

The Application of a Positive Behaviour Support Model for Adults with Intellectual Disabilities: A Pioneering Study in Hong Kong

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Abstract

Background: Positive behaviour support (PBS) is increasingly viewed as the preferred service approach for people with intellectual disabilities (IDs); however, many services settings may not have equipped their frontline workers with practice skills in this field in Hong Kong. This study is a first attempt to systematically apply the PBS model to ID adult services, with the aims of providing training to staff members on the knowledge and skills in applying the PBS model and in alleviating the challenging behaviours of service user participants with IDs.

Methods: A single-system research design was adopted to measure the alleviation of challenging behaviour. In total, 18 service user participants were involved in individual tailor-made interventions. Meanwhile, a pretest-posttest design was adopted to measure the staff changes. A total of 18 social workers participated.

Results: The challenging behaviours of seven service users were improved. Participating social workers' competencies in managing challenging behaviour were also enhanced.

Discussion: Reflections on the practice and recommendations will be discussed.

Keywords: Positive behaviour support, evidence-based intervention, adults with intellectual disabilities, Hong Kong.

Introduction

Positive Behaviour Support (PBS) has been developed since the 1990s (Rotholz & Ford, 2003). It is an approach for supporting behavioural changes in people with intellectual disabilities (IDs) who exhibit challenging

behaviours at home, at school, and in the community. PBS is regarded as an alternative to punitive or aversive interventions that were often used to manage behaviour in the 1980s (Carr et al., 2002; Horner et al., 1990). It represents an advancement of applied behaviour analysis (Risley, 1999). Carr and

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colleagues describe PBS as “an applied science that uses educational methods to expand an individual’s behaviour repertoire and systems change methods to redesign an individual’s living environment to first enhance the individual’s quality of life and, second, to minimise his or her problem behaviour” (Carr et al., 2002, p. 4).

Challenging behaviours, from the perspective of PBS, serve specific functions for people with IDs and are context related (Bambara & Knoster, 2009). Challenging behaviour is a method of communication. It has a purpose and function, whereby a person expresses his/her needs or frustrations toward his/her disturbing or provoking environment (Bambara & Knoster, 2009). In contrast to conventional behavioural approaches that only tackle target behaviours, PBS emphasises the use of effective interventions that are based on a comprehensive understanding of the person, his/her social contexts, and the function of the target challenging behaviour (Bambara & Knoster, 2009). These interventions emphasise supporting the person to create alternative behaviours that have a more communicative function and managing the person’s environment (The Challenging Behaviour Foundation, 2014).

PBS is an evidence-based intervention. Its effectiveness is demonstrated by a number of empirical studies. For example, PBS has been proved to significantly reduce the frequency, management difficulty, and severity of service users’ challenging behaviours (Grey & McClean, 2007). The primary focus of PBS is not merely reducing challenging behaviour, but also enhancing the quality of life and changing lifestyle of people with IDs in the long run (Brown, Gothelf, Guess, & Lehr, 1998; Carr et al., 2002). PBS has also been found to be an effective way of enhancing the quality of life and self-determination of service users with disabilities. For example, Clarke et al. (2002) conducted a single-case research design to evaluate the effects of a school-based PBS

intervention and found that both the quality of life and happiness levels of the participants were enhanced after the intervention was implemented. Kincaid and colleagues evaluated the outcome of the Tri-State Consortium for Positive Behavior Support (TSCPBS). The results showed that the TSCPBS improved the quality of life, including the self-determination domain, of the students with IDs (Kincaid, Knoster, Harrower, Shannon, & Bustamante, 2002).

In comparison with the remarkable development of PBS in various service contexts (e.g., at home, at school, and in the community; for school-aged individuals and adults) in Western countries, the development of PBS in Chinese societies is in an initial stage. Among Chinese societies, special education practitioners in Taiwan have initiated the development of PBS. The results from empirical studies conducted in Taiwan show that PBS effectively decreases the frequency of the challenging behaviours of students with IDs (林哲永、莊素貞、王欣宜, 2008; 張育頻、沈小玫、侯禎塘, 2014).

