Pilot and Feasibility Studies

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Feasibility randomised controlled trial of a brief psychological intervention for adolescents with borderline personality disorder symptoms delivered with schools and colleges

Jon Wilson[1,2], Brioney Gee[1,2*], Nicola Martin[1], Sarah Maxwell[1], Jamie Murdoch[3], Tim Clarke[1,2], Allan Clark[2], David Turner[2], Thando Katangwe-Chigamba[2], Peter B. Jones[4] and Peter Fonagy[5,6]

Abstract

Background There is an urgent need for accessible interventions to facilitate early intervention for young people with borderline personality disorder (BPD) symptoms. Existing evidence-based interventions for adolescent BPD are highly resource-intensive, and few young people with BPD symptoms have access to timely treatment. We adapted a brief psychological treatment for adolescent BPD symptoms previously provided within secondary mental health services for delivery within schools and colleges. This study aimed to assess the feasibility of evaluating the effectiveness and cost-effectiveness of this intervention (BEST (brief education support treatment)) in a future randomised controlled trial (RCT).

Methods The feasibility RCT involved 12 schools and colleges. Eligible participants were aged 13–18 years and self-reported BPD symptoms above a clinical threshold and a history of repeated self-harm. Over 9 months, 32 participants were randomised to receive either the BEST intervention plus treatment as usual (TAU) or TAU alone. Participants were assessed at baseline and 12 and 24 weeks. A mixed-methods process evaluation was conducted.

Results Recruitment was slower than anticipated, but participant retention was high (89.5% at 12 weeks and 73.7% at 24 weeks). Performance of all outcome measures was satisfactory. Fidelity of intervention delivery was high (93.5% adherent), and we did not identify any evidence of contamination of the control arm. The intervention was perceived by staff and young people as beneficial to participants, practitioners and the wider school/college and therefore highly acceptable.

Limitations The study was disrupted by the closure of schools and colleges in response to the COVID-19 pandemic. This reduced the window for participant recruitment and limited data collection.

Conclusions The intervention was delivered successfully within schools and colleges and was acceptable to staff and young people. The findings provide support for continuing this programme of research and should inform the design of a future evaluation of intervention outcomes.

*Correspondence:
Brioney Gee
brioney.gee@nsft.nhs.uk
Full list of author information is available at the end of the article

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Key messages regarding feasibility

What uncertainties existed regarding feasibility?

- Prior to the current study, there were uncertainties regarding the feasibility of participant recruitment and retention, suitability of proposed outcome measures, fidelity of intervention delivery, intervention acceptability and ability to limit contamination of the control arm.

What are the key feasibility findings?

- Recruitment was slower than anticipated and had to be concluded prematurely due to the COVID-19 pandemic, but participant retention was high. The proposed outcome measures were acceptable and performed satisfactorily. Practitioners were able to deliver the intervention with good fidelity to the model, and the intervention was acceptable to and valued by both practitioners and young people. There was no evidence of direct contamination of the control arm, but some evidence that it may be challenging to limit contamination over time due to changes in staff practices within schools and colleges.

What are the implications of the feasibility findings for the design of the main study?

- The feasibility findings provide support for progressing to a definitive study of the BEST intervention. We believe providing the intervention through Mental Health Support Teams in a future trial would facilitate more efficient participant recruitment and intervention delivery within schools and colleges.

Background

Borderline personality disorder (BPD) is a mental health condition characterised by a pervasive pattern of emotional instability, interpersonal dysfunction, disturbed self-image and impulsive behaviour, including self-harm and suicide [1]. BPD is associated with severe and persistent functional impairment [2, 3]. Approximately, 80% of individuals with BPD engage in self-harm, and 75% attempt suicide [4]. Further, BPD symptoms are among the best prospective predictors of self-harm in young people [5].

Symptoms of BPD typically emerge during adolescence [6], and approximately 3% of children and young people living in the community present with BPD symptoms [7, 8]. Growing research in adolescent BPD [9] has spurred the development of the first evidence-based treatments [10–12], which have been shown to lead to clinically important improvements in symptoms and reduction of risk.

It should be acknowledged that the diagnosis of BPD is controversial, particularly in adolescence [13]. This controversy is rooted partly in concern about the possibility of reliably distinguishing personality disorder symptoms from normative adolescent development [14] but perhaps more so in concern about associating young people with a diagnosis that has been highly stigmatised [15]. This might help to explain why, despite strong evidence in support of early intervention for borderline psychopathology [12], access to early treatment for young people presenting with BPD symptoms is poor [16].

