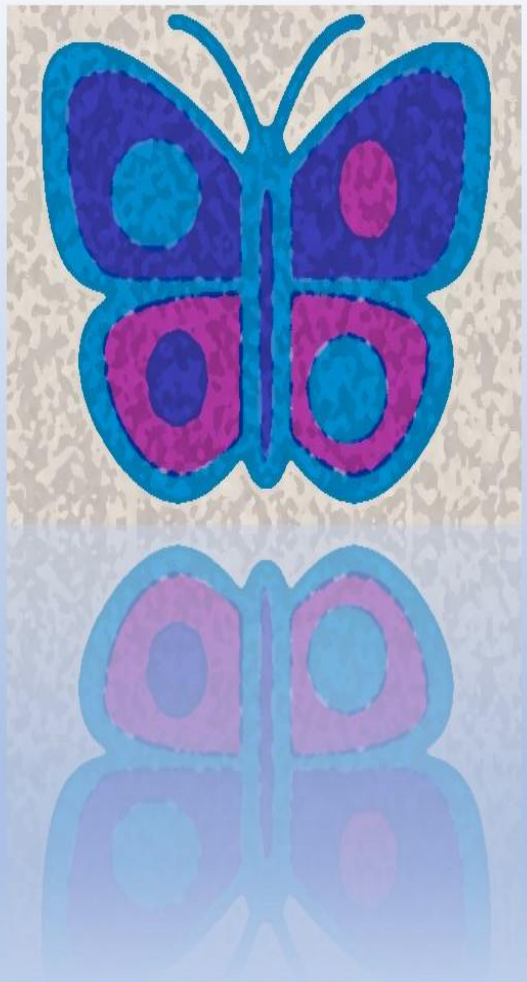
Northumbria University NEWCASTLE

NHS

Positive Behavioural Support Workforce Development Programme

Final Evaluation Report



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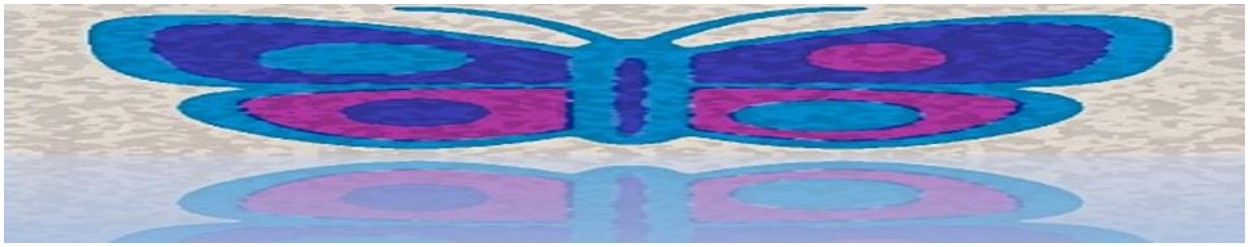


Summary

Background

The report outlines the results of the evaluation of what, to our knowledge, is the first region wide, multi-component, systemic workforce development (WFD) approach to Positive Behavioural Support. The overall approach aimed to increase the competence, knowledge, confidence, and skills of those supporting people with a learning disability and/or autism in community settings, with the ultimate aim of improving the quality of life of those being supported. Here, we evaluate one important strand of the approach: the impact of undertaking an accredited qualification in PBS. It should be emphasised, however, that this aspect was delivered in the wider context of significant cultural, organisational, and structural changes that the WFD approach had both driven and facilitated. Without the hard work, collaboration and cooperation of multiple stakeholders, the project and associated evaluation would not have been possible.

Who took part in the evaluation?

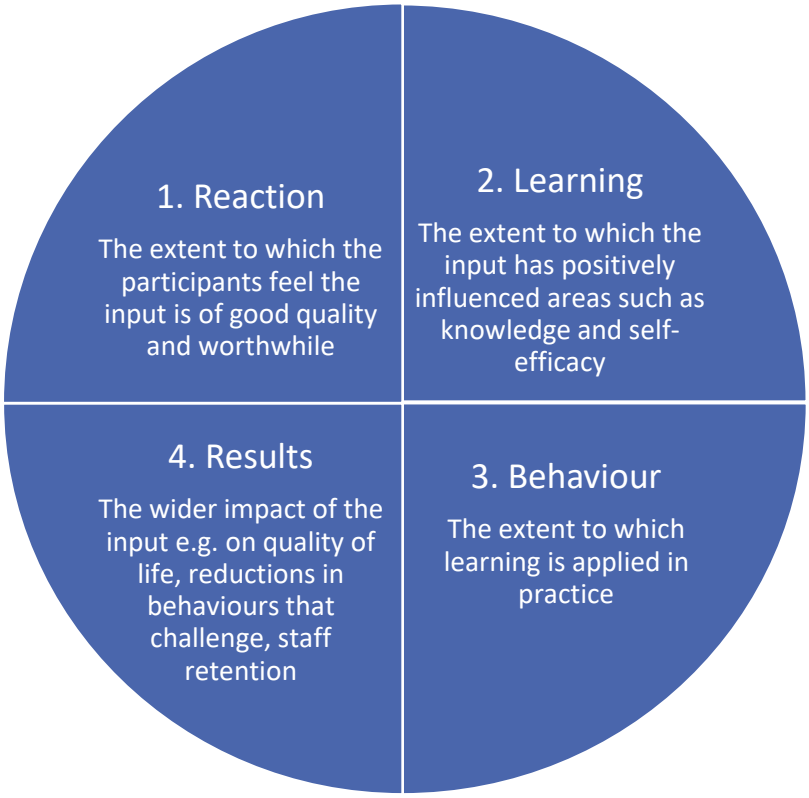
Two main groups participated in the evaluation: those who took part in the accredited PBS programme (n = 240) and a control group of staff who did not (n = 54). Staff in both groups provided support to people with a learning disability and/or autism in a community setting. In addition, eight people with a learning disability completed a measure of quality of life.

How was the evaluation carried out?

All of the participants were asked to complete a number of different measures at the same time points: 4-6 weeks before the accredited programmes began, at the end of the accredited programmes and 3 months after the programmes ended. Not all participants completed all measures at the three different time points, due to factors such as staff moving services or leaving their jobs.

What did the evaluation measure?

The evaluation was structured based on the Learning Evaluation model outlined by Kirkpatrick & Kirkpatrick.[1] This has four levels: Reaction, Learning, Behaviour, and Results, as shown below.



What were the results of the evaluation?

The results for each level of the evaluation are summarised below:

Reaction

Here we measured the extent to which the PBS group participants viewed the input in terms of quality and relevance.

- **The programme was viewed very positively by a large majority of participants; the teaching, support, and supervision were reported as being of high quality and relevant to practice.**

Learning

- **The programme resulted in a significant increase in attributions for challenging behaviour as learned behaviour in the PBS, but not the control group.**

- **Self-efficacy increased for both the PBS and control groups, however there was no statistically significant difference between the two groups over time.**

- **Both the PBS and control groups had increased scores at follow-up, as compared with baseline, in reported responses in relation to the best ways to manage behaviours that challenge. The PBS group had a greater average increase in scores, compared with the control group, although this was not statistically significant.**

Behaviour

- **There was a statistically significant improvement over time in the practice of the PBS group in relation to the development, understanding and implementation of behaviour support plans, in comparison with the control group.**

- **There was a statistically significant increase over time in the PBS group in the extent to which the behaviour support plans reflected positive approaches and were based on a functional assessment and understanding of behaviour, as compared with the control group.**

Results

The impact evaluation results showed:

- **A range of positive impacts at individual, team, organisational and system wide levels, including better engagement and relationships with families and reduced stress.**

- **Positive changes for those being supported in terms of better and more consistent support, reduced behaviours that challenge, and increased quality of life.**

In relation to behaviours that challenge and quality of life, we found that:

- **The average overall number and frequency of behaviours that challenge fell over time in those supported by the PBS group, whereas the number for those supported by the control group rose. These differences were not, however, statistically significant.**

- **The average quality of life scores increased slightly over time for the PBS group and fell slightly for the control group. The difference between the groups was not, however, statistically significant.**

- **There were increases over time in the overall and 'social' activities of those being supported by participants in both the PBS and control groups, although the difference between the two groups was not statistically significant.**

In relation to staff work -related stress and retention we found:

- **There were no significant differences between the PBS and control groups in work related stress, indicating that participating in the programme had not increased the stress of the PBS group.**

The staff in the PBS group were significantly more likely to still be in their job at follow-up, in comparison to the control group, indicating that the PBS programme had a significant, positive impact on staff retention.

Conclusion

Overall, the results of the evaluation demonstrate that the PBS programme was viewed as being of high quality and relevant to practice. In terms of learning, it led to a significant increase in causal attributions about behaviour that challenge as learned behaviours, for those in the PBS group. This change reflects the theoretical models used in PBS, with behaviours that challenge being conceptualised as learned responses.

In terms of behaviour, the practice of the PBS group improved significantly over time, as compared with the control group. This was measured in two ways:

1. In relation to the development, understanding and implementation of behaviour support plans.
2. The extent to which the plans reflected positive, value-based approaches and functional assessment and understanding of behaviour, both of which are key to Positive Behavioural Support.

In terms of results, the qualitative feedback was that the PBS programme had resulted in significant, widespread, and positive changes. These included: increases in the quality of life of the people with a learning disability and/or autism who were being supported; reductions in behaviours that challenge; changes in organisational policies and practices; and improvements in staff retention.

A number of these elements were also evaluated over time, in comparison with the control group. These comparisons indicated that those supported by participants in the PBS group showed reductions in the number and frequency of behaviours that challenge and increases in quality of life over time. The opposite pattern was found for the control group, however, the differences between the two groups were not sufficiently great to be statistically significant.

There was some concern that undertaking the PBS programme on top of work would increase the stress levels of staff in the PBS group. The evaluation found, however, that there was no significant difference in stress between the PBS and control group, and that levels fell for both groups over time. It was also found, consistent with the qualitative reports of a positive impact of the programme on staff retention, that those in the PBS group were significantly more likely to still be in their job at follow-up, as compared with the control group.

Despite the limitations of the evaluation and the challenges of conducting the second follow-up in the context of Covid-19 and the associated restrictions, the overall results indicate that the PBS programme resulted in a number of significant, positive changes for participants and those they support.