In Hong Kong, very little attention has been paid to the PBS model. So far only one NGO started a two-and-a-half-year PBS project funded by the Quality Education Fund in 2010 to support students with attention deficit hyperactivity disorder in mainstream secondary schools (Education Bureau, 2014; The Hong Kong Christian Service, 2011). As many as 61.3% of the participating teachers thought that the challenging behaviours of the participating students had improved after the implementation of PBS (Education Bureau, 2014). However, the empirical outcomes of the project was not published in the literature.

To conclude, PBS is a model that emphasises a person’s autonomy and choice, capacity, and competence building (Allen, James, Evans, Hawkins, & Jenkins, 2005). It treats challenging behaviour as a communicative function of expressing a person’s unmet needs. 鈕文英 (2010) stated that the development of the PBS model

marks a paradigm shift from behavioural modification to behavioural support. The focus of the intervention is no longer on the target behaviours, but on the person's unmet needs and his/her provoking environment. There is empirical evidence of the effectiveness of the model in Western countries in terms of behavioural improvement and quality of life enhancement when applied to student groups (e.g., Kincaid et al., 2002; Koegel, Stiebel, & Koegel, 1998) and adult groups (e.g., McClean, Grey, & McCracken, 2007) of individuals with mild to severe IDs. In Chinese societies, Taiwan seems so far to be the only country that is vigorously conducting empirical studies on the application of PBS; however, it merely focuses on education.

In view of the under-development of the PBS model in Hong Kong, the author collaborated with the Mental Health Association of Hong Kong (MHAHK) to apply the PBS model to her adult services between November 2017 and August 2019. The project was a pioneer in Hong Kong in terms of its nature, framework, and coverage. The major objectives were: 1) to adapt the PBS model for use in a local context; 2) to evaluate the effectiveness of the PBS model in alleviating the challenging behaviours of service user participants with IDs; and 3) to equip staff members with the knowledge and skills necessary to use the PBS model through a staff development package. To achieve the above objectives, the author delivered a series of staff development programmes and consultation sessions to staff members, particularly social workers, of the Association. Multiple methods (i.e., a single system research design (SSRD) and outcome measurements) were employed to measure the effectiveness of the project.

Staff Development Package

The author designed and delivered a series of staff development packages, including two tiers of staff training and four consultation

sessions. She also designed the relevant tools and forms to help the staff members carry out the PBS intervention.

Tier One Training

Four identical introductory training workshops were conducted and, in total, 234 direct service staff members attended. The staff members included centre managers, social workers, welfare workers, workshop instructors, therapists, nurses, care workers, cooks, and drivers. The workshop's content covered: 1) an introduction to the philosophy, values, and principles of the PBS model and its application; 2) an analysis of the reasons behind challenging behaviours; and 3) participants' roles in the application of the PBS model in service units.

Tier Two Training

In total, 23 social workers who implemented the PBS intervention for the identified service users attended the Tier Two Training. The participants were required to attend two sessions, in order to gain an advanced and in-depth knowledge of the PBS model. They also learned about the research methodology, including baseline collection and the single subject research design (SSRD).

Consultation Sessions

Social workers who implemented the PBS intervention were offered four consultation sessions, to provide them with professional advice and ongoing support during the course of implementing the PBS model. Participants took turns sharing their case analyses, intervention plans, and case progress. Adopting a mutual learning approach, the participants' practical wisdom grew and developed through their professional exchanges. The author then further consolidated their learning in regard to the PBS model by giving them concrete feedback and advice on the individual cases.

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Relevant Tools and Forms

To localise the PBS model, the author designed the following tools and forms for staff members to use when conducting the PBS intervention:

- The “All About Me” Book;
- A subjective assessment form for challenging behaviours;
- An investigation form for challenging behaviours;
- A set of baseline record sheets;
- A set of challenging behaviour record sheets;
- A PBS action plan;
- A PBS progress report sheet.