Implementation of evidence-based treatments for adolescent BPD symptoms has also been hindered by the high level of resources required to deliver these treatments, which are intensive and highly specialised [17]. As such, late intervention is currently the norm, with treatment being offered to only a small minority of individuals with chronic disorder, at substantial personal, social and economic cost [18]. Therefore, there is an urgent need for accessible, cost-effective interventions to facilitate early access to treatment for young people presenting with BPD symptoms. This aligns with a staging approach to early intervention as has been successfully adopted in early intervention for psychosis pathways [19–21].

The nature of BPD symptoms also presents some barriers to engaging young people in brief early interventions. The BEST (brief education support treatment) intervention was designed to overcome these barriers by offering support within the young person's school or college in collaboration with pastoral staff members already familiar to the young person.

We hypothesised that this model of delivery would improve engagement and retention while containing education staff member's anxiety by increasing their understanding of BPD symptoms and empowering them with tools to offer effective support. The content of the

intervention was based on a treatment package for adolescent BPD developed by the Norfolk Youth Service [22] which aimed to distil key elements of existing evidence-based interventions for adolescent BPD into a brief practicable format. This study aimed to assess the feasibility of the BEST intervention and sought to inform the design of a future trial of its effectiveness and cost-effectiveness as an early intervention for young people presenting with symptoms of BPD.

Methods

Intervention refinement

Before commencing the feasibility randomised controlled trial (RCT), we piloted the BEST intervention with young people ($n=5$) from three of the participating schools and colleges. The findings of this pilot together with the results of an evidence synthesis [23] were used to refine the intervention manual, practitioner training and procedure in preparation for the feasibility RCT.

Feasibility RCT

Design

Eligible young people were randomised in a 1:1 ratio to receive either BEST plus treatment as usual (TAU) or TAU alone. Participants were assessed pre-randomisation and followed up at 12- and 24-week post-randomisation. A parallel mixed-methods process evaluation explored how the intervention was implemented across education settings, assessed the acceptability of the intervention and monitored contamination of the control arm. The feasibility study also trialled the outcome measure that would be required for an economic evaluation of any future study. The following factors were considered in assessing feasibility: (a) rate of recruitment, (b) level of retention, (c) fidelity of intervention delivery, (d) acceptability of the intervention to both staff and young people, (e) ability to limit contamination of the control arm and (f) acceptability and suitability of the proposed outcome measures.

Setting

The trial was conducted across 12 educational settings in the east of England, UK. Each setting identified one or more members of pastoral staff to be trained to co-deliver the BEST intervention to participants enrolled at their school or college.

Participants, sample size and ethical approval

Potential participants were referred by staff either from participating educational settings or mental health services. Young people were screened to ensure they met trial eligibility criteria (Table 1) prior to randomisation. The target sample size of 60 young people was selected with reference to published recommendations for feasibility studies [24, 25] and to enable rates of recruitment and retention to be estimated with reasonable precision.

Written informed consent or written informed assent and parental consent in the case of participants aged under 16 years were obtained for all participants. The study received Health Research Authority approval following confirmation of a favourable ethical opinion by Yorkshire and the Humber — South Yorkshire Research Ethics Committee (Ref.: 18/YH/0416).

Intervention arm: brief education support treatment (BEST) plus treatment as usual (TAU)

Participants randomised to the BEST plus TAU arm were offered six BEST intervention sessions in addition to having access to all usually available care and support. BEST sessions lasted approximately 1 h each and were delivered over a period of up to 12 weeks.

The content of this structured intervention was informed by two existing evidence-based treatments for adolescent BPD: mentalisation-based treatment for adolescents (MBT-A) and dialectical behavioural therapy for adolescents (DBT-A) [26]. Drawing from MBT-A [11], the intervention aimed to enhance the ability of participants to mentalise [27], i.e. to enhance their understanding of their own and other people's behaviour using mental state concepts. Informed by DBT-A [10, 28], the intervention aimed to promote understanding of

Table 1 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
· Aged 13-18 years (school years 9-13) · Enrolled at a participating school/college · Score ≥34 on the Borderline Personality Features Scale for Children [26] · History of repeated self-harm assessed using the self-harm subscale of the Risk Taking and Self Harm Inventory for Adolescents [27] (has intentionally harmed him/herself more than once) · Willing and able to provide written informed consent or, for under 16s, written informed assent and parent/carer consent.	· Currently receiving inpatient treatment or a specific psychological intervention · Moderate/severe learning disability · Current psychotic disorder (those with sub-threshold psychotic symptoms will not be excluded) or substance dependence (current substance abuse will not be an exclusion criterion) requiring care planned treatment.

symptoms, support the development of positive coping strategies and facilitate crisis planning. An overview of the content of each session is available as supplementary material (Supplementary Table 1).

