.) rather than being a 'community volunteer'.

Dubois et al<sup>13</sup> also found that, after controlling for other variables that may explain the outcomes, the age of the mentee (child: .17 versus mid-late adolescent: .13) and the context (community-based: .15 versus school-based: .11) moderated the effects of mentoring. However, these factors had less impact on mentoring outcomes than the structure and quality of the intervention programme. These had a highly significant influence on the outcome, with key elements being: the use of structured activities; expectations (regarding the contact with the mentor); the intensity and 'quantity' of the programme (i.e. emotional closeness, frequency and regularity of weekly contacts, duration of the programme); the ongoing support and training for mentors; and the monitoring of the overall implementation of the programme. They concluded that theory-based, carefully constructed interventions (i.e. those that employ 'best practices') were significantly superior to 'atheoretical' models undertaken by organizations that lacked the infrastructure to assure the quality of the intervention and/or that paid less attention to evidence-based approaches (ES .22 versus .07).

The moderator analyses in the later publication were more circumscribed<sup>22</sup>. However, it revealed that the association between risk status and mentoring outcomes showed a curvilinear relationship: mentees with a medium level of risk (ES .32) showed greater ES for mentoring than mentees with either low (ES .25) or high risk (ES .22). Furthermore, the analyses demonstrated that differences between mentored and non-mentored individuals could be explained by a relative slowing in the emergence of negative behaviours in the mentored group, compared with the more overt expression of behaviour problems (such as conduct issues or risk taking) in the non-mentored groups. Also, there was a trend for the mentored group to show improved developmental trajectories for positive assets.

Several of the findings from the reviews by Dubois' group were confirmed in other meta-analyses. For example, it was shown that the theoretical underpinnings and infrastructure of the programme are

important moderators of mentoring outcome<sup>28</sup>; that OST programmes are effective, and that, whilst simple (single target approaches) and multifaceted programmes are both beneficial, greater benefits may accrue from multifaceted programmes in those aged older than nine years<sup>25</sup>. The data on age sub-groups is not straightforward as most programmes identify some gains for most age groups. Although Durlak and Wells<sup>26</sup> suggest the gains in 2-6 year olds are much greater than 7-11 year olds, this finding should be interpreted with caution as some studies lacked appropriate comparison groups. As such, whilst greater ES may be uniquely related to the intervention, the magnitude of the ES could also reflect the normative developmental gains that occur in each age period (which are usually largest in the early age group).

All eight meta-analyses demonstrate that the benefits of interventions are not just 'domain specific' and, for example, non-cognitive social interventions may promote improvements in cognitive skills and academic performance. Also, Ekeland et al<sup>27</sup> demonstrate the significant impacts on self-concept and self-esteem of exercise interventions. However, these findings should be regarded as offering preliminary insights on this topic rather than definitive answers as there were few other meta-analyses for comparison.

Only one publication to date that synthesizes data on the effects of 'developmental' programmes on school, family and community systems<sup>29</sup>. The review included over 500 studies, but the paucity of data assessing certain domains (e.g. community bonds) made some ES difficult to interpret. Despite its shortcomings, the publication is important given the potential bi-directional influences of programmes and 'system' elements. These influences included the social capital of a community (e.g. networks and cohesion), and the socio-demographic make-up of the location where the programme is undertaken, etc<sup>31</sup>. Overall, Durlak and colleagues<sup>29</sup> demonstrated significant ES for the effects of the intervention with regard to the family (family environment: .34; parenting practices: .41), family-school relationships (.49) and various aspects of the school environment (ES ranged from .47 to .78).

### **What are the costs of developmental interventions?**

It was not feasible to identify the cost of

developmental mentoring programmes for children separately from youth. Furthermore, the nature and quality of individual studies of developmental mentoring (or other similar interventions) make a systematic evaluation of cost-effectiveness impossible. Indeed, the only detailed health economics review of programmes (undertaken in the USA)<sup>32</sup> showed that the cost of delivery of approaches labelled as either mentoring or as youth development programmes ranged from \$8.00 to \$26,000 per participant, with gains per dollar invested ranging from \$0.42 to \$28.42. Asos et al<sup>32</sup> also undertook 'costs versus savings' calculations based on a broad range of potential adverse outcomes that could occur within a short time frame (such as rates of juvenile delinquency; school/college dropout) or represent longer-term 'downstream' consequences (lower earning capacity; development of mental disorders requiring clinical treatment, etc.). Using this approach the overall 'benefit minus cost' estimates ranged from +\$9,800 to -\$15,000 per person offered the intervention.

Most importantly, Asos and colleagues<sup>32</sup> were unable to determine whether programmes with more funding were associated with better outcomes. The researchers stated that rigorous cost estimates will not be possible until organizations initiating mentoring or other schemes place a greater focus on implementation strategies and ongoing quality control of the programmes (including outcome and cost-effectiveness evaluations).

The current best estimate of the cost of delivering a community-based mentoring intervention with OST activities is about \$1500. Although this appears to be higher than the average cost reported a school-based programmes (range ~\$500-1000 depending on the structure and goals of the programme), it is notable that mentees spend twice as much time per month with their mentor in community-based programmes (up to 12 hours) compared to school-based interventions<sup>33</sup>.