Research Methodology

Participants

The project involved two kinds of participants: service users and staff members. For the service user participants, the PBS model was applied in 11 adult service units of the Association. A total of 18 participants completed the entire research analysis procedure (Table 1).

Of the 23 social workers who implemented the PBS model with their service users, 18 were involved in the data collection. Their demographic characteristics are shown in Table 2.

Table 1
The demographic characteristics of the service user participants ($N = 18$)

Variable	Frequency	%
Gender ($n = 18$)		
Male	11	61.1
Female	7	38.9
Age group in years ($n = 18$)		
15-24	3	16.7
25-34	7	38.9
35-44	2	11.1
45-54	5	27.8
55-64	1	5.5
IQ group ($n = 18$)		
Mild	5	27.8
Moderate	12	66.7
Severe	1	5.5
Types of disability other than ID ($n = 9$)		
Autism Spectrum Disorder (ASD)	5	55.6
Mental illness	1	11.1
Physical disabilities	3	33.3
Types of Challenging Behaviours ($n = 26$)		
Self-harming/harming others	7	26.9
Inappropriate social behaviours	13	50
Emotional problems	4	15.4
Other	2	7.7
Services received ($n = 18$)		
Day activity centre	4	22.2
Vocational service	6	33.3
Residential service	8	44.5

Table 2
The demographic characteristics of the staff member participants ($N = 18$)

Variable	Frequency	%
Gender ($n = 18$)		
Male	6	33.3
Female	12	66.7
Age group in years ($n = 18$)		
18-24	1	5.6
25-34	6	33.3
35-44	7	38.9
45 or above	4	22.2
Social work experience in ID field ($n = 17$)		
0-5 years	6	35.3
6-10 years	6	35.3
11-15 years	1	5.9
16-20 years	4	23.5
Service units ($n = 16$)		
Day activity centre	6	37.5
Sheltered workshop	4	25
Hostel for people with moderate ID	4	25
Hostel for people with severe ID	2	12.5

Research Design

There were two research questions: 1) To what extent will the PBS model alleviate the challenging behaviours of the participating service users with IDs? 2) To what extent will the staff training development enhance the staff members' competency in using the PBS model?

Effectiveness of the PBS Model for Alleviating Challenging Behaviours

To answer the first research question, a single-system research design (SSRD) for experimental research was adopted. The advantages of a SSRD are: 1) It is able to provide both individualised interventions and produce research evidence; 2) it allows us to rigorously and sequentially test multiple approaches until an adequately powerful intervention strategy is refined.

In the SSRD, 18 service user participants who displayed challenging behaviours were participated in the study. Stable baselines

regarding the target challenging behaviours of individual service user participants were collected before the PBS intervention. Data were continuously collected throughout the intervention process. An A-B design (a two-step procedure: baseline and intervention), A-B-A design (a three-step procedure: baseline, intervention, and withdrawal of intervention/reversal), or A-B-A-B design (a four-step procedure: baseline, intervention, withdrawal of intervention/reversal, and re-implementation of intervention/reinstatement) were adopted depending on the specific conditions of individual cases. Visual analysis was used and two principles—clear discontinuity and trend reversal—were adopted to assess the results and evaluate the effectiveness of the PBS intervention.

Social Workers' Change after the Project

To answer the second research question, a pretest-posttest design was used to measure the change in social workers' competency in using the PBS model and managing challenging

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behaviours after receiving the staff development programmes and implementing the PBS.

Instrumentation –

The questionnaire measures of staff members' confidence in dealing with challenging behaviour, emotional responses, and attributions. It included three instruments.

Confidence in managing challenging behaviour was measured by the Challenging Behaviour Staff Perceptions Questionnaire Self-Efficacy Scale, which achieves a high level of internal consistency, with a Cronbach's α greater than 0.90 (Hastings & Brown, 2002). The scale comprises self-rated items on a Likert scale with higher summed scores denoting higher levels of perceived confidence.

