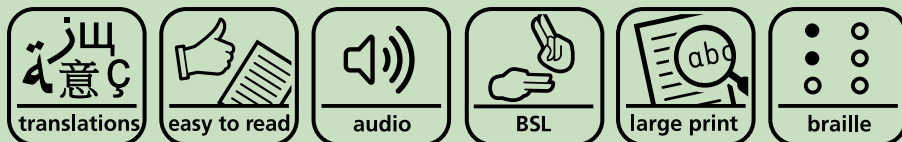



Evidence summary:  
Reducing the attainment gap – the role  
of health and wellbeing interventions  
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# Introduction

The purpose of this review is to examine the effectiveness of health and wellbeing interventions in a school setting to potentially reduce inequalities in educational outcomes.

## Key messages

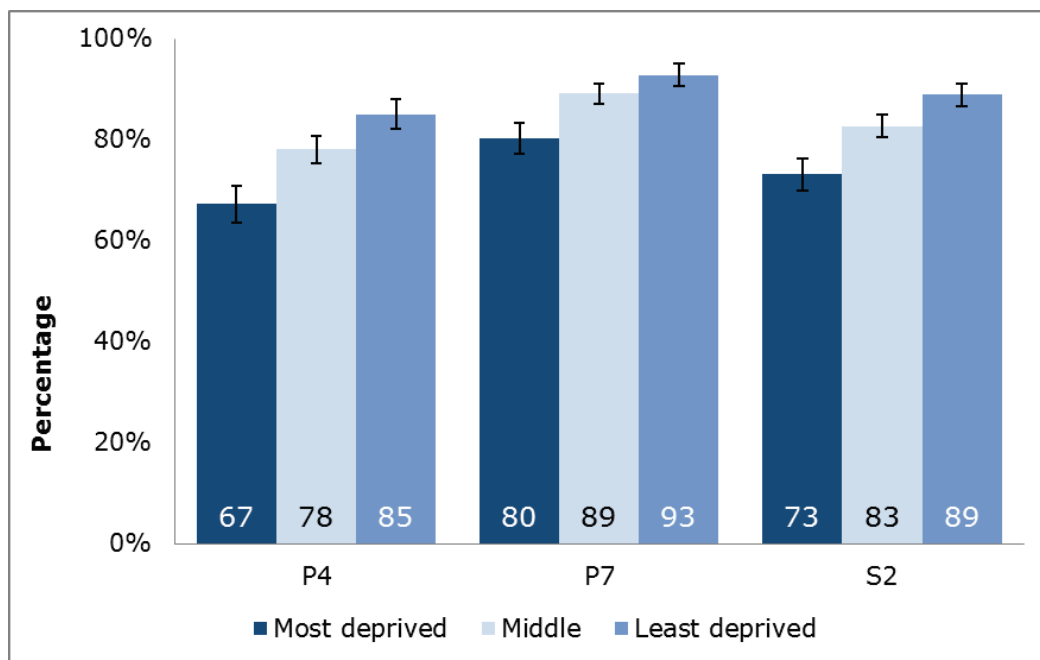
- Programmes that fit the needs and context of the class or school and are easy to carry out are more likely to be implemented well.
- The quality of implementation of social and emotional learning programmes was important for positive outcomes.
- Consistent international review-level evidence suggests that universal social and emotional learning programmes can have positive impacts on wellbeing and educational outcomes. However, findings from studies conducted in the UK and Ireland were mixed.
- Few studies reported the effect on children and young people from different socio-economic or ethnic backgrounds.
- Offering healthy, nutritious lunches at school tended to have beneficial effects on educational outcomes.
- There was inconsistent evidence that breakfast clubs, where children were provided with a nutritious breakfast at school, have an impact on educational outcomes.

## 1. Background

In general, children from poorer families have poorer educational outcomes compared to those from more affluent families.<sup>1 2 3</sup> While these associations are not unique to the UK, differences in Scotland are marked, starting before children begin school and persisting throughout.<sup>2</sup> For example, in the latest Scottish Survey of Literacy and Numeracy, the proportion of Primary 4 children who were assessed as doing well or very well in reading ranged from 67% in the most deprived areas to

85% in the least deprived areas (Figure 1).<sup>4</sup> Similar patterns were seen for writing, listening and talking<sup>4</sup> and numeracy<sup>5</sup>.

**Figure 1: Proportion of pupils performing well or very well in reading by stage and deprivation category<sup>4</sup>**



Education Scotland have developed a framework of '[Interventions for Equity](#)' to help guide the decisions of school leaders about ways to use the funding allocated through the Scottish Attainment Challenge. In order to support the development of evidence-informed programmes within this framework, NHS Health Scotland was asked to identify and review health and wellbeing interventions in a school setting that could contribute to reducing inequalities in educational outcomes. As children with higher social and emotional wellbeing tend to do better at school, studies that reported wellbeing outcomes were also included. The review was restricted to research conducted in the United Kingdom (UK) and Ireland to ensure that findings are as relevant to Scotland as possible.