### **Conclusions**

This review suggests that effective 'developmental interventions' that use evidence-based practices and provide a long-term, high quality relationship between an adult and child can produce small but positive gains on a range of academic, psychosocial and health behaviour outcomes. The



immediate gains equate to an advantage for mentored over non-mentored children of about 10 percentile points on the developmental measures employed in the evaluation studies<sup>24</sup>. Also, there is emerging evidence that some gains are sustained post-intervention for 1-2 years, although the ES are lower than those reported immediately after the end of the intervention<sup>13,22</sup>. The minimal economic data available indicates that the average cost of a universal developmental mentoring intervention involving OST activities is about US\$1500. Interestingly, most of these costs relate to expenditure on infrastructure associated with mentor training and supervision.

These modest but positive findings need to be balanced by a recognition that the methods of evaluation of mentoring or PYD are rarely as rigorous as those undertaken in traditional clinical settings. Also, the estimated pooled ES are  $< .3$  for the intervention compared to the control groups across most outcome domains. Cavell and Smith<sup>21</sup> highlight that developmental theory would not predict large 'main effects' for these interventions across all children who participate, as there are likely to be many important interactions with mediators or moderators that dictate that some children will gain considerably more from universal approaches than others. However, it is noteworthy that lower quality interventions are not 'neutral' in their impacts. Less intense programmes ( $< 2$  hours per week) and/or early termination of the intervention ( $< 12$  months) can be detrimental. This suggests that some children not only fail to benefit from poor quality interventions, but they may be harmed and be worse off than never having received any input at all<sup>13,14, 22</sup>.

The available evidence indicates that for an intervention programme to be effective it is necessary to follow best practices in recruiting, training, and critically in providing ongoing support and supervision to mentors<sup>13,14</sup>. Matching of mentors and mentees is also important, and extends from shared interests to the likelihood that the mentor can initiate and maintain a strong emotional bond with children who are in some way disadvantaged<sup>34</sup>. Interestingly, Herrera et al<sup>33</sup> identified that difficulties in bonding can occur because mentors are overly concerned with achieving specific goals (such as behaviour change) rather than primarily focusing on building and sustaining the relationship over an extended time before beginning to consider

how to address other issues.

Other evidence suggests that context is important and that site-based programmes which are mainly located in schools may fail to engage some children (who are ambivalent about school attendance). Furthermore, site-based programmes may be less beneficial than field-based community projects that utilize a range of OST activities. However, these findings must be considered in context. School-based programmes may not only vary considerably in their design, duration, and goals, but also may be entirely dependent on the commitment of a school and its governance structures to deliver the intervention. There are often sound reasons why the development of mentoring scheme cannot proceed as planned, is no longer be a priority, or cannot be allocated adequate resources. Having noted these barriers, it is equally true that organizations that instigate community-based developmental programmes may discover that the introduction of a programme is not practical or feasible within neighbourhoods where there is the greatest need. Also, Jones<sup>35</sup> noted the introduction of a 'universal programme' does not in itself guarantee equal access or equal participation across any given population, so initiating field-based projects pose many challenges regarding community engagement.

This umbrella review identifies that a small number of research groups have undertaken the core reviews, mediator/moderator and economic analyses; also, the available publications indicate a failure to evaluate or at least to publish findings regarding the outcomes of any initiatives. The synthesis of findings leaves an impression that enthusiasm for introducing programmes has exceeded attention to detail regarding which programmes are most effective. Many instigators have failed to adhere to the core components of best practice and many new programmes have been pursued without any supporting evidence from reliable or valid process or outcome evaluations<sup>14,15</sup>. As such, more specific assessments of the potential gains for primary school children are definitely required, especially of programmes (a) offering universal interventions that are delivered by groups operating outside of the educational system and (b) where the interventions are guided by a theoretical model that determines the active components of the programme. The latter should define in advance the goals/expected outcomes of the

intervention and predict the process by which change and improvements may occur. These may include some of the following, e.g. greater self-confidence in the mentee may promote increased engagement with school and improved academic competence; or mastery of a fitness exercise may improve physical health enhance self-esteem, and encourage social engagement with others pursuing healthy behaviours, etc. Only by embedding interventions within a developmental framework will it be possible to clarify what works for which children and in what circumstances, and whether 5-11 year olds are more or less likely to benefit from health promotion interventions than pre-school or adolescent populations.

Our review suggests that there appear to be plausible reasons why 5-11 year olds may make very good candidates for individual OST programmes that incorporate mentoring and structured activities and that are based on a developmental framework that promotes health and well-being. Also, the timing of any interventions (during primary school years) offers a valuable opportunity for the promotion of developmental competencies. These can enhance well-being and build a level of resilience that may help protect this age group from the onset of mental disorders during adolescence. The use of OST interventions can also supplement other programmes that are incorporated within a school curriculum.

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IH is a Commissioner in Australia's National Mental Health Commission; a Member of the Medical Advisory Panel for Medibank; a Board Member of Psychosis Australia Trust. He has received honoraria for presentations of his own work at educational seminars supported by a number of non-government organisations and by the pharmaceutical industry (including Servier, Pfizer, AstraZeneca, and Eli Lilly) and funding from Servier for a study of major depression and sleep disturbance in primary care settings. Other relevant funding for IH is in relation to this study includes 'Testing and delivering early interventions for young people with depression' (APP ID: 1046899).

JS is a visiting professor at the Brain & Mind Centre at

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