The Emotional Responses to Challenging Behaviour Scale (Mitchell & Hastings 1998, 2001) is a 15-item scale comprising a list of negative emotions typically experienced by caregivers when working with those who display severely challenging behaviour. The scale reported a good test-retest reliability ($r = 0.74$, $r = 0.81$ for the two subscales) and good internal consistency (Cronbach's alpha coefficients $\alpha = 0.83$, $\alpha = 0.85$) (Mitchell & Hastings 1998, 2001).

The Challenging Behaviour Attribution Scale (CHABA) (Hastings, 1997) was used to measure beliefs about the causation of challenging behaviour. This comprises a 33-item list of possible causes for challenging behaviour. Each item is rated on a five-point scale, from very unlikely to very likely. The items are classified under five sub-scales, to represent five causal models: learned behaviour (positive and negative), biomedical factors, emotional factors, self-stimulation, and physical environment, which have acceptable levels of reliability, with Cronbach's alpha values between $\alpha = 0.65$ and $\alpha = 0.87$.

Data Analysis –

A t-test was used to analyse the significance level of the score differences of staff participants before and after attending the staff development programme.

Ethical Concerns –

Ethical approval was obtained from the Institutional Review Board of The Chinese University of Hong Kong before conducting the study. All participants were provided with information about the research project and were invited to take part in the study on a voluntary basis. They could withdraw from the study at any time without any adverse consequences. Written consent from participants was sought.

Results

The results showed that seven out of the 18 service users achieved an observable alleviation in their challenging behaviours in terms of the severity or frequency of those behaviours (Figure 1 to 7).

In regard to the social worker participants' changes, the results of the Challenging Behaviours Self-Efficacy Scale between pre-test and post-test were analysed using paired-samples t-tests. There was a significant positive change in the staff members' self-efficacy when encountering challenging behaviours at post-test (Table 3). The participating social workers were shown to be more confident in managing the challenging behaviours of service users with intellectual disabilities after the PBS training and implementation. They felt that the situations were less difficult, their attitudes were more positive, and they were more confident with their ability to deal with the service users' challenging behaviours. They also felt more in control of the challenging behaviours.