## 2. Social and emotional wellbeing

Healthy social and emotional development in childhood and adolescence has been shown to be positively associated with better educational outcomes and greater wellbeing.<sup>3</sup> Children and young people from disadvantaged backgrounds are at increased risk of poor social and emotional wellbeing.<sup>2 6</sup> Social and emotional learning programmes in schools have the potential to help build resilience and promote wellbeing. In general, the aim is to contribute to the development of five inter-related social and emotional competencies: self-awareness, self-management, social awareness, relationship skills and responsible decision making.<sup>3 6 7</sup>

### 2.1 International review-level evidence

This section focuses on universal school-based social and emotional learning programmes that are delivered to the general school population, rather than on interventions that are targeted at children who are displaying early symptoms or diagnosed with a social, emotional or behavioural problem.

There is consistent evidence from five systematic reviews and one umbrella review that universal social and emotional learning programmes can have a positive effect on a range of outcomes in children and young people including improved social and emotional skills,<sup>3 6 7 8 9 10 11</sup> enhanced academic achievement<sup>3 8 9 10</sup> and reduction in mental health difficulties.<sup>7 8 9 10</sup> Positive effects were maintained when followed up 12 months after completing the programme<sup>7</sup> but longer term follow-up was scarce so less is known about longer-term effectiveness.<sup>10</sup> The impact of social and emotional learning programmes on education attainment was calculated to be small to moderate in statistical terms. This equated to an 11 percentile gain in one review,<sup>3</sup> which for individual pupils would be important.<sup>3 9</sup> Significant\* improvements in academic achievement were only detected when school staff were involved in delivery of the programme.<sup>3 9</sup>

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\* Throughout this paper the term 'significant' is used in the sense of statistical significance.

In general, the effects of social and emotional learning programmes seemed to be more effective for children who are at greater risk of developing problems compared to the general school population.<sup>7 9</sup> However, little is known about the potential impact on children from different backgrounds.<sup>3 6 7 9 11</sup>

Programmes were found to be more likely to be effective if they followed four key principles<sup>3 6</sup>

- Sequenced – a connected and coordinated set of activities to achieve skill development objective.
- Active – use of dynamic, varied forms of learning that are engaging and allow students to practise and learn new skills in real-world situations.
- Focused – has at least one component devoted to developing personal or social skills.
- Explicit – based on a theoretical model of social and emotional learning and targets specific social and emotional learning rather than positive development in general.

The quality of implementation was also important for positive outcomes.<sup>3</sup>

Programmes that were easy to carry out and fitted the needs and context of the class or school were more likely to be implemented well.<sup>9</sup> Classroom teachers were more likely to deliver a programme's content as the developers intended, if they were given appropriate training, resources such as standardised manuals and lesson plans, and ongoing support.<sup>6</sup>

### **2.1.1 Mindfulness**

Mindfulness-based interventions in a school setting have been proposed as a way to help children manage their stress, thus improving wellbeing and learning outcomes. International literature exploring mindfulness-based interventions delivered in a school setting to children of a range of school ages was examined in two systematic reviews.<sup>12 13</sup> Overall, significant effects were found for cognitive outcomes<sup>12 13</sup> and resilience and stress measures.<sup>12</sup> However, effects on academic and behavioural outcomes were found to be small and not significant.<sup>13</sup> The quality of the included

studies was low to moderate<sup>13</sup> and follow-up was relatively short-term.<sup>12</sup> Only three studies conducted in the UK or Ireland were included in the reviews, so the generalisability of the findings to a Scottish context is uncertain.

## 2.2 Individual programmes

The review identified nine specific social and emotional learning programmes that had been implemented and evaluated in the UK and Ireland. The majority of programmes had been evaluated in children attending primary school; only two had been evaluated with pupils in their first year of secondary school. Four programmes had been developed in the UK (including one in Scotland), three in North America and one in Australia. The last intervention had been developed by an international not-for-profit organisation. Successful transfer of programmes developed in countries outside the UK and Ireland may depend on the degree that the programme is aligned to local educational approaches and pedagogical styles.<sup>8</sup>

Only two studies that met the inclusion criteria for this review reported educational outcomes. The English and maths scores of Year 7\* pupils were found to have improved 12 months after taking part in a resiliency building programme.<sup>14 15</sup> While no impact on the attainment of the general school population was detected in an evaluation of a classroom-based social and emotional learning programme, small improvements in English scores at Key Stage 2† of children eligible for free school meals were reported.<sup>16</sup>

Overall, there was mixed evidence that the identified programmes had a positive impact on children's wellbeing outcomes. Five showed evidence of a short-term positive impact on at least one child outcome, such as reduced emotional distress or increased pro-social behaviours.<sup>17 18 19 20 21 22 23 24</sup> Inconsistent or no evidence of effect was reported in evaluations of three programmes.<sup>25 26 27 28</sup> The last programme was evaluated in three studies; one reported positive impacts,<sup>29 30</sup> and two reported inconsistent or no effects.<sup>16 31 32</sup>

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\* First year of secondary schooling.