All sessions were co-delivered by a mental health practitioner and a member of staff from the young person's school or college (known in the project as the 'education practitioner'). Prior to delivering the intervention, both educational and mental health staff attended a 1-day workshop which aimed to introduce relevant theory, provide opportunities to practice delivering key elements of each session and enhance the ability of staff to mentalise during incidents of distress or conflict.

Intervention-specific group supervision was provided by qualified mental health professionals with experience of working with young people with symptoms of BPD. Supervision was used to promote adherence to the intervention manual and ensure appropriate management of risk and safeguarding concerns.

Control arm: TAU only

The control group received TAU, i.e. the standard care currently offered to young people with symptoms of BPD. Schools and colleges were instructed to follow their usual procedures concerning both internal pastoral support and referral to external agencies. Participants were not denied access to any service currently available, including specific psychological interventions offered as part of standard care. To minimise contamination, schools/colleges were asked to ensure TAU participants were supported by staff not trained as BEST practitioners whenever possible.

Randomisation and blinding

Participants were randomised to treatment arms in a 1:1 allocation ratio using pre-set lists of permuted blocks with randomly distributed block size. Randomisation was stratified by school/college. The allocation sequence and web-based allocation process were generated and managed by the Data Management Team at the Norwich Clinical Trials Unit (CTU) and was not accessible outside of this team. Research staff collecting follow-up data remained blind to participant treatment allocations. Given the nature of the intervention, it was not possible for participants and practitioners to remain blind.

Data collection

In order to assess the suitability and acceptability of the proposed outcome measures, participants completed the following measures at baseline and 12 and 24 weeks: Borderline Personality Disorder Features Scale for Children (BPFSC) [26], Difficulties in Emotion Regulation Scale (DERS) [28], Risk Taking and Self-Harm Inventory for Adolescents (self-harm subscale) RTSHI-A [27], Childhood and Adolescent Social Support Scale (CASSS) [29] and time use survey (TUS) [30]. At baseline only, we administered the Childhood Interview for Borderline Personality Disorder (CI-BPD) [31] for the purpose of describing the sample and the psychosis and substance abuse modules of the Kiddie Schedule for Affective Disorders (K-SADS) [32] to assist in determining eligibility. Initially, all assessments were completed in person, with the research assistant visiting the young person at their school or college, home address or a community venue according to the participant's preference. From March 2020 onwards, all assessments were completed over the telephone to minimise the spread of COVID-19. The schedule of assessments is shown in Fig. 1.

Process data collected included site profile questionnaires, observational field notes of training workshops, workshop feedback forms, practitioner log sheets of contacts with participants, video and audio recordings of intervention sessions, interviews with young people who received the intervention and focus groups with staff who delivered the intervention.

To facilitate the health economic component, the EQ-5D-5L [33] and a modified version of the Client Service Receipt Inventory (CSRI) [34] were administered at each assessment time point. We also recorded all resources required to implement the intervention, including training, delivering sessions, supervision and travel. Unit costs were obtained from a published source and relate to the cost year 2018/2019 [35].

Data analysis

Quantitative data analysis focused on reporting completion and retention rates and outcome measure summary statistics at each timepoint. Analysis was undertaken in Stata (version 17.0/SE). The health economic component aimed to describe the resources required to provide the intervention, assess the performance of the CSRI in capturing the health and social care service use of this group and explore the response characteristics of EQ-5D-5L.

Interviews and focus groups were transcribed verbatim and thematically analysed with the aid of NVivo software (version 12). Recordings of intervention sessions were independently rated against a fidelity checklist by members of the study team and subjected to qualitative activity analysis to explore how intervention content was enacted within sessions. For the sake of brevity, only key process evaluation findings are summarised in the current article, but a full account of this aspect of the study is available in the report prepared for the funder [36].

Pre-specified progression criteria were as follows: (a) Recruitment rate is within 70% of target, (b) at least 70% of those randomised to receive the intervention attended

	STUDY PERIOD			
	Baseline	Randomisation	Follow-up (weeks)	
TIMEPOINT	***-t****	**0**	***12***	***24***
ENROLMENT:				
BPFSC	X		X	X
RTSHI-A (self-harm subscale)	X		X	X
Informed consent	X			
Allocation		X		
INTERVENTIONS:				
Treatment as Usual (TAU)				
BEST plus TAU		←	→	
ASSESSMENTS:				
CI-BPD	X			
K-SADS psychosis module	X			
K-SADS substance abuse module	X			
DERS	X		X	X
CASSS	X		X	X
TUS	X		X	X
EQ-5D-5L	X		X	X
Modified CSRI	X		X	X

Fig. 1 SPIRIT Schedule of enrolment, interventions, and assessments

three or more treatment sessions within the 12-week treatment window, (c) follow-up assessments completed by at least 75% of participants at 12 weeks and 70% of participants at 24 weeks and (d) contamination of the control arm can be sufficiently limited for individual randomisation to be justified.