Background

The development and implementation of policies such as 'Transforming Care,'[2] have been driven by reports of poor quality support, and, in some cases, the abuse of people with a learning disability and/or autism. A key strand of the policy has been the move to reduce inappropriate, hospitals care and replace this with community-based support. This change requires a workforce that is competent, with skills and values that are consistent with person-centred care,[3] in order to support people with varied and often complex needs, including behaviours that challenge.[4]

Positive Behavioural Support (PBS) is a values-based, functional approach, that views behaviours that challenge as serving a purpose for the person. The aim of PBS is to use comprehensive assessment and behavioural analysis to understand this purpose. Proactive approaches can then be developed to address the function of the behaviour, improve the quality of life of the person, and, thereby, reduce the need for them to display behaviours that challenge. In addition, reactive strategies can be used to minimise the risk to the person and others if the behaviour arises.[5]

There is a significant body of research indicating that PBS is an effective approach,[6,7,8,9] which is acceptable to people with a learning disability and their families.[10,11]

Staff training in PBS has been shown to result in improvements in staff knowledge and confidence and reductions in behaviours that challenge (see [12]). Some researchers have also explored changes in the quality of life of those being supported and in staff practices.[9,12,13,14]

The input available to staff about PBS often takes the form of short training courses which do not take into account the wider context in which they work. This is despite the long-standing recognition of the need for a systemic, multi-component approach to the development and delivery of PBS.[9,15,16,17] Workforce development (WFD) offers such an approach.

WFD differs from staff training in that it recognises and takes account of the different contexts in which staff work and the organisational, structural, attitudinal, and other factors that influence the individual learner.[21]

A systemic PBS approach, which was underpinned by a WFD model developed by McNall,[18] was developed and implemented within the North-East of England and Cumbria. Its development was shaped by previous research[19,20] that indicated that across the region there was:

- Very limited or no requirement for services to offer PBS within the commissioning specifications or monitoring processes at that time.
- No unified approach to PBS workforce development with the most common approach being a staff training model.
- Limited consistency in the ways in which training was assessed or accredited.
- Limited ways of assessing staff competence.
- Limited opportunity for trained staff to transfer their learning into practice.
- Limited use of evidence-based learning and teaching methods for adult education in the design and delivery of staff training.
- Difficulty recruiting and retaining support staff, with an associated negative impact on quality and continuity of care.

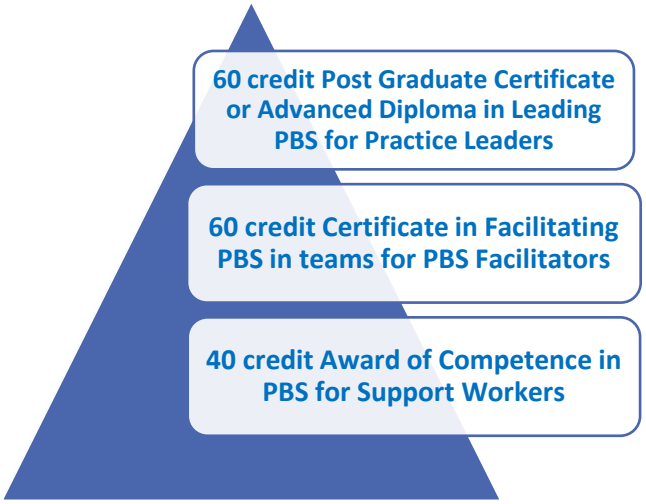
The results indicated an urgent need for a standardised approach to learning, teaching, and assessment of PBS as well as the development of infrastructure for delivery, support, and

supervision at scale across the regions. A multi-component WFD plan was developed in collaboration with multiple stakeholders and subsequently implemented. This comprised:

- The appointment of two PBS Senior Clinical Trainers who delivered a programme of PBS awareness sessions across the participating regions.
- The provision of a bespoke version of a Post Graduate Certificate in Teaching and Learning in Professional Practice which was offered to NHS PBS specialists.
- The development of three clinical leaders in PBS posts (WFD managers).
- The development of a PBS regional community of practice.
- The development, validation, and delivery of an educational programme, which represented a collaboration between the NHS and the local university.

The latter was commissioned by the NHS and offered three accredited qualifications (see figure 1).

Figure 1: The accredited qualifications offered by the PBS programme



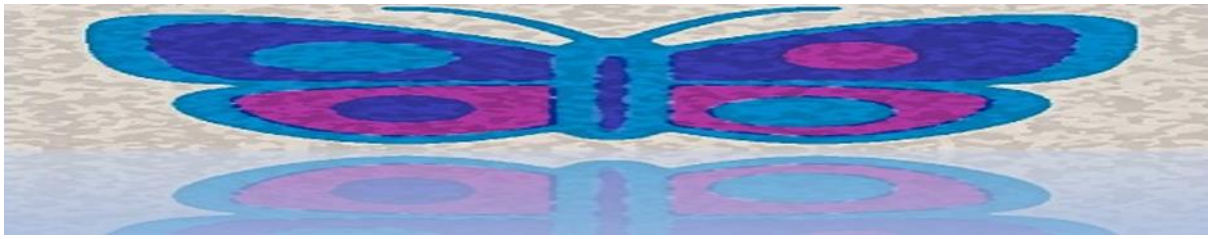
The programme was designed using a cascade model, to ensure that it could be delivered at scale and across the region (see figure 2).

Figure 2: Cascade model underpinning the PBS Programme

The WFD Managers supported the delivery of the PBS programmes, and provided supervision, support, and assessment of the PBS competencies, along with Practice Leaders. The Practice Leaders undertook the latter with the PBS Facilitators who, in turn, provided this to Support Workers.

To date, the programme has been delivered to 30 Practice Leaders, 106 PBS Facilitators, and 181 Support Workers.

An independent evaluation of the programme was also commissioned by the NHS and this report outlines the results of this evaluation.



Method

Design and ethical approval

The evaluation used both quantitative and qualitative methods. Information was obtained from questionnaires completed online and in person as well as from interviews undertaken with participants. This was gathered at three time points: before the PBS programme began, at the end of the programme, and three months after the programme ended. Ethical approval for the study was obtained from Northumbria University ethics committee and all those taking part provided informed consent.

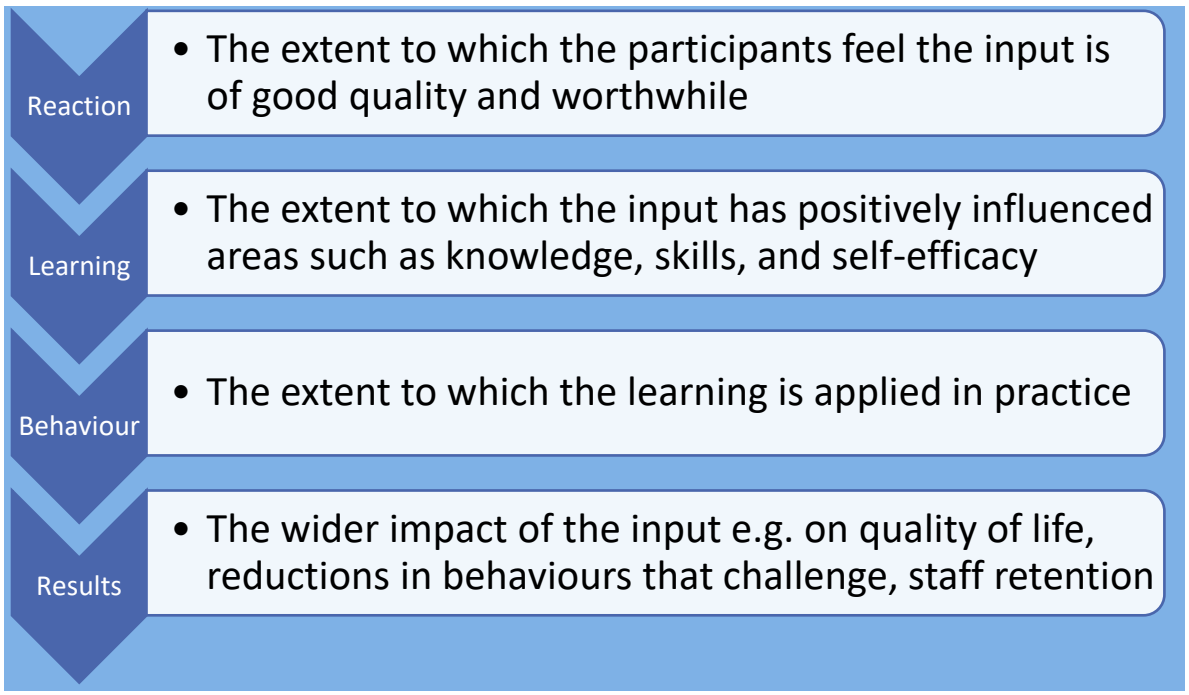
Participants

Participants were from two groups: those who took part in the PBS programme and a control group of those who did not. As the programme was based on a cascade model, some of those in the control group had input into their service from staff who had taken part in the PBS programme. Staff in both groups provided support to people with a learning disability and/or autism in a community setting. In addition, eight people with a learning disability completed a measure of quality of life (see 'measures' section below for more details). Not all participants completed all measures at the three different time points for several reasons including moving services or leaving their job, and the numbers completing each component are given in the relevant section.

Measures

The evaluation was structured based on the updated Learning Evaluation model outlined by Kirkpatrick & Kirkpatrick,[1] as depicted in figure 3 below. The measures were selected to evaluate each of the four components.

Figure 3: The four levels of learning evaluation outlined by Kirkpatrick & Kirkpatrick,[1] as applied to the current evaluation



Reaction

Quality of the PBS Programme

Participants on the PBS Programme were asked to rate the quality of the teaching, supervision, and programme overall on a 6-point scale, ranging from very poor = 1 to very good = 6, with higher scores indicating higher perceived quality. In addition, a subsample of participants was interviewed to explore their views about the programme in more detail.

Learning

All participants were asked to complete the following measures:

Self-efficacy

This was measured using the 'Challenging Behaviour Self-Efficacy Scale'.[22] This is rated on a 7-point scale and the responses to each question are added to give a total score. The possible range of scores is from 5-35. A higher score indicates a greater feeling of self-efficacy in relation to managing behaviours that challenge e.g. confidence, control, and perceived positive impact.