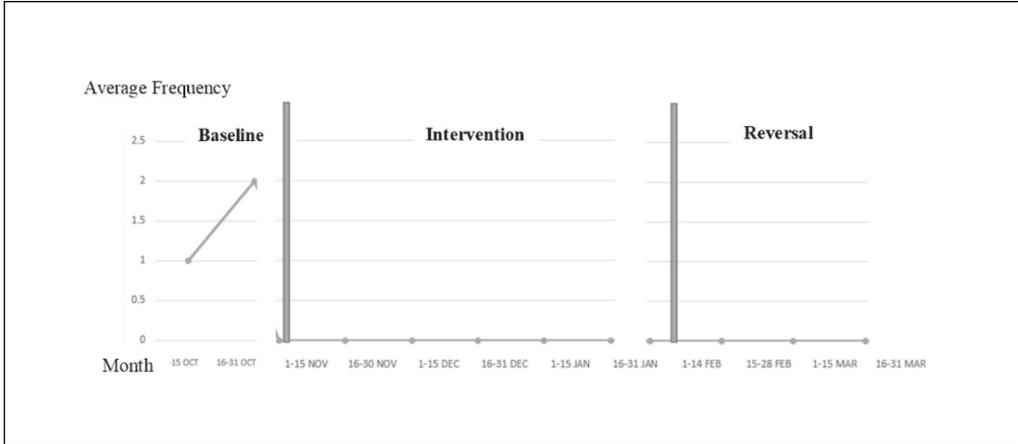


Figure 1: Change in Challenging Behaviour of Service User Participant A

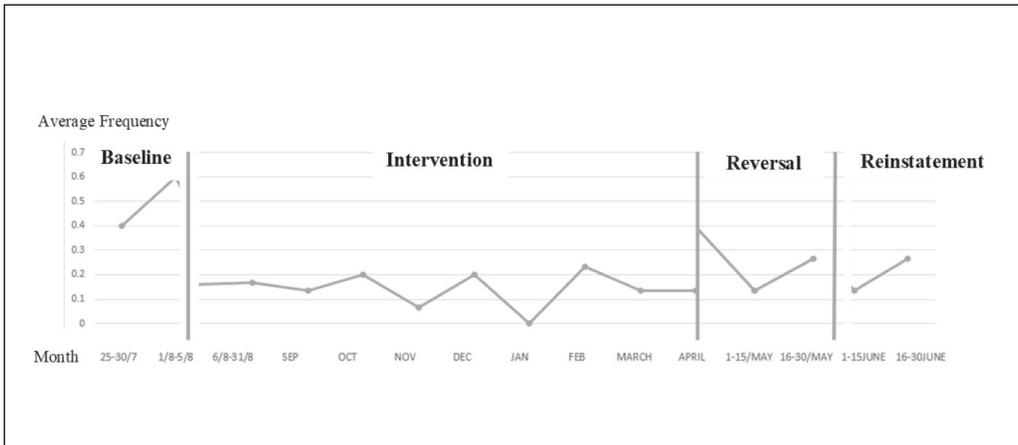


Figure 2: Change in Challenging Behaviour of Service User Participant B

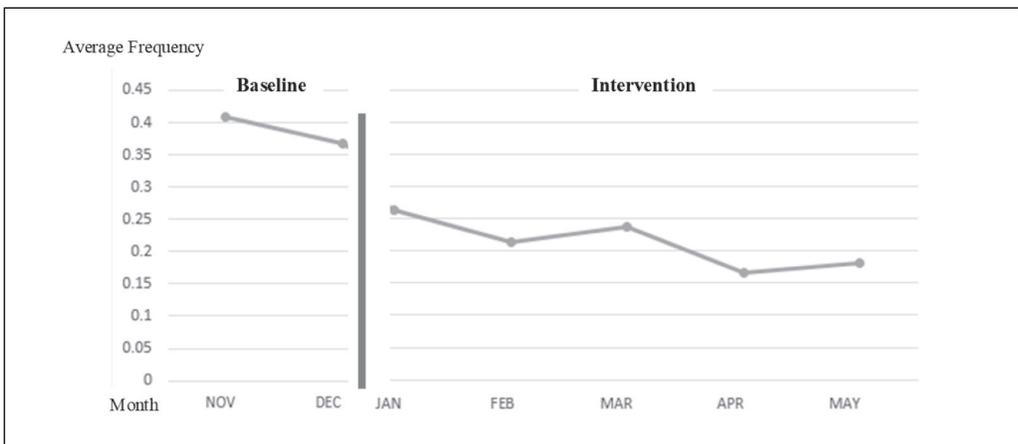


Figure 3: Change in Challenging Behaviour of Service User Participant C

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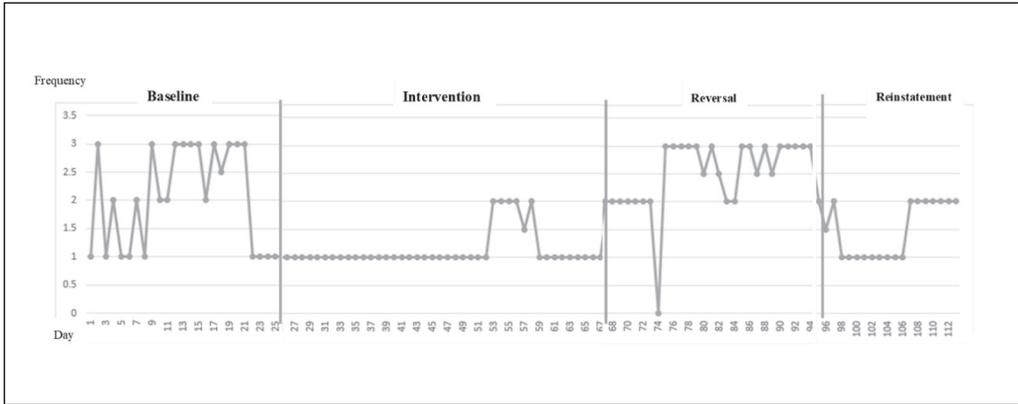