Impact of COVID-19 pandemic

The feasibility trial was planned to run from September 2019 to October 2020. However, the study was suspended from March 2020 onwards due to COVID-19-related restrictions, including the closure of schools and colleges to nearly all young people. As a result of the prolonged nature of this disruption, a decision was taken to conclude the study early. Only those participants who had reached the 12-week assessment point before schools and colleges closed were followed up, with assessments being conducted remotely. Qualitative interviews with participants were also completed

by telephone, and staff focus groups were conducted online using video conferencing software.

Results

Recruitment and retention

Recruitment of sites

Schools and colleges were invited to participate via the research team's existing contacts and a local network of school and college leaders. Of the 21 schools and colleges that expressed an interest in participating and were sent further information, 16 agreed to take part, and 12 acted as sites for the study. Characteristics of these 12 schools and colleges are available as supplementary material (Supplementary Table 2).

Staff participants

In total, 30 school and college staff members and 21 mental health practitioners gave consent to take part in the feasibility trial. However, not all staff participants recruited had the opportunity to deliver the intervention due to the premature conclusion of the study. Participating school and college staff were primarily employed in nonteaching pastoral support roles, for instance as safeguarding leads, wellbeing coordinators or mental health advisors. Participating mental health practitioners came from a range of professional backgrounds and were employed in a variety of clinical roles, ranging from NHS Agenda for Change Band 4 to Band 7. However, the majority were employed in Band 4 roles, for instance as assistant psychologists or children's wellbeing practitioners (CWPs). All participating staff (education and mental health) who delivered the intervention attended an intervention-specific training workshop as detailed above.

Recruitment and retention of young people

We recruited and randomised 32 eligible participants prior to the suspension of the study. The flow of referrals and participants through the study is illustrated in Fig. 2.

In total, 61 referrals were received, of whom 54 were screened for eligibility (7 young people referred were unable to be screened due to the introduction of COVID-19 restrictions and subsequent suspension of the study). The overall rate of recruitment was slower than anticipated, largely due to the small number of referrals received from secondary mental health services. Over 90% of referrals were received directly from schools and colleges, limiting recruitment during school holidays. The key barrier to recruitment via mental health teams we identified was that school or college attended was not routinely recorded in young people's medical records, preventing teams from easily screening for potentially eligible service users. Further, mental health services reported that many of the young people on their caseloads presenting with BPD features were not currently engaging in education due to the severity of their difficulties.

From October 2019 when the first participant was recruited until the study was suspended in March 2020, the average recruitment rate was 5.4 participants per month. To meet our recruitment progression criterion of 70% of the target sample size, a rate of 4.6 recruits per month across the initially planned recruitment period would have been sufficient. Therefore, we believe this would have been met across the full recruitment period.

Only the subset of participants who had the opportunity to receive the intervention prior to the closure of schools and colleges ($n=19$) was followed up. Of these 19, 17 (89.5%) were retained at 12 weeks and 14 (73.7%) at 24 weeks.

Participant characteristics

Baseline demographic characteristics of young people recruited to the feasibility RCT are presented in Table 2.

Suitability of outcome measures

Rates of completion

Most outcome measures were completed in full, and follow-up rates were good: 16 out of 17 participants (93.8%) at 12 weeks and 12 out of 14 participants (85.7%) at 24 weeks. The research assistant facilitating the assessment promoted participants to complete any missing items on self-report measures; only one participant who missed items declined to complete them.

Data on participants' school or college attendance and exclusions during the follow-up period was requested but only received for 26.3% of those followed-up. However, this was in the context of multiple competing pressures on schools and colleges during the COVID-19 lockdown. We also sought consent to access the information recorded about participants on the National Pupil Database (NPD) via an optional item on the consent form: 84.2% agreed to this data being requested.

Descriptive statistics

Descriptive statistics for the outcome measures collected are presented in Table 3.

The current study was not powered to detect significant changes in outcomes; however, we were interested in whether the outcome measures would be suitable to detect any change as a result of the intervention in a future trial. Mean changes from baseline by allocated arm for all continuous measures are presented in Table 4.