Attributions

These were measured using the 'Challenging Behaviour Attributions scale' (CHABA).[23] Participants were asked to rate the likelihood of a series of statements as being the cause of a person's behaviour, from very likely to very unlikely. These fall into categories such as learned behaviour (positive, negative, and combined), biomedical, emotional, environmental, and stimulation. The average score for each category is calculated, with a possible range from -2 to 2. A score less than 0 indicates the person thinks the category in question is unlikely to be relevant in relation to the cause of the behaviour, while a score above 0 indicates the person thinks it is applicable.

Responding to behaviours that challenge

This was measured by asking participants to describe what they thought were the best ways to successfully manage behaviours that challenged. Responses were coded in accordance with the PBS Competence Framework.[24] For example, a response that included the phrase 'Put in proactive strategies to ensure an individual has a meaningful and good quality of life' would receive the codes of PR (indicating that proactive strategies had been identified), and VL (to indicate the response was values-led). Each relevant code received a score of 1. If the code was repeated in the response, only one point was given. Fifty percent of responses were coded by two raters to help ensure consistency

and differences in coding were resolved through discussion. The possible range of scores was between 0 and 32.

Behaviour

Participants who provided direct support on a regular basis to a person with a learning disability and/or autism were asked to complete the following measures in relation to the main person they supported:

Behaviours Support Plans

A subgroup was invited to take part in individual interviews about their practice in relation to those they supported, as outlined in the person's Behaviour Support Plan. The interview was structured in line with a Periodic Service Review (PSR) model[25] which was adapted from that used by McKenzie et al.[26]

The categories that were covered included:

- the description of any behaviour that challenged;
- how this was recorded and reviewed;
- its identified function;
- the proactive and reactive strategies that were used to support the person;
- any functionally equivalent behaviours that the person was taught;
- any other factors that were taken into account e.g. the person's physical health;
- the ways in which and how often the plan was reviewed;
- and the involvement of the person with a learning disability and/or autism in the plan.

Participants could score a minimum of 0 points and a maximum of 28 points.

In addition, each participant was scored on the extent to which their responses evidenced that the plan: reflected positive approaches, was based on observable and measurable behaviour,

had responses related to, and which were consistent with, the identified function of discrete target behaviours. Here participants could score between 5 and 25 points, with a higher score indicating a more robust plan.

Results

Impact of the PBS programme.

To evaluate the wider impact of the programme, participants in the PBS group and other stakeholders, such as commissioners, were asked to rate the impact of the programme on a number of different factors. This included the impact on:

- those people with a learning disability and/or autism who were being supported;
- knowledge, practice, and work-related stress;
- organisational policy and strategy;
- sharing good practice;
- and commissioning/tendering for services.

Ratings were on a 5-point scale from extremely negative = 1, to extremely positive = 5. Higher scores indicated a more positive impact. In addition, a variety of stakeholders were interviewed about the impact of the programme, in order to obtain a more detailed view.

Behaviours that challenge

Participants were asked to report on the type and frequency of behaviours that challenge of the main person they supported in the previous month. Severity was measured on a 6-point scale from 0 = not severe at all, to 5 = very severe.

Quality of life

The quality of life of those being supported was evaluated in two ways. The first used a measure designed for the project. This included questions that related to the 'Five Accomplishments'[27] (i.e.

Respect, Relationships, Competence, Choice and Community Presence), as well as the categories identified in the 'Seven Keys to Citizenship'[28] (i.e. Direction/Purpose, Freedom, Money, Home, Help, Life and Love). Each item on the measure was scored 'yes' or 'no.' Possible scores ranged from 0 to 48, with higher scores indicating a greater quality of life. This measure was completed by participants and, where possible, by the person with a learning disability and/or autism.

The second used the 'Guernsey Community Participation and Leisure Assessment – Revised.'[29] This measures frequency of community use and other activities in the following domains: services, vocational activities, leisure, social, facilities/amenities, as well as providing a total score. Ratings are on a 5-point scale from never = 0 to daily or more frequently = 5, with a possible range of total scores between 0 and 230. A higher score indicates greater engagement in activities.

Work-related stress

This was measured using the 'Perceived Stress Scale.'[30] This asks participants to rate their stress-related thoughts and feelings on a 5-point scale (never to very often). Some items are reverse scored and there is a possible range of 0 to 40. A lower score indicates less stress. In the present study, participants were asked to respond to the questions in relation to their work.

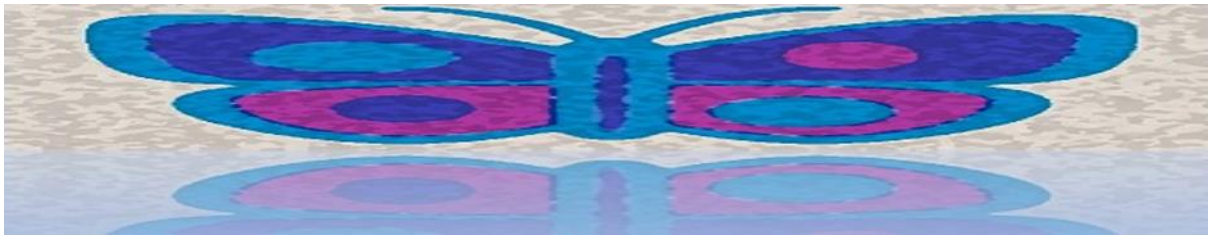
Staff retention

The impact of the programme on staff retention was measured by asking participants in the PBS group and control group to report on whether they remained in the same job, were actively seeking a new job, or had left their previous job at follow-up 1 and at follow-up 2.

Data Analysis

Quantitative data were analysed using a range of statistical procedure as appropriate to the type of data. The impact of the PBS intervention on most of the main study outcomes was tested using a series of multi-level models (MLMs). For each relevant outcome, an MLM was fit, in which time (baseline, follow-up 1, and follow-up 2) was included as a level-1 predictor and group (PBS group

versus control group) as a level-2 predictor. Missing data was dealt with by using multiple imputation, where appropriate. Demographic information, mean scores etc presented in the report are based on the original data. In order to reduce the impact of multiple comparisons on the results, analyses were conducted on the main outcome measures only. Qualitative data from interviews were transcribed and analysed using thematic analysis.[31]



Results

Presentation of results

For ease of reading, the statistical results are given in Appendix 1.

Characteristics of the participants

In total, 299 individuals participated, of whom 240 were in the PBS group and 54 were in the control group. The group status of five participants could not be established. Table 1 provides the demographic information for the two groups. There were no significant differences between the PBS and control groups at baseline in respect of age, gender, years working in learning disability services, previous PBS training, ethnic origin, level of qualification or type of role. Of the total sample, 241 participants reported that they provided direct support on a regular basis to a person with a learning disability and/or autism (194 = PBS group, 46 = control group, 1 = missing data).

Of those people being supported, the ages ranged between 13 and 76 years (mean = 37.1, SD = 14.5), 136 (65.7%) were male, 70 (33.8%) were female and one person was coded as 'other' (0.5%). Information on gender was missing for 34 people. In terms of level of learning disability, 17 (8.8%) were reported as having a mild learning disability, 45 (23.3%) a moderate learning disability, 49 (25.4%) a severe learning disability, and 2 (1%) a profound learning disability. The level of learning disability for 80 people (41.5%) could not be determined from the responses and this information was missing for 48 people.

Table 1: Demographic information for the PBS and control groups

Intervention					
Gender	**Male** **Number (%)** 62 (25.8)		**Female** **Number (%)** 178 (74.2)		
Ethnic origin	**White British/British** 232 (97.9)		**Other** 5 (2.1)		
Previous PBS Training	**Yes** 116 (57.1)		**No** 87 (42.9)		
Age (years)	**Mean (SD)** 40.6 (10.8)		**Range** 19-63		
Years working in learning disability services	12.3 (8.5)		0.5-35		
Qualification	**School level** 40 (17.6)	**Vocational** 117 (51.5)	**Degree/Postgraduate** 55 (24.2)	**Other** 14 (6.2)	**None** 1 (0.4)
Role	**Direct Support** 109 (48.4)	**Managerial** 88 (39.1)	**Team leader** 16 (7.1)	**Other** 12 (5.3)	
Control					
Gender	**Male** **Number (%)** 14 (25.9)		**Female** **Number (%)** 40 (74.1)		
Ethnic origin	**White British/British** 51 (100)		**Other** 0 (0)		
Previous PBS Training	**Yes** 29 (58)		**No** 21 (42)		
Age (years)	**Mean (SD)** 43.4 (10.8)		**Range** 24-64		
Years working in learning disability services	10.4 (7.8)		0.5-34		
Qualification	**School level** 12 (23.5)	**Vocational** 25 (49)	**Degree/Postgraduate** 12 (23.5)	**Other** 0 (0)	**None** 2 (3.9)
Role	**Direct Support** 28 (54.9)	**Managerial** 11 (21.6)	**Team leader** 9 (17.6)	**Other** 3 (5.9)	

Outcome measures

The results are presented according to the four levels of learning evaluation outlined by Kirkpatrick & Kirkpatrick,[1] as applied to the current evaluation.

Reaction

This first section reports on the reactions of the PBS group in relation to their views about the quality and relevance of the programme.

Quality of the PBS Programme

Overall, 107 participants in the PBS group provided ratings about their experience of different aspects of the programme, as shown in Table 2.

Table 2: PBS group participants' ratings of their experiences of different aspects of the programme

	Very Good	Good	Quite Good	Adequate	Poor	Very poor
			Number (%)			
Quality of the teaching	84 (79.2)	17 (16)	4 (3.8)	1 (0.9)	0 (0)	0 (0)
Quality of the supervision	55 (51.4)	31 (29)	6 (5.6)	10 (9.3)	5 (4.7)	0 (0)
Overall experience of the programme	71 (66.4)	28 (26.2)	5 (4.7)	2 (1.9)	1 (0.9)	0 (0)

These results indicate that the vast majority of those who underwent the PBS programme rated the different components as good or very good.

Qualitative feedback on the programme

Twenty-three of the PBS group participants agreed to be interviewed to provide more in-depth feedback about the programme. The results are outlined below, with illustrative quotes.

Direct teaching, supervision, and support

The feedback about the teaching content and delivery, supervision, and support was very positive.

> *The support has been second to none from the tutors, the university, everyone's been so helpful.*
>
> *The course has been fantastic, the delivery of it has been fantastic.*
>
> *I've thoroughly enjoyed it and I think the, the college days, the university one to one teaching days have been absolutely fantastic, and all the tutors.*

The experience and enthusiasm of the staff was repeatedly commented on and the face to face days left the students engaged and inspired.

