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**Preventing depression and promoting resilience through  
CBT-based school interventions: A feasibility study of a  
school based depression prevention programme (PROMISE)**

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## **Abstract**

### **Background**

The limited reach and effectiveness of psychological treatments for adolescent depression has fuelled interest in alternative approaches designed to promote resilience. Schools offer a convenient location for the widespread delivery of depression prevention programmes although little research has evaluated the feasibility of delivering interventions in this setting,

### **Aims**

To investigate the feasibility of delivering and evaluating a universal school based depression prevention programme for children aged 12-16.

### **Methods**

A three arm pilot study in one secondary school (n=834)

### **Results**

Interventions had good reach (96.0%), with high rates of consent (89%) and reasonable retention (78%). The majority of intervention sessions were delivered as intended with 85% of students attending 7 or more sessions. The programme was acceptable to students and teachers with the specific content of the active intervention being rated differently to the control programmes.

### **Conclusion:**

Delivering and undertaking methodologically robust evaluations of universal school based depression programmes is feasible.

## Introduction

The prevalence of depressive disorders in children (under 13 years of age) and adolescents (aged 13-18) has been estimated at 2.8% - 5.6% respectively (1). They have a significant adverse impact upon school, social and family functioning and increase the risk of suicide and substance misuse in young adulthood (1,2,3,4). Depressive disorders persist over time and there is continuity between adolescent depression and depressive disorders in young adulthood (5). Relapse is common, with up to 70% of depressed adolescents experiencing a recurrent depressive episode within five years (6,7).

Randomised controlled trials have demonstrated that effective psychological interventions are available for the treatment of depression in adolescents, at least in the short term (8,9,10). Whilst this is encouraging, the majority of adolescents with depression remain unidentified and untreated (11, 12). The limited reach and effectiveness of current treatment programmes has led researchers to investigate whether depressive disorders can be prevented through the widespread provision of prevention programmes.

Prevention programmes tend to be conceptualised by their intended focus, i.e. universal (e.g. provided to whole populations regardless of risk status) or targeted (e.g. provided to those at increased risk of developing depression). Universal programmes tend to be less stigmatising and have good reach whilst targeted approaches tend to produce larger treatment effects and from a public health perspective may represent a better use of limited resources (13). For adolescents, schools provide a natural and convenient location for the delivery of mental health prevention programmes. Recognition of the potential role of schools in promoting mental health has been emphasised in recent UK government initiatives such as Targeted Mental Health in Schools (TAMHS) and Social and Emotional Aspects of Learning (SEAL) (14, 15).

Whilst schools offer a potentially convenient way of accessing large numbers of young people, the effects of mental health programmes delivered in such settings have not always been positive (16,17,18). Variations between studies have been

investigated in systematic reviews which have highlighted a number of issues. Firstly in terms of delivery, targeted depression prevention programmes tend to produce larger post-treatment effects than universal programmes (19, 20). However, practically targeted programmes may prove more difficult to provide since individual students need to be identified and additional arrangements made within the school to deliver the intervention. This may be difficult for busy secondary schools with limited space who typically organise and plan timetables around year groups and classes, not individual students. Secondly, sufficient time needs to be made available to deliver depression prevention programmes which usually require 8-16 sessions (20, 21). Finding sufficient dedicated time within an already full timetable can be a practical problem that may prohibit their use in schools. Thirdly, the majority of depression prevention programmes are based upon cognitive behaviour therapy (CBT) and tend to be more effective when delivered by mental health practitioners rather than trained school staff (20). Whilst programmes are more likely to be sustainable if delivered by educational staff, teachers may not necessarily feel sufficiently skilled or knowledgeable about CBT or comfortable talking about mental health issues. However, if programmes are externally provided then school and classroom staff need to be supportive of their delivery. Fourthly, undertaking robust research evaluations of prevention programmes in schools is complicated and many existing studies suffer from significant methodological weakness (13, 19, 22). In order for results to be meaningful, school based studies need to achieve good recruitment and retention rates and assessments need to be acceptable and easily completed. Finally, the identification of appropriate comparison groups is an important issue for school trials (22). Comparison groups need to be appropriate and acceptable to the school. In addition they need to be matched for any possible non-specific elements such as increased attention and assessment completion and ensure that the content of the intervention and comparison groups are sufficiently different.