These descriptive statistics suggest the proposed outcome measures are sensitive to change and would be suitable for use in a future trial. There was greater differentiation in mean change from baseline between the intervention and control groups in DERS scores than in

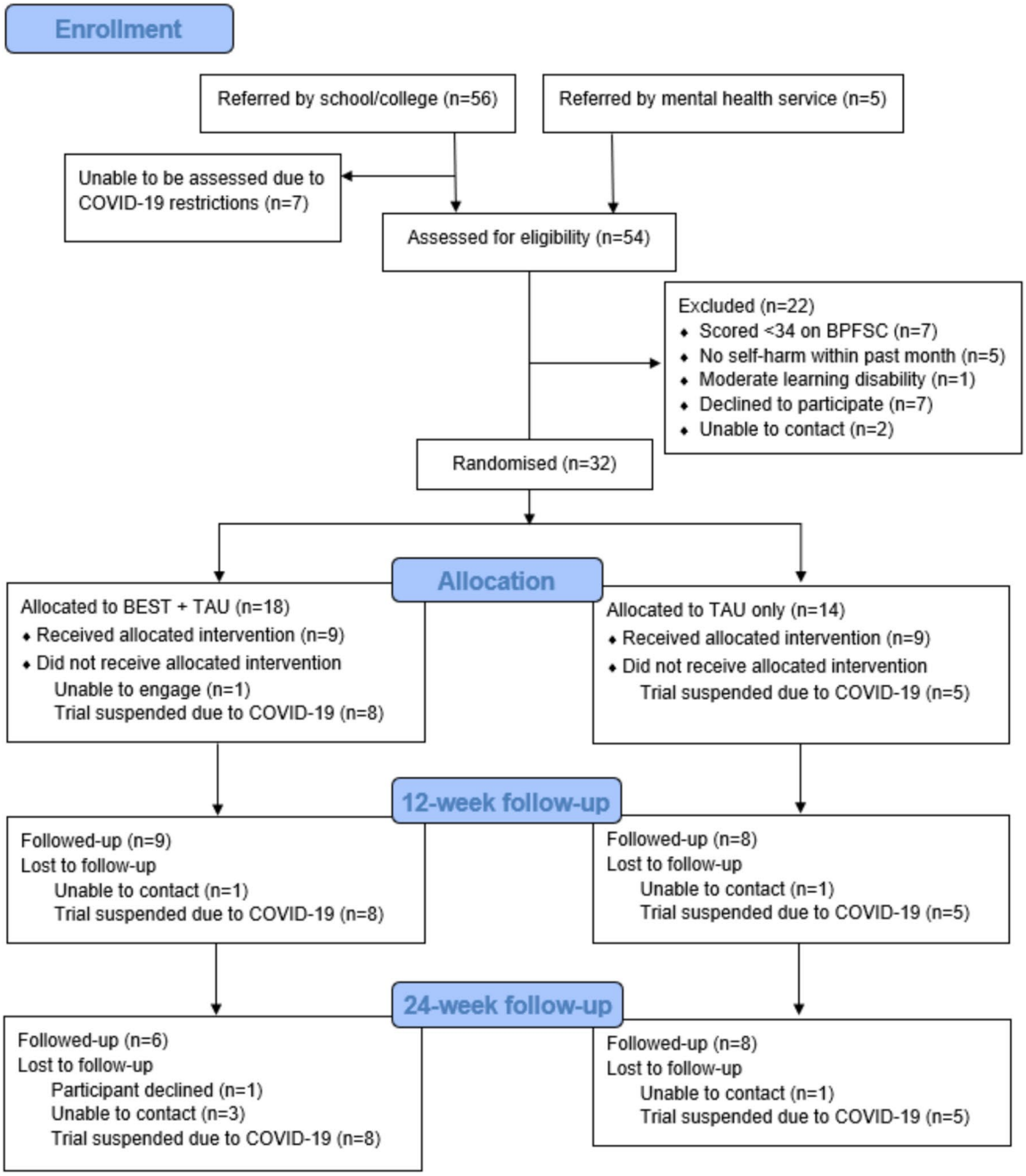

Fig. 2 CONSORT diagram for feasibility trial

BPFSC scores. This aligns with the view expressed by practitioners that emotion regulation may be a more appropriate primary outcome for a future effectiveness trial than severity of BPD symptoms.

Intervention delivery and acceptability

Fidelity of intervention delivery

The majority ($n=45$) of BEST sessions delivered were successfully recorded. All available session recordings for

Table 2 Participant baseline characteristics

		BEST + TAU *n* (%)	TAU
Gender	Female	13 (72%)	11 (79%)
	Male	5 (28%)	3 (21%)
Year of education	Year 9	4 (22%)	7 (50%)
	Year 10	5 (28%)	3 (21%)
	Year 11	2 (11%)	0 (0%)
	Year 12/13/college	7 (39%)	4 (29%)
Ethnic group	Mixed — Other	1 (1%)	0 (0%)
	Mixed — White and Asian	0 (0%)	1 (7%)
	Mixed — White and Black African	0 (0)	1 (7%)
	White — British	16 (89%)	12 (86%)
	White — Other	1 (6%)	0 (0%)
Self-harm within the past month	Yes	14 (78%)	9 (64%)
	No	4 (22%)	5 (36%)
Criteria for DSM-IV BPD	Meets ≤ 3 criteria	2 (11%)	7 (50%)
	Meets four criteria	5 (28%)	3 (21%)
	Meets 5+ criteria	11 (61%)	4 (29%)

