



Return on Investment: Prevention in mental health

School based interventions for bullying prevention

Background

Bullying among children and adolescents has been recognised as a public health concern as well as a leading risk factor for mental illness (1). In Australia, approximately 25% of Year 4 to 9 students are bullied at least once every few weeks during the school term (2). Since 2016, bullying has been increasingly identified as a key issue facing young people, and it is estimated that 910,000 Australian children, or 25 students per school, experience bullying victimisation at some stage during their schooling (3, 4). The total cost of bullying has been estimated at \$525 million for the course of one student cohort over 13 years of school (4). These costs were largely attributable to school staff time spent on dealing with bullies and victims of bullying, and the cost for parents of students to stay at home when victimised children refuse to attend school. Accounting for the long term consequences of bullying, costs are estimated at over \$1.8 billion in the 20 years after the students had left school (4). These costs were driven by the extent to which bullying impacted educational performance and the level of productivity, subsequent chronic health conditions, and impacts on family and the community from continued bullying behaviour (4-6). The most recent review of studies has shown that school based anti-bullying programs are effective in reducing both bullying victimisation by 15-16% and bullying perpetration by 19-20% (7). However, there is limited evidence related to the cost effectiveness of bullying prevention programs. The aim of this report is to evaluate the cost effectiveness of an anti-bullying program that is effective and feasible within the Australian context.

Intervention modelled

There are a wide range of programs and resources available to school communities to prevent and respond to bullying. These include the Student Wellbeing Hub (8), Bullying No Way (including the STEPs framework to assist schools to make decisions on which program/initiative would best fit their school and community) (9), and the 'Be You' website (10). However, the Friendly Schools program (FSP) is the only whole of school program that has been evaluated within a randomised controlled trial in the Australian context (11-13). However, it is noted that many of the components of the FSP are similar to other existing programs.

The FSP aims to reduce bullying and its associated consequences through building children's social competence and relationships and by establishing a whole school climate that is not conducive to bullying (14).

The FSP targets four main levels:

- 1) *The school level* to build the schools' commitment and capacity to address bullying;
- 2) *The family level* to build families' awareness raising and skills based self-efficacy activities;
- 3) *The classroom level* involving students and their teachers through the provision of teacher training and comprehensive teaching and learning support materials; and
- 4) *The individual level* where selected activities are used to support victimised students and to help modify the behaviour of students who bully others.

The FSP was associated with a 24% reduction in bullying from the point of introduction and a 32% reduction after two years. There are unfortunately no studies that evaluate whether this reduction is maintained past three years. The modelling, thus, assumed a 50%

reduction in the effectiveness of the intervention four and five years after the intervention. After five years the intervention was assumed not to be effective. The modelling only considers the cost effectiveness of Year 4 and Year 6 students participating in FSP because these were the year groups used to evaluate clinical effectiveness of FSP in the studies (11, 12). The model is based on the assumption that 72% of schools agree to participate in the FSP (13).

The primary outcome of this evaluation is the return on investment (ROI) ratio. This ratio includes the cost of the intervention in relation to any cost savings (both healthcare cost savings and productivity gains). For an intervention to be considered cost effective, it would need to have a ROI ratio of greater than \$1, this means that the cost savings are greater than the costs of the intervention e.g. a ROI of \$1.50 means that for every \$1 invested \$1.50 will be gained. The costs of the intervention included in this study were calculated by summing the costs of the four levels of FSP as described below.

Assumptions

Whole School Level

Five key staff in each school (this may include the principal, teacher, project administrator and a parent) form a project team that oversees the implementation of FSP. To build their capacity, this project team is required to attend annual six hour intensive training for each of the two years of the program.

Class level

The costs were estimated by summing teachers' time costs to attend the FSP training workshop (two to three hours) and to deliver FSP curriculum in their classroom (average 11 hours per class for two years) (11, 12).

Given that it is unclear what is currently being implemented in the Australian context, this analysis presents results for two scenarios:

1. FSP is a new program to the school; or
2. Schools are already providing some programs targeted towards bullying reduction. In this case, additional teacher time costs are excluded.