The aim of this study is to examine the feasibility and acceptability of delivering and evaluating a depression prevention programme for adolescents within the UK educational context.

## **Methods**

Promoting Mental health in Schools through Education (PROMISE) is a randomised controlled trial evaluating the effectiveness of a school based depression programme for young people aged 12-16 (23). To maximise fit with schools and minimise

timetabling problems the programme is universally provided to whole classes of young people. However, the focus of the evaluation of the effectiveness of the programme is upon students who have persistent and elevated levels of depressive symptoms (i.e. score  $\geq 5$  on the Short Mood and Feelings Questionnaire completed on two occasions two weeks apart).

### **Ethical approval and consent**

The study was approved by the University of Bath ethical committee with consent/assent involving three stages. Firstly, interested schools were required to opt into the study. Secondly, parents/carers of all students in years 8-11 (aged 12-16 years) on the school roll were sent a project information sheet and invited to return an opt-out form if they did not wish their child to complete the project assessments. Finally, young people were required to sign a consent form before completing assessment questionnaires.

### **Recruitment**

Information about the project was sent to 66 non-denominational comprehensive secondary schools in Bath and North East Somerset, Bristol, Wiltshire, Nottingham and Nottinghamshire. Nine schools were recruited, one for the pilot study and eight for the main trial.

### **Interventions**

PROMISE is a randomised controlled trial with the following three trial arms;

#### **(i) Resourceful Adolescent Programme (RAP)**

RAP is a depression prevention programme based upon cognitive behaviour therapy designed to be delivered to whole classes of young adolescents (aged 12-16). RAP has been subject to evaluations in Australia (24,25), New Zealand (26) and Mauritius (27). The original 11-session programme was adapted for use in the UK educational system and consists of 9 sessions facilitating the development of skills in six main areas. Firstly, adolescents are encouraged to identify and recognise their personal strengths and their importance in maintaining good self-esteem and positive mood. The second focuses upon cognitions and encourages adolescents to identify, check and challenge unhelpful cognitions and to replace them with more balanced, enabling and helpful ways of thinking. Emotional management is the third area which facilitates emotional recognition and the development of emotional management strategies. The fourth focuses upon the development of problem solving skills and

the fifth upon identifying support networks to draw upon to help with problems. The final section is concerned with keeping the peace and how to use these skills to resolve interpersonal problems and to promote harmony. The programme involves a mix of large group discussion, role play and small group exercises and each young person has a workbook summarising key issues and messages.

The sessions are led by two facilitators working alongside the class teacher. Facilitators have at least an undergraduate university degree in a relevant discipline and all had experience of working with young people. All received initial training in the cognitive model of depression and the RAP programme and attended on-going supervision sessions.

#### (ii) Attention Control group

As part of the national curriculum schools provide Personal, Social and Health Education (PSHE). The curriculum covers a range of topics relating to citizenship and psychological well-being including drug and sexual education, human rights, diversity, difference and discrimination. The class teacher leads the sessions and in this trial is supported by two facilitators. The group is therefore matched for time (i.e. 9 sessions) and adult contact with the RAP group.

#### (iii) Usual PSHE

Young people participate in the usual personal health and social education (PSHE) sessions provided by the school (i.e. treatment as usual). The sessions are provided solely by the teachers.

### **Primary Outcome**

The primary outcome measure is change in symptoms of low mood at 12 months as assessed by the short Mood and Feelings Questionnaire (SMFQ) (28).

### **Results**

This paper summarises the results of the feasibility study conducted in one mixed gender non-denominational secondary school.

#### **1. School profile**

A comparison against national averages in terms of academic attainments, special educational needs, absence, free school meals and ethnicity is presented in Table 1.