Table 3 Summary statistics for continuous quantitative measures

	BEST + TAU			TAU only		
	n	Mean	SD	*n*	Mean	SD
BPFSC						
Baseline	18	42.3	5.3	14	40.43	5.9
12 weeks	9	41.3	5.1	8	34.8	7.6
24 weeks	6	35.0	7	7	32.3	7.2
DERS						
Baseline	18	74.7	14.5	14	66.6	21.9
12 weeks	8	68.0	15.8	8	62.0	26.9
24 weeks	6	46.2	18.5	7	46.4	21.7
CASSS total						
Baseline	18	214.4	44.9	14	227.1	43.1
12 weeks	8	186.5	50.0	8	235.9	50.7
24 weeks	6	226.2	52.1	7	205.5	35.8
CASSS school						
Baseline	18	113.9	31.97	14	123.8	33.8
12 weeks	8	106.3	32.8	8	127.6	37.2
24 weeks	6	125	41.6	7	107.8	30.0
TUS structured activity	18	43.7	28.8	14	44.0	20.2
Baseline	8	46.2	25.3	8	42.8	22.2
12 weeks	6	30.7	19.4	7	19.7	16.4
24 weeks						

BPFSC, Borderline Personality Features Scale for Children; *DERS*, Difficulties in Emotion Regulation Scale; *CASSS*, Child and Adolescent Social Support Scale; *TUS*, Time Use Survey

those who completed the intervention ($n=31$) were rated against the fidelity checklist by members of the research team. Sessions were deemed adherent if they were rated 1 or 2 (component partially or fully present) on each of the core components for the session being delivered. A total of 93.5% of sessions were rated as adherent.

Table 4 Mean change from baseline for continuous measures

	BEST + TAU (*n* = 18)		TAU (*n* = 14)	
	Mean	**SD**	**Mean**	**SD**
BPFSC	−3.11	5.7	−5.1	5.5
12 weeks	−7.8	5.6	−7.1	3.5
24 weeks				
DERS	−14.4	16.6	−3.13	12.6
12 weeks	−37.2	21.1	−17.6	20.0
24 weeks				
CASSS total	−11.1	48.4	23.63	30.1
12 weeks	31.0	29.51	−18.7	33.9
24 weeks				
CASSS school	1.4	26.7	20.3	25.6
12 weeks	19.5	15.8	−7.7	24.5
24 weeks				
Structured activity (TUS)	−4.8	38.4	−6.5	17.4
12 weeks	−27.6	48.9	−27.6	25.5
24 weeks				

Acceptability of the intervention

In total, 31 participants (20 staff participants and 11 young people) took part in a focus group or in-depth interview to give qualitative feedback regarding their experience of the intervention. Practitioners who delivered the intervention, both school and college staff and mental health professionals, reflected that they enjoyed delivering the intervention and found it a useful learning experience. Practitioners also felt that the intervention was of benefit to the young people who received it; only one practitioner felt that it had not been of significant benefit to the young person they worked with (who was the only young person who themselves reported that they had not found the intervention helpful). Perceived benefits included better self-understanding, enhanced emotional and social literacy and improved coping skills.

This was mirrored in the perceptions of the young people. All but one of the young people interviewed said that had found the intervention valuable and believed it had helped them make positive changes. For instance, one participant who reported particularly wide-ranging benefits told us:

> *I've stopped self-harming, I have more friends … my family problem at home that got better, I haven't had many fights with my parents, haven't shouted at my parents yet, I haven't hurt my brothers, I haven't done, I haven't stole anything or anything, my schoolwork is getting better (Young Person).*

Co-delivery of the intervention by mental health and school/college staff was viewed as a valuable component of the intervention since it was reported to improve school and college practitioners' understanding of the behaviour of young people presenting with BPD symptoms and their confidence in their ability to provide ongoing support:

> *I've got a lot out of it, the experience, and you know the little things that you pick on the way you can use in the future with your young people (Education Practitioner).*

Further, the involvement of school or college staff was felt to improve young people's attendance and engagement. However, staff participants also highlighted the logistical challenges associated with co-delivery, chiefly the difficulty of arranging sessions to suit the availability of both practitioners and the timetable of the young person.

Young people's and practitioners' experience of participation will be discussed in more detail in a separate publication, including their views of the content and format of sessions, co-delivery model, and staff views of the training and supervision provided. Further, young people's and practitioners' view will be used in conjunction with processes observed to have occurred within recorded sessions to suggest possible mechanisms of action of the intervention and factors that may help or hinder the action of these mechanisms.