> *The actual study days they're incredibly engaging…at 4 o' clock we're all leaving, we're all buzzing, we're all sort of like right this is great, we're gunna go change the world… Yeah, it's been great, I've really enjoyed it.*
>
> *The course has been amazing to be honest. I mean all the people that are on the programme, they're all saying when you come out when you've had a session with [name omitted] in the afternoons and you come out skipping really, you're absolutely bouncing from it.*

Overall, the programme was viewed very positively.

…but honestly when I say I can't, I literally cannot put into words how amazing the course has been, so yep.

it's remarkable and really impressive and the fact that I feel completely honoured to be part of that and I'm a proper geek so anything like that, I just feel like I honestly I can't stress enough how much it means to me to be part of it and be on the course.

Programme structure and materials

The students felt that the teaching was pitched at the correct level and a number commented on the benefits of the eLearning materials, although one student felt there was a bit too much emphasis on eLearning.

They've all been pitched at the right level and they've been really useful.

I think there's a little bit too much eLearning when you're trying to do everything else but everything in it was very relevant and I have learnt a lot from it.

The eLearning has been brilliant because you can do it at your pace when you're at home.

Comparison with other training programmes

Most of the students had undergone other teaching in relation to PBS and many drew comparisons.

A key benefit was the transferability of the learning to the workplace.

I think it's probably the best training programme I've ever done. Yeah, and I did a postgrad with (uni name), I've done the BILD training, I've got a diploma in care, but this, it's been pitched perfectly in that it's a university course, the right supports there, but it's so transferable to the workplace.

I did the PBS BTEC but that was just you passed the course, you didn't necessarily get huge amounts of feedback. It was kind of based on competence but nowhere near the level you're assessed to it in here.

I did the BILD 3 days coaches training, and as good as it was, it didn't have that wide reach and it didn't give me the tools to implement it and change people's quality of life as obviously on a day to day basis.

Areas to consider going forward

The students raised some issues relating to the workload across the programme and the need for more time to consolidate learning about more complex concepts.

So maybe a review of actual course content or duration because I think I wouldn't want to reduce any of the course content, it's been fantastic. I think nine months has been really pressurised.

Where it is a little bit more complex and new to people that that information is delivered more directly rather than sort of on the role within supervisions.

Resource implications

Many of the students highlighted the resource implications of the programme and the need for them to commit significant time and energy to the process. The students also highlighted the logistical challenges of freeing up other staff to attend the programme. Having organisational support was seen as very important in helping staff manage the demands of the programme.

It would be ridiculous to say it doesn't create extra workload but… I think we have addressed things that have helped reduce some of the behaviours that were taking up a lot of time. So even though it's like a front-loaded lot of energy, over time you reap the rewards.

We want people to go out on training so we just change our rotas around a little bit and give people extra hours if they want to work them so logistically because we're a small organisation, we're able to do that.

I think the organisations been really supportive, as well by giving study days.

Overall, the programme was viewed very positively. It was reported as providing good quality teaching, support, and supervision, and learning that was directly applicable in practice.

Learning

This section explores the extent to which the input has positively influenced areas such as knowledge, skills, confidence, and self-efficacy. Here we evaluate the impact on the PBS group, as compared to the control group, and any significant differences in their scores over time.

A total of 299 participants completed this measure (240 = PBS group, 54 = control group, 5 = group status unknown). The reported mean scores omit those participants for whom group status was unknown. Table 3 illustrates the range, mean score, and standard deviation (SD) for the PBS and control groups for the variables explored in this category.

Table 3: The mean score and standard deviation (SD) for the PBS and control groups for the variables explored in the 'learning' category.

	PBS Group			Control group		
	Baseline Mean (SD)	Follow-up 1 Mean (SD)	Follow-up 2 Mean (SD)	Baseline Mean (SD)	Follow-up 1 Mean (SD)	Follow-up 2 Mean (SD)
Self-efficacy	24.8 (5.5)	27.7 (4.0)	27.3 (3.6)	25.3 (4.3)	26.9 (3.8)	27.8 (4.9)
Learned Negative and Positive Attribution	1.0 (0.56)	1.2 (0.66)	1.0 (0.68)	0.98 (0.62)	0.83 (0.36)	0.60 (1.1)
Responses to behaviours that challenge	2.5 (1.7)	4.1 (2.3)	3.6 (1.6)	2 (1.2)	2.8 (1.6)	2.2 (0.75)

Self-efficacy

Self-efficacy measures the extent to which the participants feel that they have confidence, control, and success in responding to behaviours that challenge. A higher score indicates a greater feeling of self-efficacy.

The results indicated that self-efficacy increased for both the PBS and control groups, but that there was no statistically significant difference between the two groups over time.

Attributions

Attributions refer to the beliefs that people have about the causes of behaviours that challenge. PBS is a functional approach, that has an emphasis on behaviours that challenge as learned responses. In line with this, and the assumptions underlying the scale used in the evaluation,[23] it was explored whether the PBS intervention group would be more likely to endorse causes relating to learned behaviour following the PBS input, as compared with the control group.

The results indicated that there was a significant increase for the PBS group from baseline to follow-up 1 for the endorsement of behaviours that challenge being due to learned behaviour There was no significant change in scores for the control group.

This indicated that the input resulted in the participants in the PBS group being significantly more likely to attribute the causes of behaviours that challenge to learned behaviour immediately after training, as compared to before training.

Responding to behaviours that challenge

In this measure, the scores reflected independent ratings of participants' responses to the question of the best ways to effectively manage behaviours that challenge. Higher scores indicated greater awareness of the most important factors.

The results indicated that the both the PBS and control groups had increased scores at follow-up, as compared with baseline. The PBS group had a greater average increase in scores, compared with the control group, although this was not statistically significant.

Behaviour

This measured the extent to which learning was applied in practice, in relation to the ways in which behaviour support plans were developed, understood, and implemented.

At the time that follow-up 2 data were collected, Covid-19 restrictions were in place. This meant that many activities were not available to those people with a learning disability and/or autism who were being supported. In order to identify the potential impact of this on staff practice and the quality of life of those being supported, participants were asked about the impact of Covid-19 restrictions. Table 4 illustrates the mean scores and standard deviations in relation to each aspect. A lower score indicates a less positive impact.

Table 4: Mean scores and standard deviations in relation to the impact of Covid-19 on staff and those they supported

Area of impact	PBS group	Control group
	Mean (SD)	**Mean (SD)**
Applying **knowledge of PBS in practice**	3.0 (1.1)	3.5 (1.3)
Carrying **out the behaviour support plan of the main person you support**	2.8 (1.1)	3.2 (1.2)
Feeling **confident in effectively managing behaviours that challenge**	3.6 (1.0)	3.9 (0.99)
Work related stress	2.6 (0.94)	2.5 (0.85)
The activities of the main person you support	2.3 (1.3)	2.4 (1.6)
The behaviours that challenge of the main person you support	2.6 (1.1)	2.9 (0.99)
The quality of life of the main person you support	2.4 (1.2)	2.5 (1.2)

A series of independent t-tests found no significant differences between the PBS and control group in relation to the impact of Covid-19 restrictions on them.

Behaviour Support Plans

This aspect of the evaluation explored the impact of the PBS programme on the ways in which the participants developed, understood, and implemented the behaviour support plans of the main people they supported. A higher score indicated better practice. Responses were also rated overall in relation to the extent that they evidenced that the plan:

- reflected positive approaches;
- was based on observable and measurable behaviour;
- and had responses related to, and which were consistent with;
- the identified function of discrete target behaviours.

As above, a higher score reflected better practice. Table 5 presents the scores for the PBS and control groups over time in relation to the behaviour support plans.

Table 5: The scores for the PBS and control groups over time in relation to the behaviour support plans.

	PBS Group			Control group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Behaviour Support Plan Practice	41.0 (34.0)	66.6 (39.5)	83.9 (28.2)	41.8 (31.8)	35.3 (36.4)	52.2 (40.4)
Behaviour Support Plan response ratings	8.0 (5.7)	13.7 (8.1)	17.9 (5.3)	7.7 (4.9)	7.5 (5.7)	11.6 (5.3)

The results showed that the average scores for both groups increased as compared with baseline. The PBS group had a significantly greater increase in scores over time, as compared with the control group for both the behaviour support plan practice score and response ratings.

This indicated that the PBS group had significantly better practice, as measured by these indices, compared with the control group, after undertaking the PBS programme.

Results

Impact of the PBS programme.

Information about the wider impact of the PBS programme was obtained in two ways. The first was information from an online questionnaire and the second was from interviews with a range of stakeholders who had had involvement with the PBS programme.

Online questionnaire results

In respect of the first, the PBS group participants were asked to complete a short questionnaire about the impact of the programme on a range of factors, immediately after the programme (follow-up 1) and three months after (follow-up 2). Ratings ranged from extremely positive = 5, to extremely negative = 1. The results are shown in Table 6 below.

The results indicate that most participants reported that the PBS programme had a positive impact on all factors identified at both follow-up 1 and follow-up 2.

Table 6: PBS group participants' ratings of the impact of the programme on a range of factors, at follow-up 1 and follow-up 2

Area of Impact	Follow-up 1			Follow-up 2		
	Extremely Positive	Somewhat positive	Neither positive nor negative	Extremely Positive	Somewhat positive	Neither positive nor negative
	Number (%)					
Impact on those being supported	49 (53.8)	40 (44)	2 (2.2)	25 (52.1)	22 (45.8)	1 (2.1)
Impact on practice	47 (52.8)	40 (44.9)	2 (2.2)	29 (59.2)	19 (38.8)	1 (2)
Impact on knowledge	69 (75.8)	21 (23.1)	1 (1.1)	33 (68.8)	15 (31.3)	0 (0)
Impact on organisational policy	34 (37.4)	40 (44)	17 (18.7)	18 (37.5)	19 (39.6)	11 (22.9)
Impact on organisational strategy	37 (40.7)	39 (42.9)	15 (16.5)	20 (41.7)	20 (41.7)	8 (16.7)
Impact on commissioning/tendering for services	22 (24.4)	35 (38.9)	33 (36.7)	15 (31.3)	13 (27.1)	20 (41.7)
Impact on sharing good practice	54 (60)	34 (37.8)	2 (2.2)	28 (57.1)	19 (38.8)	2 (4.1)

Work-related stress

Participants' work-related stress was measured in two ways. Both the PBS and control groups completed the 'Perceived Stress Scale.[30] A higher score on this measure indicates higher levels of stress. Participants in the PBS group were also asked to rate the impact of the PBS programme on their stress levels. In respect of the former, Table 7 illustrates the mean scores and standard deviations for the PBS and control groups in relation to work-related stress.