† National exams sat by pupils in England at the end of Year 6.



More details about the individual programmes reviewed can be found in the full report of this review on NHS Health Scotland's website ([www.healthscotland.scot/publications/health-and-wellbeing-interventions-in-a-school-setting](http://www.healthscotland.scot/publications/health-and-wellbeing-interventions-in-a-school-setting)). The Early Intervention Foundation's Guidebook (<http://guidebook.eif.org.uk>) provides information about early intervention programmes that have been evaluated and shown to improve outcomes for children and young people. The guidebook provides information about the specific outcomes a programme has been shown to improve, how the programme works, how it is delivered, and the conditions or resources that can make a programme more likely to be effective.

## **3. Promoting healthy lifestyles**

### **3.1 Diet and nutrition**

Poor diet and nutrition has been linked with poorer academic, social and emotional development in children and young people.<sup>33</sup> Diets deficient in essential vitamins and minerals such as iron and vitamin B may affect an individual's ability to concentrate and pay attention in the classroom. In addition, a poor diet may leave children and young people more susceptible to illness, reducing time in the classroom through absenteeism.<sup>34</sup>

#### **3.1.1 Breakfast clubs**

Breakfast clubs provide children and young people with a nutritious breakfast at school. It has been suggested that eating a healthy breakfast at school will help improve pupil concentration and behaviour, reduce illness-related absenteeism and improve punctuality.<sup>35</sup> Educational outcomes are believed to follow on from a better learning environment (e.g. less disruptive class-room behaviour) and more teacher contact (e.g. less absenteeism through illness).<sup>36</sup> At review level, there is mixed evidence that breakfast clubs have an impact on educational outcomes. Overall, a small positive effect has been reported. However, it was not possible to determine

whether benefits were attributable to the consumption of a nutritious breakfast or the social dimension of breakfast clubs.<sup>35</sup> Furthermore, the generalisability of these findings to a Scottish context is unclear as the majority of the studies were conducted outside the UK and Ireland.

Two research studies conducted in the UK have examined the universal free provision of breakfast at primary school.<sup>36 37 38 39</sup> Results were inconsistent. In the Welsh Government's primary school free breakfast initiative, eating breakfast was found to be significantly positively associated with educational performance at Key Stage 2.<sup>39</sup> Children who attended schools offering free breakfast were more likely to eat healthy breakfast items and consume fewer sweets and crisps throughout the day. While there was no overall effect of offering free breakfast on the number of children who skipped breakfast, breakfast skipping reduced in children who were eligible for free school meals.<sup>38</sup> However, no significant differences in educational outcomes were detected for pupils who attended schools offering free breakfasts compared to those who were pupils at non-intervention schools.<sup>37 39</sup>

On the other hand, a trial of the 'Magic Breakfast' initiative in England found that in schools where Year 2\* and Year 6† pupils were offered a free breakfast prior to school starting, there was a significant positive impact on national Key Stage 1 exam‡ scores in maths, reading and writing. Compared to pupils in non-intervention comparison schools, the effect was estimated to be the equivalent of two months progress in maths and writing and slightly less than two months in reading. Although positive impacts on Key Stage 2 exam results were observed, these were not significant. However, while positive effects were demonstrated overall, those who were eligible for free school meals seemed to benefit less than those who were not.<sup>36</sup>

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\* Equivalent of Primary 3 in Scotland.

† Equivalent of Primary 7 in Scotland.

‡ National exams sat by pupils in England at the end of Year 2.

### **3.1.2 Free school meals**

School meals are one way that differences in diet between children from more or less affluent backgrounds can be potentially addressed. An evaluation examining the potential impact of offering free school meals to all primary school pupils in two pilot areas in England found that there was a significant increase in pupils from the pilot areas achieving the expected level in English and maths at Key Stage 2 compared to similar pupils in the comparison areas. It was estimated that gains were equivalent to two months progress.<sup>40</sup> Pupils who had been eligible for free school meals at baseline made slightly more progress than those who were not eligible. Overall, no significant difference in absenteeism was observed between pilot and comparison schools, which suggests that attainment gains may be a result of something other than increased teacher contact time.<sup>40</sup>

## **3.2 Physical activity**

Being physically active during childhood and adolescence has been linked positively with educational outcomes.<sup>41</sup> Less is known about specific interventions that might impact on attainment. This review identified one systematic review which examined international literature about the link between physical education, taught as part of the compulsory school curriculum, and academic achievement. The authors concluded that physical education classes can have a positive impact on educational achievement if they are integrated with other learning activities.<sup>41</sup> However, methodological weaknesses of this review, such as poor reporting of the search strategy used to identify studies and lack of quality assessment of primary studies, suggest that these findings should be treated with caution. It is not possible to tell whether any of the included studies were conducted in the UK or Ireland, so the transferability to a Scottish context is not known.