Insert Table 1 here

Educational attainment, eligibility for free school meals and absence rates are comparable to the national average although fewer children were identified with special educational needs or from minority ethnic backgrounds.

## **2. Research procedures: recruitment and retention**

### **2.1. Participant flow**

A consort flow chart is presented in figure 1.

Insert Figure 1 here

In terms of eligibility, 801 (96.0%) students on the school role were attending school and were therefore able to participate in the study. The consent process appeared acceptable with dual parent and young person consent to complete the assessment measures being obtained for 713 (89.0%) students

### **2.2. Retention**

Both screening and baseline assessment were completing by 624 (87.5%) of those who consented. Of those who completed both screening and baseline assessments, 552 (88.5%) completed the 6 month assessment and 489 (78.4%) completed the final 12 month assessment. Twelve month retention rates in years 8 (91.3%), 9 (90.0%) and 10 (83.4%) were good but there was a particular problem with year 11 (45.1%). These students had completed their GCSEs and left school resulting in many transferring to other colleges or starting work.

## **3. Research measures**

### **3.1. Missing data**



The primary outcome measure was the short Mood and Feelings Questionnaire (28), a 13 item measure of symptoms of low mood/depression. Item completion is summarised in Table 2 and highlights that completion is easy with little missing data.

**Insert Table 2 here**

### **3.2. Classification of “at risk” students**

The study is evaluating the effects of a universally provided school based depression prevention programme on students with elevated symptoms of low mood (i.e. risk of developing a depressive disorder) Students were categorised as “at risk” if they had elevated scores (i.e. scored 5 or more on the SMFQ) at both screening and baseline assessments (i.e. continuity of symptoms). A total of 191 (31.2%) of students who completed the SMFQ on both occasions were classified as high risk. Of these, 138 (72.3%) were reassessed at 12 months.

### **3.3. Symptom change**

This feasibility study was not powered to assess between group differences on the primary outcome measure (SMFQ). Descriptive statistics are therefore presented in Table 3 for high risk students in each trial arm at each assessment point

**Insert table 3 here**

There was a decrease in MFQ scores in all groups from screen and baseline assessment to 12 months.

## **4. Feasibility of intervention delivery:**

### **4.1 RAP session delivery**

RAP was provided to students in years 8 and 10. All nine RAP sessions were delivered to 15 classes with the remaining class receiving 8 sessions. A total of 137 RAP sessions (95.2%) were delivered as intended by 2 facilitators with the other 7 being led by one.

In terms of cancellations, a total of 7 sessions were unexpectedly cancelled due to adverse weather (2), early school closure (1) bank holidays (1), examinations (1), a school project day (1) and PSHE being cancelled (1).

#### **4.2. RAP Session Attendance**

Of the 409 eligible children in years 8 and 10, only 9 (2.2%) failed to attend any RAP sessions. Of these, 5 were no longer at school either being expelled (2) or moving school (3) before the sessions started. Approximately half (188, 52.7%) attended all nine sessions with 357 (87.3%) attending seven or more sessions.

#### **4.3. Overlap between RAP and usual PSHE**

In order to assess whether the content of usual PSHE and RAP were different, lesson facilitators were asked to independently assess the content of each session on a 5 point scale ranging from not at all (0) to a lot (4). Table 4 presents differences in means and 95% confidence intervals for each variable.

Insert Table 4 here

There were significant between group differences on most variables. RAP facilitators rated the coverage of self-esteem, emotional awareness, and positive thinking significantly higher compared to the enhanced facilitators who gave highest ratings to the coverage of topics traditionally covered in PSHE (i.e. bullying, smoking, drugs, alcohol, sex education, ethical issues, diversity, religion and citizenship).

There was no significant difference between the groups in the specific focus on depression, although RAP facilitators rated the direct focus on mental health more highly.