Table 7: The mean scores for the PBS and control groups in relation to work-related stress.

	PBS Group			Control group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Work-related stress	16.1 (5.5)	15.2 (5.7)	14.8 (5.9)	15.0 (6.4)	13.5 (6.9)	10.7 (5.8)

The results showed that stress reduced for both the PBS and control groups over time, with no statistically significant difference between the two groups. This indicates that participating in the programme did not have a detrimental impact on the work-related stress of the PBS group, as compared with the control group.

Table 8 illustrates the PBS group participants' ratings of the impact of the PBS programme on their stress levels at follow-up 1 and follow-up 2. This shows that 67.1 % and 69.4% of participants at follow-up 1 and follow-up 2 respectively, rated the PBS programme as having had a somewhat positive or extremely positive impact on their stress levels. Only 7.7% and 6.1% respectively reported a somewhat or extremely negative impact.

Table 8: participants' ratings of the impact on their stress levels at time 1 and time 2.

	Follow-up 1 Number (%)	Follow-up 2
Extremely Negative	1 (1.1)	1 (2)
Somewhat Negative	6 (6.6)	2 (4.1)
Neither positive nor negative	23 (25.3)	12 (24.5)
Somewhat positive	37 (40.7)	24 (49)
Extremely positive	24 (26.4)	10 (20.4)

The results indicate that, for the majority, taking part in the programme had a positive impact on stress levels and that this was sustained over time.

Interview results

Twenty-three of the PBS group participants were interviewed and provided more detailed feedback about the impact of the programme. The PBS programme was seen to have wide impact at many different levels, consistent with its design as a system wide WFD model that aimed to promote sustained changes in organisational cultures, values, and practice. Further details and analyses are available in a published paper.[32]

Individual change

At the individual level, the participants were aware of a change in their knowledge. Even those who had previously considered their knowledge of PBS to be good, felt they had increased their understanding:

> *I mean I'm a registered nurse in learning disabilities and I thought I had a fair bit of insight, but it's helped me realise that there actually a lot more stuff I needed to learn.*
>
> *I thought I had a good knowledge of what PBS was and it's really opened my eyes and it's a lot more than what I thought it was.*

Participants also expressed an increase in confidence, which helped them to implement change and to challenge other professionals when they felt the proposed or existing approaches were not in the best interests of the people they supported:

> *I think it's given me more confidence in terms of a deep understanding... It's definitely changed me as a practitioner in that I'm, I feel like I deserve to be a practitioner.*
>
> *Just last week when he's had his CPA [Care Programme Approach], we've said like we don't think it's appropriate and it's made me more confident to say that because I've got the evidence to say why and he's been taken off that.*

For many, their understanding of what PBS was had changed and they developed an understanding that PBS is not about fixing behaviour, it is a values-based approach which aims to improve the quality of life of those who are being supported:

> *It's really kind of helped me really relate back to why we do it and the quality of life for people.*
>
> *Actually, it's not just the challenges that need to be taken into account, it's how the quality of that person's day effects that person still.*

Organisational change

The participants identified organisational changes that they had already implemented or planned to in the near future, including introducing new, or adapting existing, policies to make PBS a central component: '*…and we've just for the first time a specific PBS policy for the organisation.'* These changes were often part of whole system changes, which reflected the shift in the organisational culture that the PBS programme had facilitated:

> *Policy implementation, we've made some fundamental changes about embedding PBS… We've changed how we've done training. We've looked at our supporting documentation around care planning etc, we've made some fundamental changes to that. We've also looked at, in line with the PBS standards, things like training hours, hours of supervision so part of the program that we've got is an ongoing service review. So, making sure that we truly embed all of those right at the foundations of what we do.*

Changes were also designed to ensure staff were retained by providing appropriate support and training, both of which have been highlighted as important factors in reducing staff turn-over:

> *Yeah so there's been developmental training, staff supervisions, change in the things going into support plans. Just a little bit more information about PBS and specific staff team training tailored to individual services rather than it being like quite broad and unspecific to everyone in the company.*

There was also a recognition that the principles and value-base of PBS extended beyond those being supported by the service and were equally applicable to everyone, including the staff team:

> *I think that's a big thing for me, thinking about it's not just PBS for customers and service users, it's PBS for the staff, it's developing the staff and committing to them.*

This led to a new perspective on the needs of staff and ways of addressing poor staff performance:

> *It's highlighted areas that we've needed to focus on such as resilience…recognising pressure, short-term and long-term strategies as well. All for dealing with pressure… as well as making sure we've got the right support mechanisms in place and ensuring that the managers are trained to support people in a way that they need supporting as well.*
>
> *If a staff member is under-performing it's because they don't know what they're doing or they haven't been shown what to do. [The new approaches involved] moving away from traditional supervision on a bimonthly basis, …but actually more time spent on the shop floor observing, feeding back, sort of that behaviour skills training stuff and the interactive training. So, around observation, feedback, rehearsal, modelling.*

Impact on the wider staff team

Perhaps unsurprisingly, the recognition that PBS was applicable to all, was seen to result in positive changes for the wider staff group within the participating organisations in terms of knowledge, confidence, and motivation:

> *Their knowledge, skills and expertise have, have increased dramatically. It's increased motivation…the place being buzzing, so motivation and engagement is much, much higher now.*

Staff were seen as developing a new understanding of the function of the person's behaviour:

I think people seem to be happier and there's an understanding now more with the staff about the reasons why somebody might be doing something and that in turn has had a really positive effect for people that we support.

…and their own role in maintaining it:

When we did his assessments and looked at the ABC charts, the staff were reinforcing his behaviour. Because they were frightened they would just give in to him or like let him avoid something and go to his bedroom instead of looking as to what they could do like or an alternative to support him to do his task.

These benefits fed directly into changes in practice and the way that support was provided:

So, instead of waiting until instances happen and then going back, people are being really proactive about how they can prevent things from escalating from the start.

The increased use of systematic recording methods, monitoring, and review also meant that staff could see evidence of positive changes that their new approaches had brought:

It was great to say after a few months 'look all our hard work is paying off', so that was brilliant and that's a recordable, hard fact. Like a 50 percent reduction in behaviour which is amazing.

The impact on those being supported

A number of specific examples were given of the ways in which changes in practice had influenced the way that direct support was provided. There was an increase in positive approaches:

We put a skill building programme in place to teach functionally equivalent replacement behaviours [FERBs], the FERBs that we learned on the course. So, we now have got this young man who is actively involved in all of his food prep, he has a communication pictorial booth to choose daily activities inside and outside the home, he has a weekly activity structure that links to observation feedback form. So, his community-based participation has increased by 70 percent, in regards to meaningful activities.

This is the guy who would get frustrated around mealtimes because he wanted to feed himself, but someone feeds him. So, it's just teaching skills again and all we did was we got some specialist adaptation kind of knives and spoons and forks and kind of hand over hand and give him that kind of skill teaching, and now he feeds himself.

And a reduction in restrictive approaches:

Since we started using PBS in the workplace, it has, restraint has reduced…and the use of chemical restraint has actually decreased also.

We've been able to reduce some levels of restriction in terms of physical intervention for people in PBS plans that are no longer needed.

These changes were both reported as resulting in reductions in behaviours that challenged:

…and actually yesterday they reported that the number of incidents with this person has actually halved within two or three months which is amazing.

After the review of 3 months of forms and recorded data, we had a 50 percent reduction in behaviours.

and increases the quality of life of those being supported:

The people that we support lives have changed incredibly. They've got more independence, they're happier, they're more, it's, it's, it actually works.

I think the main impact is on the individuals that we support. The quality of life is much improved, choice, everyday choices, having things to do every day. it's all been important in improving the quality of life the person has.

Impact on families

A significant area where the Programme had impacted on the quality of life of those being supported was through relationships with families. This happened directly, for example, through organisations re-engaging or engaging in better ways with families:

I think we always thought that we involved families and parents but I think we really are now and the conversations that we're having around function and what people want, we're making sure that the families are at the forefront of that and involving those, involving them in any interventions that need to happen and I think that's made a really big impact.

We've got the opinions of family of people we support a lot more than we probably ever have before now and the course has been a huge part of that.

This also had a direct impact on those being supported, for example, enabling them to undertake activities with their families that had not seemed possible previously:

So, we've had engagement with families that stopped taking people out, back to taking people out again 'cos challenging behaviour has diminished sufficiently. To be able to do that, so, it's had a real impact on their quality of life.

He has choice, he has control, he has independence and greater, and because of this greater family input. He's able to spend a lot of time at home with his family where that wasn't possible before.

Economic impact of the programme

Economic benefits to the organisation were also highlighted, in terms of better retention of staff and lower sickness rates:

Definite benefits moving forward for the economic impact of the PBS program. This has been shown already with the work that we've done. Staff turnover has been minimised because of the positive impact and the involvement that the team have had.

Yeah, staff sickness is a lot better. We don't get staff going off sick as much as we did before.

Overall, the interviews indicated that the PBS programme has resulted in: increased staff knowledge and confidence; a range of positive impacts at individual, team, organisational, and system wide levels; positive changes for those being supported in terms of more positive and less restrictive support, reduced behaviours that challenge and increased quality of life; and better engagement and relationships with families.

Behaviours that challenge

Here we evaluated the impact of the PBS programme over time on the behaviours that challenge of those being supported. The results are likely to be influenced by the accuracy of systems for recording behaviours that challenge. At baseline, only 47.2% and 33.3% of the PBS and control groups respectively had recording methods for behaviours that challenge that were updated on at least a daily basis and summarised on at least a weekly basis. This suggests that the baseline data on behaviours that challenge are likely to be somewhat inaccurate for some participants, which in turn will affect the accuracy of the comparisons with the information collected at follow-up.

Table 9 shows the number and percentage of people displaying each type of behaviour that challenges over the three time points for the PBS and control groups.