Figure 4: Change in Challenging Behaviour of Service User Participant D

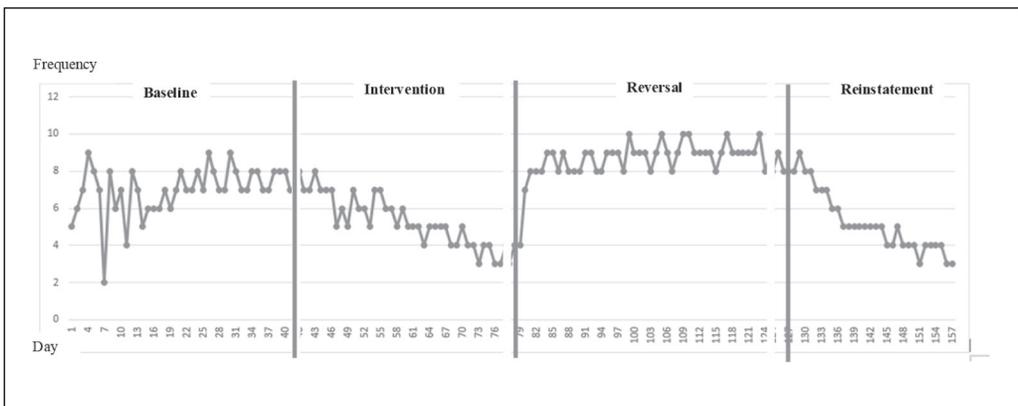


Figure 5: Change in Challenging Behaviour of Service User Participant E

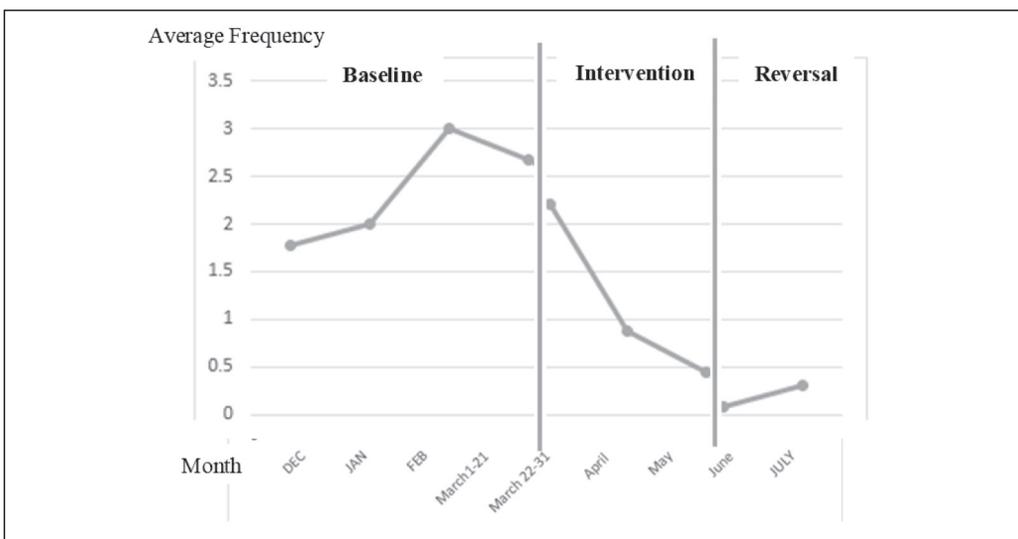


Figure 6: Change in Challenging Behaviour of Service User Participant F

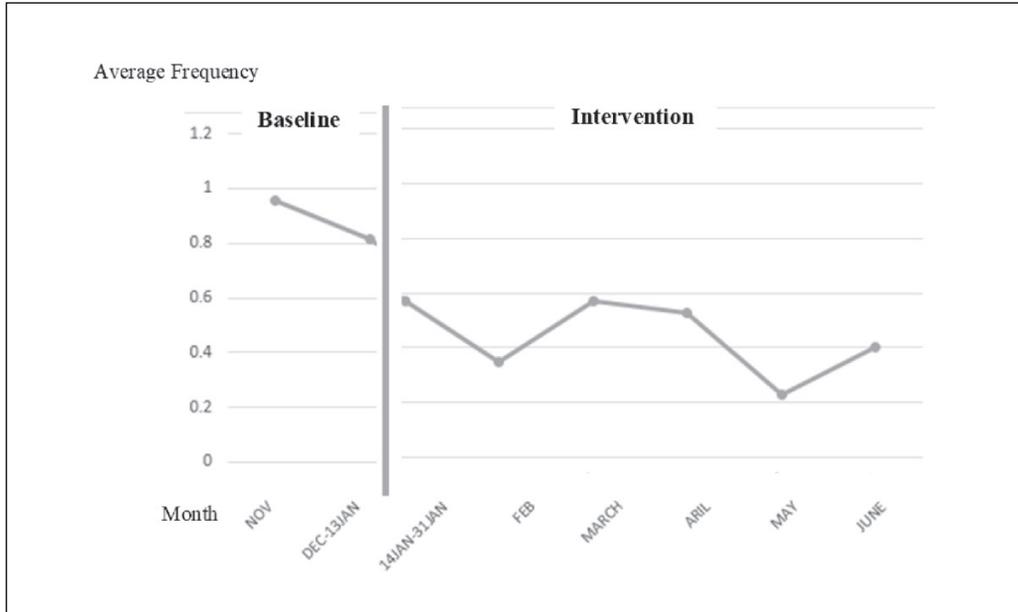


Figure 7: Change in Challenging Behaviour of Service User Participant G

Table 3
Pretest-Posttest Change in the Challenging Behaviours Self-Efficacy Scale (n = 14)

	Pretest score		Posttest score		t	df	p
	Mean	SD	M	SD			
Challenging Behaviours Self-Efficacy Scale	22.3333	2.16025	25.6667	2.12692	-5.292	14	.000

Significance level at $p \leq 0.00$.

In view of the Positive Emotional Reactions to Challenging Behaviours Scales, the results showed that social worker participants' positive emotional reactions to challenging behaviours were enhanced significantly (n = 15) at post-test (Table 4). In terms of their specific positive emotions, they felt more

“confident”, “comfortable”, “happy”, “self-assured”, “relaxed”, “cheerful”, and “excited”. It was shown that, after the PBS training and implementation, the staff members had gained significant positive emotions toward working with people who displayed challenging behaviours.

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Table 4

Pretest-Posttest Change in Positive Emotional Reactions to Challenging Behaviours Scale ($n=15$)

	Pretest score		Posttest score		<i>t</i>	<i>df</i>	<i>p</i>
	Mean	SD	M	SD			
Positive Emotional Reactions to Challenging Behaviours Scale	10.0000	3.65148	12.9375	3.73218	-3.179	15	.006

Significance level at $p \leq 0.00$.

Discussion

This project was a pioneer attempt in localisation, implementation, and evaluation of PBS in the field of intellectual disability. The results of the SSRD study showed that the challenging behaviours of seven out of 18 service users were alleviated. Comparison of pre-test and post-test results showed that the staff development package with two tier training and consultation sessions, and coaching on implementation, effectively enhanced social workers' competence in managing challenging behaviours and enabled them to experience more positive emotions when encountering challenging behaviours. It is expected that the positive results of this project will help to promote the development of the PBS model in the ID field in Hong Kong.