Contamination of control arm

We did not find any evidence of direct contamination of the control arm through provision of the intervention or its components to those allocated to receive TAU during the trial. However, some education practitioners reported that they had, or intended to, use resources or strategies from BEST in their wider practice, and/or that participating in BEST had changed how they viewed behaviours that may be symptoms of BPD. As such, it is possible that the implementation of BEST within schools and colleges may indirectly impact TAU over time, and this would need to be monitored in any future trial.

Health economic assessment

All health economic measures were found to perform adequately. The modified CSRI was able to be completed in full for most participants with little missing data. The measure was also generally acceptable; however, one item concerning service use by the participant's family on account of the participant's mental health or behaviour was reported by study research assistants as challenging to gather information on in a sensitive manner. Given the resource use for this item was comparatively low, this item could be omitted from the measure in a future study. Information on the resource use of participants is available in Supplementary Tables 3, 4 and 5.

Similarly, the EQ-5D-5L appears to have performed acceptably in this population; three out of five dimensions showed marked differences from full health (see Supplementary Table 6 and Supplementary Figs. 1 and 2 for further details). This shows potential for the EQ-5D-5L to capture change in the health-related quality of life of young people with BPD symptoms, suggesting it would be a good candidate for use in a future health economic analysis of the BEST intervention.

While the cost-effectiveness of the intervention could not be established in the current study, the total estimated costs of delivering the intervention were calculated as £1033 per participant (see Supplementary Tables 7 and 8 for details of this calculation). This would make the cost of the delivering the intervention very favourable compared to existing BPD interventions [37].

Serious adverse events

Four serious adverse events (SAEs) were recorded during this feasibility trial (three in TAU arm, one in BEST + TAU arm). These were three instances of overnight admissions to acute hospital wards following overdose of medication and one voluntary admission to a psychiatric inpatient unit after presenting to the emergency department in mental health crisis. None was deemed to be related to the study procedures.

Discussion

The aim of developing the BEST intervention was to facilitate early intervention for BPD symptoms through enabling evidence-based treatment to be provided within a young person's school or college. The need to improve the accessibility of mental health support has increased in urgency since this study was conceived due to the increased prevalence and severity of mental health difficulties among young people following the COVID-19 pandemic [38]. This was highlighted in a recent UK Health and Social Care Select Committee report [39] which recommended that the remit of school-based Mental Health Support Teams (MHSTs) now being rolled out across England [36] be expanded to provide support to young people with more complex presentations.

The findings of this feasibility study suggest that it is possible to deliver the BEST intervention within schools and colleges with good fidelity, and that it is acceptable to school and college staff, mental health practitioners and, most importantly, young people who receive the intervention. The intervention was perceived as being of value to participating staff, young people and the wider school community. The number, pattern and nature of the serious adverse events reported during the feasibility study (which were not unexpected given the participant group) did not raise any concerns about the safety of the intervention.

While the costs of delivering the intervention were considerably lower than for existing interventions for adolescent BPD [37], they would likely need to be reduced further to maximise future adoption, particularly in low- and middle-income settings. Since providing the initial practitioner training was a substantial contributor to the cost of delivery, maximising the number of young people receiving the intervention per practitioner trained and exploring the cost-effectiveness of competing training models [40] could reduce the costs to facilitate scalable implementation.

While participants reported having experienced the intervention as beneficial, this study was not powered to assess the effectiveness of the intervention. Therefore, further research would be needed to establish whether the intervention improves outcomes before widespread implementation could be recommended. We believe the results of the current study provide support for continuing the programme of research and suggest that randomising participants and following them up to 24 weeks would likely be feasible. However, we also identified several barriers that would need to be overcome for a definitive trial of the intervention to be successful. Most of these closely aligned with factors identified in an evidence synthesis of barriers and facilitators to implementation of indicated mental health interventions within education settings completed as part of an early stage of this study [23].

Difficulties identifying potentially eligible young people led to lower than anticipated referral rates during the feasibility study. Recruiting to mental health trials has been recognised as challenging [41], and there are particular barriers to recruitment relating to children and young people's mental health services [42]. Most referrals to this trial were received directly from schools and colleges rather than from mental health professionals. This referral route has the potential to facilitate earlier intervention but only if schools and colleges are well equipped to identify young people who may benefit [43]. Offering training to all staff to enable them to recognise possible symptoms of BPD may achieve this aim [44] but would constitute an intervention in itself, with corresponding implications for the design of a future evaluation.