Table 9: The number and percentage of people displaying each category of behaviour that challenges at baseline, follow-up 1 and follow-up 2

	PBS Group			Control group		
	Baseline (n = 113)	Follow-up 1 (n = 54)	Follow-up 2 (n = 33)	Baseline (n = 20)	Follow-up 1 (n=12)	Follow-up 2 (n = 6)
		Number (%)			Number (%)	
Verbal Aggression	83 (73.5)	34 (63)	23 (69.7)	15 (75)	8 (66.7)	5 (83.3)
Physical Aggression	84 (74.3)	35 (64.8)	24 (72.7)	16 (80)	10 (83.3)	4 (66.7)
Destruction of Property	62 (54.9)	27 (50)	19 (57.6)	10 (50)	6 (50)	4 (66.7)
Self-injury	62 (54.9)	28 (51.9)	14 (42.4)	8 (40)	5 (41.7)	3 (50)
Withdrawal/Passivity	46 (40.7)	14 (25.9)	10 (30.3)	8 (40)	7 (58.3)	3 (50)
Disruptive Behaviour	68 (60.2)	24 (44.4)	19 (57.6)	8 (40)	7 (58.3)	4 (66.7)
Stereotyped Behaviour	23 (20.4)	7 (13)	5 (15.2)	2 (10)	2 (16.7)	1 (16.7)
Other	6 (5.3)	1 (1.9)	1 (3.0)	5 (25)	1 (8.3)	0 (0)

Table 10 shows the average number of all categories of behaviours that challenge combined, at the three time points, as reported by the PBS and control groups.

Table 10: The average number of all categories of behaviours that challenge combined at the three time points, as reported by the PBS and control groups.

	PBS Group			Control Group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
		Mean (SD)			Mean (SD)	
All categories of behaviours that challenge combined	3.8 (1.8)	3.1 (1.8)	3.5 (1.5)	3.6 (1.9)	3.8 (1.5)	4 (1.7)

The results indicate that, for the PBS group, the mean number of all types of behaviours that challenge combined fell, as compared with baseline, whereas the number for the control group rose. This difference was not, however, statistically significant.

Table 11 illustrates the mean frequency of different categories of behaviour that were reported by staff as being displayed by the main person they supported, as well as for the combined total of all categories.

Table 11: The mean frequency of different categories of behaviours that challenge and for the combined total of all categories

	PBS Group			Control Group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
		Mean (SD)			Mean (SD)	
Verbal Aggression	6.3 (13.1)	5.0 (9.7)	4.7 (8.2)	4.6 (9.2)	7.4 (13.5)	5.7 (11.3)
Physical Aggression	3.9 (10.8)	2.9 (6.4)	3.0 (6.8)	2.7 (7.1)	2.7 (4.0)	0.57 (1.1)
Destruction of Property	2.4 (6.9)	2.0 (5.5)	2.4 (6.4)	0.7 (1.3)	2.2 (5.7)	0 (0)
Self-injury	3.6 (11.1)	2.0 (5.8)	1.6 (4.7)	1.2 (2.6)	0.17 (0.39)	0 (0)
Withdrawal/Passivity	3.5 (10.9)	6 (21.9)	3.3 (8.5)	5.8 (13.2)	7.4 (13.7)	5.9 (11.5)
Disruptive Behaviour	5.4 (12.9)	4.1 (13.7)	4.9 (9.3)	5.6 (11.2)	2.0 (3.3)	2.1 (3.7)
Stereotyped Behaviour	2.4 (7.4)	0.59 (2.2)	0.67 (3.5)	1.6 (6.9)	2.7 (8.6)	2.6 (6.8)
Other	0.11 (.81)	0 (0)	0 (0)	0.60 (1.8)	0.17 (.58)	0 (0)
Combined total of all categories	3.9 (1.8)	3.1 (1.8)	3.4 (1.5)	3.6 (1.9)	3.8 (1.5)	4.0 (1.7)

The results indicate that, for the PBS group, the mean frequency for all types of behaviours that challenge combined fell over time, as compared with baseline, whereas the frequency for the control group rose. This difference was not, however, statistically significant.

Quality of life

The impact of the PBS programme on quality of life of the main person that the participants supported was measured using a questionnaire that was designed for the purpose of the evaluation. Table 12 illustrates the mean total scores on this measure at baseline, follow-up 1, and follow-up 2.

Table 12: The mean total quality of life scores at baseline, follow-up 1, and follow-up 2 for the PBS and control groups

	PBS Group			Control Group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
		Mean (SD)			Mean (SD)	
Quality of life total score	43.2 (3.3)	44.5 (2.7)	43.6 (2.7)	43.6 (2.8)	43.4 (2.9)	42.3 (3.1)

The results showed that the average quality of life scores increased slightly for the PBS group and fell slightly for the control group, as compared with baseline. This difference between the groups was not, however, statistically significant.

Activities

The total activities of the main person that the participant supported were evaluated at the three time points. In line with previous researchers (see[6]), the 'social activities' subscale was analysed separately to give an indication of quality of life i.e. community participation. Table 13 illustrates the mean scores and standard deviations of the activities of the main person that the participants supported, at the three time points. A higher score indicates a greater number of activities.

Table 13: The mean scores of the activities of the main person that the participants supported, at the three time points

	PBS Group			Control Group		
	Baseline	Follow-up 1	Follow-up 2	Baseline	Follow-up 1	Follow-up 2
	Mean (SD)			Mean (SD)		
Services	3.7 (1.7)	3.2 (1.4)	3.6 (2.2)	4.1 (2.0)	3.8 (1.2)	3.4 (1.2)
Vocational	1.3 (2.3)	1.1 (2.4)	1.5 (2.6)	0.97 (2.0)	0.77 (1.5)	0.83 (1.9)
Leisure	42.3 (16.8)	43.3 (14.7)	48.1 (18.8)	39.6 (12.9)	42 (21.7)	49.3 (21.5)
Social	12.9 (6.6)	13.8 (6.0)	13.0 (6.2)	11.6 (5.2)	13.6 (7.9)	12 (7.9)
Facilities/ Amenities	14.5 (7.6)	16.1 (8.1)	15.4 (7.5)	16 (7.1)	18 (7.9)	17.2 (6.7)
Overall total	74.8 (26.6)	77.3 (24.6)	81.7 (28.8)	72.2 (20.1)	77.3 (34.5)	82.7 (33.2)

The results indicated an increase over time in the overall activities of those being supported by participants in both the PBS and control groups, although the difference between the two groups was not statistically significant. There was also an increase in 'social' activities, compared with baseline levels for both the PBS and control groups. The difference between the two groups was not statistically significant.

Staff retention

The impact of the PBS programme was evaluated by comparing the proportion of staff in the PBS group who were actively seeking another job or who had left their job since baseline, with the proportion in the control group. Table 14 illustrates the number and percentage of participants who remained in their job, were actively seeking another job or left their job at follow-up.

Table 14: The number and percentage of participants who remained in their job, were actively seeking another job or left their job at follow-up 1 and follow-up 2

	PBS Group		Control Group	
	Follow-up 1 (n = 138)	Follow-up 2 (n = 106)	Follow-up 1 (n= 43)	Follow-up 2 (n = 35)
	Number (%)		Number (%)	
Remained in job	125 (90.6)	94 (88.7)	30 (69.8)	20 (57.1)
Left job	4 (2.9)	9 (4.9)	9 (20.9)	12 (34.3)
Actively seeking another job	9 (6.5)	3 (1.6)	4 (9.3)	3 (8.6)

Note: the number of those who left their job at follow-up 1 is also included in the total figure for those who have left their job by follow-up 2.

The results indicated that fewer of the participants in the control group remained in their job at follow up 1 and follow up 2, as compared with the PBS group. This indicates that participating in the PBS programme had a significant, positive impact on staff retention.

Discussion

The final evaluation of the PBS programme has provided a comprehensive picture of the experiences of the participants in the PBS group and the range of positive impacts that the programme has had. The evaluation was structured using the four levels of learning evaluation outlined by Kirkpatrick & Kirkpatrick.[1] The particular areas that were measured within each level were influenced by previous research which indicated those aspects which are addressed by PBS, such as: changes in staff knowledge, confidence, and practice; in the quality of life of those being supported; and reductions in behaviours that challenge.[9,12,13,14,24]

Reaction

In terms of reaction, the programme was viewed very positively by a large majority of participants, and the teaching, supervision, and overall experience were rated highly. The teaching was also seen as being directly relevant to practice. The participants had some helpful suggestions for potential changes to the programme moving forward. These mainly related to the balance of face to face teaching with eLearning, and the need to provide further opportunities to consolidate learning, particularly in relation to more complex concepts. The success of the PBS Programme may be because it combined important elements that have been found to be effective in workforce development: 'classroom' based teaching, practice leadership, and workplace coaching.[33,34]

The role of the participants' organisations was also highlighted as important, both in terms of providing support to those attending the programme and in facilitating the practical arrangements to allow this to happen. Previous research has also indicated that organisational support can be central to the success or otherwise of those undertaking workforce development and training.[14]

Learning

In respect of learning, three main areas were explored: self-efficacy, attributions, and in relation to the best ways to manage behaviours that challenge.

Self-efficacy

Self- efficacy, as measured by the Challenging Behaviour Self-Efficacy Scale,[22] reflects the confidence, sense of control, effectiveness, satisfaction, and difficulty that staff feel when responding to behaviours that challenge. Research suggests that self-efficacy is related to staff stress, with higher self-efficacy being associated with lower stress, and that higher self-efficacy may help protect staff from burn-out.[35] Changes in self-efficacy have also been identified as one of the areas that could help identify the impact of PBS.[36] Previous research into the influence of PBS staff training on self-efficacy has found that it has increased following training,[37] although, this study did not include a control group. In the present evaluation the self-efficacy scores for both the PBS and control groups increased over time, although there was no statistically significant difference between the two groups. This indicates that the sense of confidence and control when responding to behaviours that challenge increased in both groups over time.

Attributions

Attributions are the explanations that staff hold about the causes of behaviours that challenge. A number of previous studies have explored the impact of PBS training and most, but not all have found positive changes in attributions (see[12]). The current evaluation also found significant changes in attributions for the PBS group. The staff in this group were more likely to endorse explanations of behaviours that challenge as learned behaviour following the programme, whereas there was no change for the control group. This is consistent with the theoretical models used in PBS, with behaviours that challenge being conceptualised as learned responses.[5] In addition, the developer of the Challenging Behaviour Attributions Scale that was used in this study,[23] argues that input that has a focus on behavioural analysis, if successful, would be expected to result in a shift in attributions.