### **5. Acceptability of RAP**

#### **5.1. Student feedback**

Individual semi-structured interviews were undertaken with nine year 8 and ten year 10 students who took part in RAP. Overall feedback was supportive with students

liking the programme content, positive focus, and the way in which the individual sessions built upon each other. A year 10 student commented:

*"I'm sort of a negative person but it made me realise what maybe I need to improve things"*

and another reported;

*"I'm quite negative so it's made me think about maybe sort of changing how I think"*

Similar comments were reported by year 8 students, e.g;

*"It made people think a bit more about how they could help themselves when they've been sad"*

The accompanying workbook was liked by most younger students. For example;

*"The layout was good and the design fantastic" (year 8)*

Some older students thought that it was pitched at a younger level, e.g.

*"I think it might have been a little childish because of some of the animations"*  
(year 10)

Some students expressed a preference for more activities, role plays and discussions, such as;

*"like we did the role playing stuff to get everybody involved and contributing"*  
(year 8)

The video clips were seen as out-dated and unclear;

*"They were helpful but just a bit old" (year 10)*

The sessions that students found most helpful were those focusing on problem solving, emotional recognition, the connection between thoughts and feelings,

thought checking and relaxation. Those that focused on identifying and changing unhelpful thoughts were seen as repetitive and the support network session was considered by some to be too long;

*“I thought it was a good message but they shouldn’t have taken a whole lesson to do it” (year 8)*

## **5.2. Teacher feedback**

A focus group was undertaken with the 8 teachers whose classes received RAP. Initially teachers were concerned about addressing mental health in a group but by the end of the programme felt reassured;

*“I thought it was brilliant to be honest. I really enjoyed it. I mean I must admit I - we - sort of had a bit of conversation a few months back. I had a few concerns really. Probably from the lack of my understanding perhaps more than anything”*

The teachers were positive about the programme facilitators leading the sessions and the way in which assessment were conducted. They felt the concepts in the program were memorable for themselves as well as for the students;

*“I don’t know about you but I find myself going home thinking this is self-talk, I’m falling into a negative thinking trap <laughter>. You do find yourself saying ‘I’m snowballing’, but you know they really latched onto those key words”*

*“I thought my year eights weren’t engaged at all - I’ve got some interesting characters - and then the last session that I had they did a recap of the whole thing and someone in that group could remember every single part [of the programme]”.*

It was felt that the benefits of the program might not necessarily be obvious immediately, but that the skills students acquired could be useful as and when they encountered problems in their lives;

*“I think a lot of what’s in here actually the students wouldn’t have been conscious of absorbing it until they need it”*

Teachers liked the content of the programme but at times felt it was pitched more towards the younger students (year 8) and may not have stretched the most able students;

*“I think for some of our brighter students [the workbook] would almost be slightly patronising”*

Teachers also raised concerns about the ability of less able students to engage with RAP;

*“...although they remembered some of the concepts, the lessons seemed very similar to them and actually they weren't able to separate [the concepts] in their mind because they weren't some of the more able students. They weren't able to separate, you know, the different kind of techniques they were being given...”*

Disruptive student behaviour was also a major issue, particularly if students became disengaged (e.g. with some of the older video clips and where there was a lot of group discussion involved for students who were not used to learning in this way. In classes where disruptive behaviour was a problem moving between small group and whole class activities was very difficult to manage. The ability of facilitators to manage student behaviour came to light as a salient issue during this feasibility study. The additional support from external staff was viewed as being essential, particularly with regard to working with large classes and being able to manage the small group activities;

*“If I'm being honest about whether this would work as it stands as a programme, without the support that we've had it wouldn't. I don't think it would be possible in a class of twenty five plus to run the kind of discussions that we've needed to run the programme”*

In terms of delivery, the teachers felt that the sessions were sometimes repetitive and had many ideas about how sessions could be more interactive and engaging, such as making the graphics in the workbooks more age appropriate, updating some of the materials (particularly the video clips), and using more practical tasks in addition to the discussions.

## Discussion

Schools offer a convenient location for the widespread dissemination of mental health prevention programmes for children and adolescents. However, whilst schools provide a natural focus for prevention little attention has been paid to the feasibility of delivering such interventions within educational settings and whether methodologically robust evaluations are possible within this context.