### **3.2.1 Individual programmes**

Five studies examining specific physical activity programmes met the inclusion criteria for this review. Two papers reported educational outcomes and three described wellbeing outcomes. Initial improvements in English and maths scores

were described in one evaluation of a military-style physical activity programme but the beneficial effects were not maintained 12 months later despite ongoing involvement of the programme.<sup>42</sup> Evaluation of a physical action intervention which focused mindful control of visual, motor and auditory skills reported positive impacts on English and maths scores at Key Stage 2.<sup>43</sup> Only one study, which examined the effect of providing electronic dance mat systems to secondary schools, reported beneficial impacts on wellbeing outcomes.<sup>44</sup>

### **3.2.2 Health Promoting Schools**

The WHO Health Promoting Schools framework is a whole-school approach that aims to improve the health, wellbeing and educational attainment of pupils.<sup>45</sup> A recent Cochrane review examined international evidence of its effectiveness. Positive impacts on physical activity, BMI, tobacco use and being bullied were found. However, it was not possible to judge the effect on educational or school-related outcomes as few studies had included these measures; none had been conducted in the UK or Ireland.<sup>45</sup> Similarly, another systematic review which explored whether the Health Promoting Schools approach was effective in building resilience found only six research studies that met their inclusion criteria. Positive impacts on resilience measures were reported. In particular, perceptions of peer support, self-esteem, cooperation and sense of connectedness improved.<sup>46</sup> However, as none of the included studies was conducted in the UK or Ireland, the transferability to a Scottish context is not known.

## **4. Discussion**

This paper has examined health and wellbeing interventions in a school setting that have the potential to reduce inequalities in educational outcomes. There is international review-level evidence that universal school-based social and emotional learning programmes are effective in improving social and emotional wellbeing and education outcomes. However, review authors noted that the effectiveness of any given intervention varied from study to study.<sup>8 9 11</sup> Similarly, in this current review, the evidence from the individual programmes evaluated in the UK and Ireland was

equivocal. A number of studies reported beneficial effects such as lower anxiety levels and improved concentration which have been linked to positive learning-related behaviours. Follow-up, however, was relatively short. It is possible that, in the longer term, favourable impacts on educational outcomes may have been seen.

There are a number of possible reasons why individual studies may not reproduce the positive results reported in systematic reviews and meta-analyses. Firstly, trials carried out in 'real world' conditions tend not to produce the same positive outcomes of studies conducted with additional resources and support provided, which may ensure that the programme is implemented as the developer intended. Contextual factors such as local organisational capacity and school ethos are also likely to influence the quality of implementation.<sup>7 8</sup> Few studies report the fidelity of the programme delivery but those that did suggested the programmes that were teacher-led were not necessarily implemented fully.<sup>32</sup>

Secondly, social and emotional learning programmes that have been developed and evaluated in America dominate this field of study. For example, Durlak et al found that 87% of the studies which met the review's inclusion criteria were undertaken in the USA.<sup>3</sup> The social, cultural and curricular context of the American education system is distinct from the circumstances in Scotland and the UK. The more robust research studies used a cluster randomised controlled trial design with randomisation at either school or class level. Comparison groups usually received routine school provision. In the UK, this is likely to include exposure to social and emotional learning activities during, for example, routine PSHE lessons. Thus, the interventions under study are compared to an active comparison which may have contained similar elements. In contrast, routine provision in the USA may be considerably different.

Cross-sectional research has linked poor diet and lower physical activity levels in children and young people with poorer educational outcomes. Less is known about whether interventions to improve diet and physical activity can also be beneficial for educational outcomes, in part because most studies do not include education-related outcome measures. This review found inconsistent evidence that breakfast clubs

could have an impact. However, having healthy nutritious meals available at lunchtime seemed to have benefits for attainment.<sup>40</sup>

## **5. Conclusion**

This review has highlighted the lack of research studies, conducted in the UK and Ireland, examining health and wellbeing interventions in a school setting that report educational outcomes. Similarly, few studies reported any analysis of the differential impact on children from different ethnic or socio-economic backgrounds. Quality of the studies varied considerably. Thus, in the main, there is insufficient evidence to draw firm conclusions about which, if any, health and wellbeing interventions have the potential to impact on inequalities in educational outcomes.

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