This shift would be towards causal explanations that highlighted the role of behaviour being shaped as a result of reinforcement. This result suggests that the programme was successful in helping those in the PBS group understand behaviours that challenge in this way.

Knowledge about the most effective ways to respond to behaviours that challenge

This aspect of the evaluation coded the written responses of participants about the most effective ways to respond to behaviours that challenge, as measured against the key competencies outlined in the PBS Competence Framework.[24] The results showed an increase in scores for both the PBS and control group at the follow-up periods, as compared with baseline scores. While the PBS group had a greater average increase in scores compared with the control group, this was not statistically significant.

The impact of PBS training on knowledge has been measured in a variety of different ways. In general, training has been found to result in increased staff knowledge,[8] although many of these studies do not include a control group. More recent research, that included a control group, found that PBS input appears to have a differential impact on staff, depending on their role, with managers experiencing increases in their knowledge, compared to the control group, while the staff they managed did not.[12] It may be that the overall results of the current evaluation masks differences in changes in knowledge for groups with different roles. Overall, this aspect of the evaluation showed that knowledge increased over time, but the increase was not significantly greater for those in the PBS group.

Behaviour

We evaluated the impact of the programme on behaviour by measuring the level of activities of the people being supported and the ways in which behaviour support plans were developed, understood, and implemented.

PBS in practice

It has been highlighted that, while improvements in areas such as knowledge and attributions as a result of PBS input are positive things, it cannot be assumed that these will result in changes in behaviour and in the support provided to people with a learning disability and/or autism.[12] In this part of the evaluation we addressed changes in practice. This was measured in terms of the development, understanding, implementation, review of, and involvement of those being supported in, behaviour support plans. These different aspects were measured using a periodic service review approach.[25] We developed performance criteria, adapted from work by McKenzie et al.,[26] which were operationally defined and reflected important aspects of positive practice. For example, participants scored a point for the category of '*Defining Behaviour*' if they could '*define the target behaviour specifically and clearly (in terms that would make it observable and measurable*.' We found a statistically significant improvement over time in the practice of the PBS group, in comparison with the control group.

The overall practice was subsequently rated in terms of the extent to which it: reflected positive approaches, was based on observable and measurable behaviour, had responses related to discrete target behaviours, and which were consistent with the identified function of those behaviours. There was also a statistically significant increase over time in the PBS group on this measure, as compared with the control group.

These findings suggest that the programme resulted in a significant improvement in the practice of the PBS group. There have only been a limited number of studies that have explored the impact of PBS input on staff practice. MacDonald et al.[12] also used a PSR based approach to measure

changes in practice over time, however, they did not have a control group for this aspect of their study and they did not find a significant change in practice in the PBS group. McGill et al.[9] also examined the impact on practice of PBS input. In this case the researchers worked with staff to develop, implement, and monitor practice according to a set of standards. For example, the standards relating to '*activities and skill development*' included aspects such as arranging activities in accordance with the person's routine and preferences. The researchers found significant changes in practice as measured by achieving the standards. They did not, however, include a control group for this aspect of the study.

Results

The results of the impact evaluation indicated that there were a wide variety of positive impacts of the PBS programme for individual staff, their teams, and for the organisation as a whole. Importantly, the programme was seen to have resulted in positive changes for the individuals with a learning disability and/or autism who were being supported. These included better and more consistent support, reduced behaviours that challenge, and increased quality of life.

The quantitative evaluation of behaviours that challenge did find that the average total number and frequency of behaviours that challenge fell over time in those supported by the PBS group, whereas the number for those supported by the control group rose. These differences were not, however, statistically significant. Previous research has found that PBS input has resulted in improvements in behaviours that challenge,[8,12,] however, others[14] have found no significant effect. Our own results may have been influenced by the fact that fewer than half of those in both the PBS and control groups had robust methods for recording behaviours that challenge at baseline. This indicates that the information about behaviours that challenge, against which changes were compared at follow-up, was likely to be inaccurate for some participants. This in turn will affect the accuracy of the comparisons with the information collected at follow-up.

In relation to quality of life, the results of the measure designed for the study showed that the average quality of life scores increased slightly over time for the PBS group and fell slightly for the control group, however, the difference between the groups was not statistically significant. In terms of activity levels as an indicator of quality of life, the evaluation found increases over time in the overall and 'social' activities in those being supported by participants in both the PBS and control groups, although the difference between the two groups was again not statistically significant.

These results are consistent with previous research. A 2013 review[8] found limited evidence for PBS input having an impact on quality of life. More recent research[14] found no significant change in quality of life following PBS input. Similarly, MacDonald et al.[12] found no significant change in engagement in activities following PBS input. They suggest that this may be because levels were already high at baseline. This was also the case in the present study, where the average score at baseline for both the PBS and control groups on the bespoke quality of life measure was 43 out of a possible 48, meaning there was limited scope for improvement.

Taken together, the results suggest that, while there are qualitative reports of improvements in the behaviours that challenge and quality of life of those being supported, as a result of the PBS programme, there is not quantitative evidence that these changes are significantly greater than those that occurred in the control group.

The qualitative results also suggested that the PBS programme had resulted in increased staff morale, motivation and engagement, and reduced staff turn-over. This was supported by the quantitative results. There were early concerns that participating in the PBS programme, in addition to their job, would increase the stress of the PBS group. This was, however, not the case, with no significant differences between the PBS and control groups in work related stress being found. In addition, the staff in the PBS group were significantly more likely to still be in their job at follow-up, in comparison to the control group. This indicates that the PBS programme had a significant, positive effect on staff retention. Previous research has found that providing staff with clear processes and

feedback as part of high-quality supervision and support is associated with reduced staff turn-over,[38,39] and these may have been relevant factors in the present study.

Strengths and limitations

The results of the evaluation need to be considered within the strengths and limitations of the PBS programme and the evaluation itself.

In terms of strengths, the PBS programme benefitted from having a number of facilitators. First, it was developed within a policy context that promoted the need for high quality community support for people with a learning disability and/or autism[2] and it was overseen by a steering group of experienced stakeholders. Second, it was supported by a group of PBS specialists, working in the NHS, who had identified the need for a better approach to replace the staff training model that predominated in the region at the time. Third, social care organisations had highlighted the need for a consistent and agreed approach to developing PBS competence in the workforce and were motivated to engage with the processes required to achieve this. Fourth, there was a willingness for different stakeholders to work in partnership to improve the support offered and resources were made available to facilitate this. Finally, people with a learning disability and their families were already driving the need for improved support and had identified the key components of PBS as central to this.[10,11]

A particular strength of the PBS programme itself, which was highlighted in the interviews with the PBS group participants, was that it was part of a wider workforce development approach which took account of the context within which the participants worked. This approach is consistent with the long-identified need for a systemic approach to the development, implementation, support, and evaluation of PBS.[9,15,17]

This strength also, however, created challenges for the evaluation. Changes resulting from the wider PBS workforce development approach were systemic and region wide. In addition, the

cascade model on which the PBS programme was explicitly built meant that improvements in values, knowledge, and competence, and changes in practice were designed to be shared with as many staff as possible, and as quickly as possible. This meant that, while the participating organisations were asked to identify staff for the control group who were from separate services from those in the PBS groups, the widespread nature of the changes being implemented meant that staff in the control group were likely to be influenced to some extent by them too. This may be because the service they worked in received some input and support from a PBS group participant or had a PBS group participant as part of the staff team. The latter was particularly likely to be the case at the time of follow-up two, when the effects of Covid-19 resulted in a need to move some staff between services to cover staff shortages. As a result, the control group as a whole cannot be considered to be free from the influence of the PBS programme or wider systemic changes that were occurring during the evaluation period. This is likely to have impacted on the results.

A second consideration is that, due to the Covid-19 pandemic, many people with a learning disability and/or autism experienced changes in aspects of their lives that were being measured during the evaluation. These included restrictions in their activities, changes in their staff teams, and a reduction in the things that contribute to their quality of life, for example, visits from families and friends. For some this may have resulted in increases in behaviours that challenge. No statistically significant differences were found between the PBS and control groups in the extent to which Covid-19 restrictions had negatively impacted. It might be expected, however, that the restrictions impacted on the outcome measures relating to activities, quality of life, and levels of behaviours that challenge, as measured at follow-up two, which occurred at the height of the Covid-19 restrictions.

The Covid-19 pandemic also contributed to a further limitation of the evaluation- the small number of control group participants that completed some aspects of the evaluation, particularly at follow-up two. There were a number of practical issues that affected both the PBS and control groups, but which had a greater impact on the control group data because the numbers were

smaller to begin with. These included staff changing services so that they no longer worked with the person they had answered questions about at baseline, or changing role, so that they no longer provided direct support. The Covid-19 pandemic also meant that many staff were not at work due to self-isolating or were redeployed to cover staff shortages elsewhere. Both the PBS and control group participants were under significant pressure during this period, which reduced the response rate for follow-up two for both groups, but had a proportionally greater impact on the control group.

The follow-up period of the evaluation was also relatively short and, combined with the negative effects of the Covid-19 may not have been sufficiently long to demonstrate statistically significant improvements in behaviours that challenge and quality of life.

A final important limitation was that most of the evaluation was based on information provided by the staff, with only eight people with a learning disability providing information directly about their quality of life. Many of those being supported had a severe or profound learning disability and limited communication, which made the measures which were used in the study unsuitable for direct use with them. This highlights the need to develop more creative and accessible ways for people with communication difficulties to provide their views about the support they receive.

Despite these limitations, the final evaluation highlights the success of the PBS programme, in the context of the wider WFD model, at providing high quality teaching and supervision, with associated improvements in attributions, PBS behaviour support plans and practice, and staff retention. It may be worth considering conducting a further follow-up evaluation to determine whether these improvements translate into improvements in behaviours that challenge and quality of life of those being supported, once the main restrictions and negative effects of the Covid-19 pandemic have passed.