This feasibility study has demonstrated that the delivery and evaluation of a school based depression prevention programme is practical within the UK educational context. In this school, 96% of students on roll were actually attending school and able to access and potentially benefit from the interventions. The complete nine session RAP programme was delivered to all but one class with 95% of sessions being delivered as intended by two trained facilitators. Of those students who received RAP, almost 90% attended 7 or more of the 9 sessions. However, in this pilot study RAP was only delivered to two of the school year groups and it is unclear whether delivery and attendance rates would be similar for the other year groups. Indeed delivering to year 11 students may be particularly problematic as the main focus for these students is upon preparing for their GCSEs. Nonetheless, these results are encouraging and suggest that the majority of students in secondary school will be able to access and receive sufficient dosage from mental health prevention programmes.

Providing appropriate comparison groups against which active interventions can be assessed in schools is challenging. Schools need to ensure that they deliver the national curriculum and inevitably there will be some overlap in content with more focused mental health programmes. Facilitator ratings completed at the end of each session revealed no difference between the RAP and enhanced groups in the specific focus upon depression although there were significant between group differences in other aspects of content. RAP is based upon cognitive behaviour therapy, with facilitators rating the emphasis upon emotional awareness and positive thinking significantly more highly than those in the usual PSHE group. This suggests that the content of RAP and PSHE are sufficiently different and that PSHE as provided by the school is an acceptable comparator against which focused mental health prevention programmes can be compared.

In terms of research methodology the consent process was both practical and acceptable with consent to complete study assessments approaching 90%. Retention rates declined over time although 78% were retained at the 12 month follow-up. Retention rates of year 11 students were the lowest (45%) as many had left school. Alternative ways of contacting older students, e.g. mobile phones, email, and putting the assessments online will be considered to maximise retention in the main trial.

In relation to assessment measures, there was very little missing data on the primary outcome measure suggesting that it is acceptable to students. The criteria for classifying students as “at risk” in terms of severity and persistence of symptoms resulted in approximately 30% of students being identified. This is higher than predicted (20%) but nonetheless appears an acceptable alternative to undertaking diagnostic assessments to identify students with elevated and persistent symptoms of low mood.

The session’s content and exercises will be modified in the light of the qualitative feedback to ensure that the materials are engaging, appealing and relevant to all age groups. Greater emphasis also needs to be placed on working in a school environment with whole classes and on working alongside teachers during training and supervision of facilitators.

To conclude, these results support the premise that universal depression prevention programmes delivered in schools have the potential to reach the majority of students. Delivery by external health personnel is feasible and the intervention was viewed as acceptable by students and teaching staff. There were some concerns about the developmental pitch of the materials and a particular problem in retaining year 11 students. This study has achieved good recruitment, reasonable retention and usual PSHE appear sufficiently different to RAP provide an appropriate comparator. Further research is now required to determine the effectiveness of depression prevention programmes delivered in schools.

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TABLE 1: Pilot school demographic summary

Descriptor	Pilot school	National
% of pupils with Special Educational Need statements or supported on school action plus	5.4%	9.3%
% at end of Key Stage 4 achieving level 2 English and Maths	57%	54%
% achieving 5 or more A*-C grade GCSEs including English and Maths	57%	50%
% eligible for free school meals	8.5%	7.3%
Overall pupil absence rate	6.9%	7.3%
Persistent absence rate	5.3%	5.0%
Ethnicity: Non-white.	9%	18%

Table 2: Short Mood and Feelings Questionnaire (SFMQ) assesment by time and missing data

	RAP (n=344)	Attention Control (n=179)	Usual PSHE (n=190)
<b>Screen</b>			
All items complete	326	171	157
1 or more missing	2	4	3
Students absent	16	4	30
<b>Baseline</b>			
All items ncomplete	311	172	169
1 or more missing	7	1	0
Students absent	26	6	21
<b>6 months</b>			
All items complete	301	158	141
1 or more missing	5	0	0
Students absent	38	21	49
<b>12 months</b>			
All items complete	291	157	75
1 or more missing	1	3	0
Students absent	52	19	115