Family level

During the two year program, parents receive 25 newsletters together with a booklet that includes parent-child communication sheets and referral information. It is assumed that 25% of parents will attend a two hour training workshop at the start of the program. Parents also need to deliver six to nine home based activities each year. The school based project team also need to attend an annual three hour parent engagement training workshop. It is assumed that parents forgo both paid work and unpaid work in order to provide care when their children are absent from school.

Individual Level

Key school staff (teachers/school counsellors/psychologists) are trained to use problem solving and restorative approaches for bullying management. The training is completed by a psychologist as a one off session over three hours. No additional time costs for staff are factored in at this level, as it is assumed a similar time commitment is already present in schools for bullying prevention.

Other costs

Training costs include time and travel costs of the instructor plus 20% in additional costs to account for preparation time. To determine healthcare cost savings, estimates from the PAVE trial were used.¹ The

trial reported differences in health service use related to general practitioner (GP), psychologist, psychiatrist, paediatrician, school counsellor and other specialists between children who are bullied and those who are not bullied. Children who are bullied have on average almost four more days of school absence per year compared to those who are not bullied (15).

Results

Cost effectiveness findings

Results are presented in Table 1. The total cost of providing the intervention including the training of staff and delivery of the intervention was approximately \$67M (or \$26,612 per school) if schools do not have 'bullying prevention' in their curriculum and \$47M (or \$18,635 per school) if FSP will replace an existing, or mix of, existing programs. The intervention has a positive ROI of 1.56 (compared to no anti-bullying programs) and 2.22 (compared to current anti-bullying programs). This means that for every \$1 invested, \$1.56 and \$2.22 will be returned depending on the presence of bullying strategies currently in schools. This also means that the resulting cost savings were greater than the cost of the intervention, saving an estimated \$224 to \$346 per case of bullying prevented.

The intervention is estimated to prevent **165,264 cases of bullying victimisation** over ten years and has a positive return of investment of **1.56** (compared to no anti-bullying programs) and **2.22** (compared to current anti-bullying programs).

Table 1. Summary of results for the Friendly School Program for prevention of bullying victimisation.

	Assuming no other bullying programs are in place (Scenario 1)	Compared to the "mix" of existing programs [#] (Scenario 2)
Intervention costs[^]	\$66.80M	\$46.77M
Cost to Government	\$49.55M	\$29.52M
Cost to Individual	\$17.25M	*
Total Saving (less costs)	\$37.09M	\$55.79M
Healthcare costs saving	\$10.77M	*
Productivity loss costs saving	\$93.12M	*
ROI	1.56	2.22
Bullying free days	56,563,759	*
Bullied Victims - number of cases	165,264	*
Cost saved per case of bullying prevented	\$224	\$346

Notes. ROI: return on investment per \$1 invested. # It is assumed that FSP curriculum would replace the existing bullying prevention curriculum in school (average 11 hours per class for two years). [^] cost per school \$26,612 (no other bullying programs are in place) or \$18,635 (compared to the mix of existing programs). * no change to costs compared to scenario where no other bullying programs are in place.

¹ The PAVE trial (NHMRC Grant number: APP1047185) was conducted to evaluate the effectiveness of different anti-bullying programs including the FSP. The trial has finished the data collection phase and data is now being analysed. Data at

baseline was used to evaluate the rates of health service use in children with being bullied and those not experiencing bullying.

Results from alternative scenarios

In the first alternative scenario, when parents' time and travel costs were taken into account, there was a reduction of the ROI. When the intervention was assumed to be ineffective after three years, this also reduced the ROI estimates. The final scenario assumed a 30% reduction in the amount of staff time required to address active bullying, increasing the ROI to 2.02 or 3.30 depending on whether the school already had anti-bullying programs in place or not.

Table 2. Summary of results from alternative scenarios for FSP for prevention of bullying victimisation.