References

1. Kirkpatrick, D.L. & Kirkpatrick, J.D. (2006). The Four Levels: An overview in *Evaluating training programmes*. Third Edition. San Francisco: Berrett-Koehier Publishers (p21-26).
2. NHS England (2014). *Winterbourne View – Time for Change: Transforming the commissioning of services for people with learning disabilities and/or autism*. Retrieved from: https://www.england.nhs.uk/wp-content/uploads/2014/11/transforming-commissioning-services.pdf
3. Health Education England (2017). *Facing the Facts, Shaping the Future: A Draft Health and Care Workforce Strategy for England to 2027*. London: Health Education England.
4. National Institute for Health and Care Excellence [NICE] (2015). *Challenging behaviour and learning disabilities: prevention and interventions for people with learning disabilities whose behaviour challenges [NG11]*. NICE. Retrieved from: https://www.nice.org.uk/guidance/ng11/chapter/Introduction
5. Gore, N.J., McGill, P., Toogood, S. Allen, D., Hughes, J.C., Baker, P…Denne, L. (2013). Definition and scope for positive behavioural support. *International Journal of Positive Behavioural Support*, *3*, 14-23.
6. Bowring, D.L., Totsika, V., Hastings, R.P., & Toogood, S. (2020). Outcomes from a community-based Positive Behavioural Support team for children and adults with developmental disabilities. *Journal of Applied Research in Intellectual Disabilities, 33*, 193–203.
7. Lewis, N., Reynolds, E., Vale, M., Keenan, E., Hartland, A., Haines, M…Davies, B.E. (2019). An evaluation of positive behavioural support implemented within an intensive community support service for people with learning disabilities who present with behaviours that challenge. *Journal of Intellectual Disabilities*, Early view: https://doi.org/10.1177/1744629519890962

8. MacDonald A. & McGill, P. (2013). Outcomes of staff training in Positive Behaviour Support: A systematic review. *Journal of Developmental and Physical Disabilities*, *25*, 17–33.
9. McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L…Deveau, R. (2018). Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: a cluster randomized controlled trial of setting-wide positive behaviour support. *Research in Developmental Disabilities*, *81*, 143-154.
10. McKenzie, K., Mayer, C., Whelan, K., McNall, A., Noone, S., & Chaplin, J. (2018). The views of carers about support for their family member with an intellectual disability: With a focus on Positive Behavioural Approaches. *Health & Social Care in the Community*, *26*(1), e56-e63. https://doi.org/10.1111/hsc.12475
11. McKenzie, K., Whelan, K., Mayer, C., McNall, A., Noone, S., & Chaplin, J. (2018). "I feel like just a normal person now": An exploration of what is important for people with intellectual disabilities in the provision of positive behavioural support. *British Journal of Learning Disabilities*, *46*, 241-249.
12. MacDonald A., McGill, P., & Murphy, G. (2018). An evaluation of staff training in positive behavioural support. *Journal of Applied Research in Intellectual Disabilities*, *31*, 1046–1061. https://doi.org/10.1111/jar.12460
13. Dench, C. (2005). A model for training staff in positive behaviour support. *Tizard Learning Disability Review, 10*, 24-30.
14. Hassiotis, A., Poppe, M., Strydom, A. Vickerstaff, V., Hall, I.S., Crabtree, J.,…Crawford, M.J. (2018). Clinical outcomes of staff training in positive behaviour support to reduce challenging behaviour in adults with intellectual disability: Cluster randomised controlled trial. *British Journal of Psychiatry, 212*, 161-168.
15. Allen, D., McGill, P., Hastings, R.P., Toogood, S., Baker, P., Gore, N.J…Hughes, J.C. (2013). Implementing positive behavioural support: changing social and organisational contexts. *International Journal of Positive Behavioural Support*, *3*(2), 32-41.

16. Denne, L., Jones, E., Lowe, K., Brown, F.J., & Hughes, J. C. (2015). Putting positive behavioural support into practice: the challenges of workforce training and development. *International Journal of Positive Behavioural Support*, *5*(2), 43-54.
17. Olivier-Pijpers, V.C., Cramm, J.M., Nieboer, A.P. (2019). Influence of the organizational environment on challenging behaviour in people with intellectual disabilities: Professionals' views. *Journal of Applied Research in Intellectual Disabilities*, *32*(3), 610-621.
18. McNall, A. (2012). *An emancipatory practice development study: using critical discourse analysis to develop the theory and practice of sexual health nursing workforce development*. Thesis submitted for the Award of Professional Doctorate in Nursing Science. Northumbria University.
19. McNall, A., McKenzie, K. and Branch, A. (2016). *Scoping the workforce development needs of health and social care providers delivering Positive Behavioural Support for those with learning disabilities across the North East and Cumbria for the Workforce Development Task and Finish group of Transforming Care Programme*. Northumbria University. Retrieved from: https://www.pbsnec.co.uk/
20. McKenzie, K., Metcalfe, D., Whelan, K., & McNall, A. (2020). Developing recommendations to improve the recruitment and retention of care staff who support people with an intellectual disability. Nursing Times (in press).
21. Jacobs, R.L, & Hawley, J.D. (2009). Emergence of Workforce Development: Definition, Conceptual Boundaries, and Implications. In R. MacLean & D. Wilson (eds.), *International Handbook of Education for the Changing World of Work* (pp 2537-2552). Amsterdam: Kluwer.
22. Hastings, R.P., & Brown, T. (2002). Behavior problems of autistic children, parental self-efficacy and mental health. *American Journal on Mental Retardation*, *107*, 222-232.

23. Hastings, R.P. (1997). Measuring staff perceptions of challenging behaviour: The Challenging Behaviour Attributions Scale (CHABA). *Journal of Intellectual Disability Research*, *41*, 495-501.
24. Positive Behavioural Support Coalition UK. (2015*). Positive behavioural support: A competence framework*. Retrieved from: http://pbsacademy.org.uk/wp-content/uploads/2016/11/Positive-Behavioural-Support-Competence-Framework-May-2015.pdf
25. La Vigna, G.W., Willis, T.J., Shaull, J.F., Abedi, M., & Sweitzer, M. (1994). *The Periodic Service Review: A Total Quality Assurance System for Human Services and Education*. Baltimore, MD: Brookes
26. McKenzie, K., Sharp, K., Paxton, D. & Murray, G.C. (2002). The impact of training and staff attributions on staff practice in learning disability services. *Journal of Learning Disabilities, 6(*3), 239-251.
27. O`Brien, J. (1992). Developing high quality services for people with developmental disabilities. In: Bradley, V.J., Bersani, H.A. (Eds). *Quality Assurance for Individuals with Developmental Disabilities*. Paul Brookes, Baltimore.
28. Duffy, S. (2006). *Keys to Citizenship. A guide to getting good support for people with learning disabilities*. 2nd edition. Sheffield: The Centre for Welfare Reform.
29. Baker P, Taylor-Roberts L & Jones, F (2016). *The Guernsey Community Participation & Leisure Assessment – Revised (GCPLA-r)*. Canterbury Tizard Centre, University of Kent.
30. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 386-396.
31. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.
32. McKenzie, K., Martin, R., Metcalfe, D., Murray, G.C., McNall, A., & Noone, S. (2020a). 'Look, all our hard work is paying off': A qualitative evaluation of a system wide, workforce

development model to promote Positive Behavioural Support. *Journal of Applied Research in Intellectual Disabilities*, e1–11. https://doi.org/10.1111/jar.12778

33. Bosco, A., Paulauskaite, L., Hall, I., Crabtree, J., Soni, S., Biswas, A.,…Hassiotis, A. (2019). Process evaluation of a randomised controlled trial of PBS based staff training for challenging behaviour in adults with intellectual disability. *PLoS One, 14*(8), e0221507. https://doi.org/10.1371/journal
34. van Oorsouw, W. M., Embregts, P. J., Bosman, A. M., & Jahoda, A. (2009). Training staff serving clients with intellectual disabilities: A meta-analysis of aspects determining effectiveness. *Research in Developmental Disabilities*, *30*, 503–511.
35. Shead, J., Rose, J., & Scott, H. (2016). Investigating predictors and moderators of burnout in staff working in services for people with intellectual disabilities: the role of emotional intelligence, exposure to violence and self-efficacy. *International Journal of Developmental Disabilities, 62*(4), 224-233.
36. Scott, S. J., Denne, L. D., & Hastings, R.P. (2018). Developing a logic model to guide evaluation of impact for learning disability projects: the case of the Positive Behavioural Support (PBS) Academy. *Tizard Learning Disability Review, 23* (3), 125-132.
37. Stocks, G. & Slater, S. (2016). Training in positive behavioural support: increasing staff self-efficacy and positive outcome expectations. *Tizard Learning Disability Review*, 21(2), 95-102.
38. Kozak, A., Kersten, M., Schillmöller, Z., & Nienhaus, A. (2013). Psychosocial work-related predictors and consequences of personal burnout among staff working with people with intellectual disabilities. *Research in Developmental Disabilities, 34*(1), 102–115.
39. Vassos, M., Nankervis, K., Skerry, T., & Lante, K. (2013). Work engagement and job burnout within the disability support worker population. *Research in Developmental Disabilities, 34*, 3884–3895.

Appendix 1

Statistical results

Table 1A presents the results from the series of multi-level models (MLMs). In all cases, the results are for the group by time interaction in the MLM i.e. comparing the PBS and control group scores over time.

Table 1A: The results from the multi-level models (MLMs) for the group by time interaction

Analysis	t value	Degrees of freedom	p value
Self-efficacy	0.29	303.8	.77
Responding to behaviours that challenge	1.66	196.2	.09
Behaviour support plan practice score	3.23	299.5	.001
Behaviour support plan response ratings	3.46	217.8	.001
Work related stress	1.07	209	.287
Behaviours that challenge – mean number	-0.29	174	.774
Behaviours that challenge – mean frequency	-0.159	207.5	.874
Quality of life	-0.279	201.9	.781
Overall activities	0.45	152.6	.653
Social activities	0.094	136.5	.92

Attributions

A repeated measures ANOVA showed a significant increase for the PBS group from baseline to follow-up 1 for the endorsement of behaviours that challenge being due to learned behaviour ($F(1.679, 73.86) = 6.861$, $p = .003$). Post hoc tests using the Bonferroni correction showed that scores increased significantly between baseline and follow-up 1 ($p = .003$). The scores significantly reduced between follow-up 1 and follow-up 2 ($p = .027$) but remained higher than at baseline. There was no significant change in scores for the control group.

Staff retention

A series of Chi square tests indicated that there was a significant association between group and leaving work/actively seeking another job, with fewer of those participants in the control group remaining in their job, as compared with the PBS group. This result was found at follow up 1 ($\chi2 = 11.4$, $df = 1$, $p = .001$) and follow-up 2 ($\chi2 = 16.7$, $df = 1$, $p < .001$).