Table 3: High risk students Short Mood and Feelings Questionnaire (SMFQ) mean (sd) by trial arm and time

Short MFQ	Screening x (sd)	Baseline x (sd)	6 Months x (sd)	12 months x (sd)
RAP	11.89 (5.31) n=93	11.00 (4.96) n=93	9.86 (6.46) n=86	9.03 (7.03) n=78
Attention Control	11.88 (5.77) n=48	12.22 (6.26) n=48	12.13 (6.26) n=39	10.32 (6.39) n=40
Usual Personal, Social and Health Education	10.40 (4.48) n=50	10.66 (4.89) n=50	8.24 (4.79) n=34	9.05 (6.03) n=20

Table 4: Comparison between RAP and Attention Control Personal Social and Health Education (PSHE) content

	Trial Arm	N	Mean (sd)	Mean difference (95%CI)
How much were interpersonal relationships covered in this lesson?	RAP	279	2.83 (1.18)	0.81 (0.54, 1.07)
	Attention Control	128	2.02 (1.45)	
How much was bullying covered in this lesson?	RAP	278	0.38 (0.66)	-.59 (-0.79, -0.39)
	Attention Control	128	0.97 (1.38)	
How much was self-esteem covered in this lesson?	RAP	279	1.59 (1.37)	0.72 (0.45, 0.99)
	Attention Control	128	0.88 (1.11)	
How much were feelings/emotions covered in this lesson?	RAP	279	3.22 (0.95)	2.02 (1.80, 2.24)
	Attention Control	128	1.20 (1.21)	
How much was smoking covered in this lesson?	RAP	279	0.12 (0.38)	-0.69 (-0.87, -0.51)
	Attention Control	128	0.81 (1.42)	
How much were drugs covered in this lesson?	RAP	279	0.19 (.51)	-1.20 (-1.44, -0.97)
	Attention Control	128	1.40 (1.82)	
How much was alcohol covered in this lesson?	RAP	279	0.25 (0.52)	-0.66 (-0.85, -0.48)
	Attention Control	128	0.91 (1.40)	
How much were sex and/or contraception covered in this lesson?	RAP	279	0.18 (0.49)	-0.72 (-0.93, -0.52)
	Attention Control	128	0.91 (1.61)	
How much were ethical issues covered in this lesson?	RAP	279	0.31 (0.84)	-0.23 (-0.43, -0.28)
	Attention Control	128	0.54 (1.15)	
How much were green issues covered in this lesson?	RAP	279	0.01 (0.12)	.01 (-0.01, 0.03)
	Attention Control	128	0.00 (0)	
How much were diversity, ethnicity and race covered in this lesson?	RAP	278	0.18 (0.54)	-0.70 (-0.90, -0.48)
	Attention Control	128	0.88 (1.58)	
How much was religion covered in this lesson?	RAP	278	0.07 (.25)	-0.65 (-0.82, -0.48)
	Attention Control	128	0.72 (1.39)	
How much was problem solving covered in this lesson?	RAP	278	2.67 (1.22)	1.02 (0.77, 1.28)
	Attention Control	128	1.65 (1.17)	
How much was thinking in positive ways covered in this lesson?	RAP	278	2.92 (1.07)	1.95 (1.73, 2.17)
	Attention Control	172	0.98 (0.96)	
How much was citizenship covered in this lesson?	RAP	279	0.16 (0.48)	-1.01 (-1.181, -0.84)
	Attention Control	128	1.17 (1.27)	
How much was depression covered in this lesson?	RAP	279	0.83 (0.98)	0.11 (-0.10, 0.33)
	Attention Control	128	0.72 (1.08)	

	Control			
Overall, how engaged were students with this session?	RAP	279	3.06 (0.86)	0.76 (0.54, 0.97)
	Attention			
	Control	128	2.30 (1.22)	
How much did this session directly focus upon mental health issues?	RAP	279	2.27 (0.99)	1.58 (1.38, 1.78)
	Attention			
	Control	128	0.69 (0.89)	

**Figure 1: Consort Flow diagram**