During the staff training process, it was observed that some social worker participants were less interested in the research tasks; they perceived the learning of practical PBS skills as more important than the evaluation research. It may be a common phenomenon in the local ID field that staff members put most of their efforts into maintaining the service's daily operation, but are less concerned with the development of evidence-based interventions. In view of the staff members' hesitation with research participation, the author and her research assistant implemented additional support to facilitate the staff participants in

this area. The support included: 1) allocating a session to emphasising the importance of baseline collection and on-going records in assessing the trend of challenging behaviours and evaluating the effectiveness of interventions; 2) establishing a set of ready-to-use excel files for the staff participants to use to enter and keep track of relevant data; and 3) rendering individual support to staff participants whenever necessary.

A key constraint in this project was that the MHAHK encountered difficulties with the administrative procedures from January to September 2018. During this period, the CUHK side was not able to proceed with the project. This delay shortened the length of the PBS implementation from 14 months to just five months, which in turn inevitably reduced the effects of the PBS model on the deep-rooted challenging behaviours of the service users. Given a longer implementation time, the positive effects of the PBS model in reducing users' challenging behaviours and enhancing their well-being could likely be significant bigger.

Recommendations

Advanced Level of Training and Supervision

In general, the social workers who participated in the study reflected that they had changed their attitudes and mindsets toward challenging behaviours and had learned to

understand the needs of service users across different dimensions. However, they were still not fully confident when applying the PBS concepts and practical skills in dealing with difficult cases. Therefore, an advanced level of training would likely be helpful.

In addition, the participating social workers suggested that senior social workers and centre managers could be involved in future training. Instant and mutual support among the social workers could be promoted at the service unit level as a result.

Participation by All, and Commitment by the Association

The PBS model emphasises environmental assessment and intervention. Its effectiveness largely depends on the rearrangement of the physical environment and the creation of a supportive human environment. Apart from the participation of social workers, frontline personnel and other professionals should be involved in implementing PBS, particularly in multidisciplinary team approach settings. The participating social workers proposed that all staff members be further equipped—including frontline care workers, training workers, psychologists, nurses, occupational therapists and physiotherapists, and others—with the rationale, concept, knowledge, and skills of the PBS model.

There is a need for the Association make a long-term commitment if it expects the PBS model to be well-established at the centre level and to provide benefits to service users who have challenging behaviours. This commitment should include providing sufficient resources, such as reallocating time and workloads; cultivating a supportive environment through timely training and mutual learning; and establishing a platform through which to give support and recognition.

Enhancement of Staff Members' Knowledge and Skills in Evidence-Based Practices

Staff members should be helped to understand the importance of research elements and outcome measurements in their practice. They will need to further equip themselves with the tools of baseline information collection and ongoing record-keeping (i.e., data collection methods and the application of data entry and analysis via software such as Excel), the use of sensitive and person-centred behavioural assessment and intervention planning, the application of the concepts and skills of the SSRD, and the use of the analytical skills of the SSRD.

Notes

This issue of Hong Kong Journal of Mental Health was originally scheduled to publish in 2018. However, it was delayed to release in 2020. Therefore, some of the information in this paper was added between 2018 and the time it was published.

摘要

智障成人「正向行為支持」的應用：
香港開創性研究

背景：儘管「正向行為支持」在國際智障人士服務領域中，愈受關注。然而其技巧仍未完全普及，在香港尤甚。本研究首次將「正向行為支持」模式有系統地應用於智障成人服務領域中，旨在使社工具備「正向行為支持」模式相關的知識與技巧，以幫助減少服務使用者的需關注行為。

研究方法：本研究共有18位服務使用者及18位社工參與。並採用「單一系統研究設計」與「前後測研究設計」以分別測量服務使用者需關注行為的改善情況及社工的轉變。

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研究結果：7位服務使用者的需關注行為得到改善。參與社工管理需關注行為的能力亦有增強。

討論：本文將討論實踐「正向行為支持」的經驗，及為將來發展作出建議。

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