Relatedly, the use of medical/diagnostic language and use of clinical thresholds for eligibility created some difficulties within the non-clinical setting of schools and colleges. Potential referrers were mostly unfamiliar with the BPD diagnosis and expressed frustration that young people who they felt would benefit from the intervention were ineligible to participate. There has

also been a recent paradigm shift in the classification of personality disorders (reflected in the ICD-11 and DSM-5 Section III), reflecting the view that personality functioning is better understood as a dimensional continuum rather than as distinct categories of disorder [45]. Therefore, broader inclusion criteria less closely tied to the categorical conception of BPD may be warranted in future work.

In addition, we encountered frequent logistical challenges associated with secondary mental health staff co-delivering an intervention within schools and colleges. While the consensus among staff participating in the feasibility study was that these challenges were outweighed by the benefits, we anticipate that they would prove prohibitive to widespread and sustained implementation. However, the accelerated national roll out of MHSTs means that there is now an expanding school-based workforce of education mental health practitioners (EMHPs) trained to deliver evidence-based interventions to children and young people [46, 47]. Given EMHPs have similar levels of training to staff who delivered the BEST intervention successfully in the feasibility study, we believe they would be well placed to deliver BEST. Offering qualified EMHPs training to deliver BEST, supervised by more senior colleagues, would enable MHSTs to offer appropriate and timely support to young people who might otherwise fall between the gap of MHSTs 'mild to moderate' remit and increasingly high thresholds for specialist services [47].

Further, participating school and college staff members reported gaining a better understanding of BPD symptoms through their involvement and valued having a clear therapeutic model for providing support. Since staff reported that their experience of delivering BEST would influence their wider work within their school or college, a future study may need to be cluster randomised to account for wider school or college impacts.

Limitations

The disruption to and premature closure of the study due to the COVID-19 pandemic reduced the window for recruitment and the amount of data it was possible to collect. Further, since the follow-up period overlapped with a period of national lockdown, we can have less confidence in the transferability of the findings regarding participant retention than would otherwise have been the case. As such, the conclusions drawn from the study are more tentative than they might otherwise have been. However, we were nonetheless able to answer our key feasibility questions and generate findings to inform the design of a future evaluation.

Conclusion

The BEST intervention represents a promising approach to providing young people experiencing BPD symptoms with timely evidence-based support. We believe that MHSTs would be well placed to provide the intervention and, therefore, are currently developing a protocol for a future study evaluating the impact of training qualified EMHPs to deliver BEST within schools and colleges.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s40814-025-01679-5.

Supplementary Material 1. Supplementary figures: Supplementary Figure 1. Baseline EQ-5D-5L by response level. Supplementary Figure 2. Combined EQ-5D-5L dimension scores for all time periods by response level. Supplementary tables: Supplementary Table 1. Overview of BEST intervention sessions. Supplementary Table 2. Characteristics of schools and colleges involved in the feasibility trial. Supplementary Table 3. Reported use of school-based services. Supplementary Table 4. Reported use of medicines. Supplementary Table 5. Reported use of hospital and community services. Supplementary Table 6. EQ-5D-5L and EQ-5D-VAS scores. Supplementary Table 7. Costs of providing workshop training. Supplementary Table 8. Estimated cost of providing intervention.

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Authors' contributions

JW, BG, NM, SM, JM, TC and PF contributed to the initial conception and development of the study. JW was the study's chief investigator, responsible for its overall leadership. NM and SM co-developed the BEST intervention, wrote the first draft of the description of the intervention, led the training and supervision of practitioners and monitored intervention fidelity. JM designed and oversaw the process evaluation component of the study, supported by TK. TC provided trial management support, supervised members of the study team and contributed to interpretation of findings. AC was the study's statistician; he wrote and implemented the statistical analysis plan. DT was the study's health economist, responsible for the design and conduct of the health economic component. PBJ provided scientific and clinical oversight. PF provided academic mentorship to the wider study team and methodological and clinical advice on the design and conduct of the study and interpretation of findings. BG co-ordinated recruitment, data collection and data management and contributed to intervention refinement and data analysis. BG wrote the first draft of this manuscript. All authors contributed to and approved the final manuscript.

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Data availability

This datasets for the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Written informed consent (or written informed assent and parental consent in the case of participants aged under 16 years) was obtained for all participants. The study received Health Research Authority approval following confirmation of a favourable ethical opinion by Yorkshire and the Humber — South Yorkshire Research Ethics Committee (Ref.: 18/YH/0416).

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Author details

[1]Norfolk and Suffolk NHS Foundation Trust, Hellesdon Hospital, Drayton High Road, Norwich, UK. [2]Norwich Medical School, University of East Anglia, Norwich Research Park, Norwich, UK. [3]School of Life Course and Population Sciences, King's College London, London, UK. [4]Department of Psychiatry, University of Cambridge, Cambridge, UK. [5]Anna Freud National Centre for Children and Families, London, UK. [6]Department of Clinical, Educational and Health Psychology, University College London, London, UK.

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