		Total intervention costs	Cost to Government	Cost to individual	ROI	Cost per child
Base case (see Table 1)	Scenario 1	\$66.80M	\$49.55M	\$17.25M	1.56	\$76
	Scenario 2	\$46.77M	\$29.52M	\$17.52M	2.22	\$53
Parent time and travel costs included	Scenario 1	\$81.32M	\$49.42M	\$31.89M	1.29	\$92
	Scenario 2	\$61.27M	\$29.38M	\$31.89M	1.68	\$70
Intervention effectiveness at three years	Scenario 1	\$66.59M	\$49.35M	\$17.25M	1.24	\$76
	Scenario 2	\$46.54M	\$29.29M	\$17.25M	1.78	\$53
School staff time (30%) cost saving included	Scenario 1	\$51.65M	\$34.41M	\$17.24M	2.02	\$59
	Scenario 2	\$31.62M	\$14.38M	\$17.24M	3.30	\$36

Implementation considerations

While evidence on cost effectiveness is the focus of this project, there are other criteria apart from cost effectiveness that can influence whether and to what degree interventions are likely to be rolled out in routine practice. These criteria are not captured in the technical cost effectiveness results but are very important from a decision making context. Some of these considerations are summarised in the Table below. The colour coding of each criterion is an attempt to visually summarise whether these secondary considerations impact on the results in a positive or negative way (red = negative, amber = uncertain, green = positive). A code of 'positive' implies that the secondary consideration strengthens the case for investing in the intervention. A code of 'amber' means that the secondary consideration reduces certainty in the case for investing and a code of 'red' means that these considerations do not support investment in the intervention.

Implementation considerations		Overall Rating
Potential secondary effects	The ROI of FSP may be underestimated for the following reasons: 1) the impact of the intervention on suicide risk is not considered, 2) short term benefits to academic achievement and long term outcomes e.g. positive impacts on employment, health, financial, behavioural, and social outcomes are not included, 3) the impact of the intervention on perpetrators of school bullying is not included.	Positive
Equity	The program could be universal in all schools creating equity of access for students and families with low socioeconomic resources. It is noted that current evidence is only drawn from Year 4 and Year 6 students but a roll out could include whole school participation. Finally, a more tailored intervention to prevent bullying of disadvantaged and disabled students has not been evaluated.	Positive
Strength of evidence	The amount and the quality of evidence (i.e. two trials) supporting the effectiveness of the anti-bullying program was strong.	Positive
Acceptability	Existing studies have reported that schools accepted the intervention in its current format, with more limited acceptance by parents, given that only 10-20% delivered all home-base activities. No evidence is available on the acceptability of such interventions for students.	Uncertain
Feasibility	This is quite an intensive program which raises questions about real world feasibility. Commitment by school principals is required to provide stewardship or spend time building buy in from staff. There is also uncertainty as to whether staff could deliver the intervention given crowded school curriculums and limited professional development days for training.	Uncertain
Sustainability	It is unknown whether governments would be willing to support an FSP style program over the long term, particularly since there may be overlap with programs that are currently implemented within the school curriculum. However, the extent to which these are evidence-based i.e. assessed for effectiveness is unknown.	Uncertain

Recommendations

Bullying has been associated with considerable economic and health costs in adolescents. This study analysed the cost effectiveness of the FSP as it is the only anti-bullying program which has been evaluated for its effectiveness. The economic analysis showed that the FSP intervention had a positive ROI. As bullying is an ongoing concern, the findings suggest that schools should consider implementing bullying prevention programs that are evidence based. There has been good uptake of the FSP with 1,675 Australian schools implementing this program since 2014. A key consideration for any school, and crucial to the success of the program, is supporting staff capacity to implement the program and adopting a whole of school approach. Given that there are over 9,400 schools in Australia, there is scope for increased roll out of evidence based bullying prevention programs.

Take home messages

There are a wide range of programs and resources available to schools to prevent bullying. In addition to the FSP, these resources include the Student Wellbeing Hub (<http://www.studentwellbeing.edu.au>), Bullying No Way website (including the STEPs framework used by schools to make decisions on which programs would best fit their school and community) (<https://bullyingnoway.gov.au/>) and the 'Be You' website (www.beyou.edu.au). It is recommended that only programs which have been robustly evaluated for their clinical effectiveness are implemented. Given the impact of bullying on individuals over the short and long term, and consequently the wider community, it is recommended that further research into both the cost effectiveness and clinical effectiveness of bullying prevention programs is undertaken. This work would give schools greater choice of available interventions, which may also assist with uptake and ongoing commitment from the school community.

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