

Factors influencing quality of behaviour support plans and the impact of plan quality on restrictive intervention use

Lynne Webber, Ph.D¹, Keith McVilly, Ph.D², Tarryn Fester¹ and Jeffrey Chan, Ph.D¹

¹Disability Services, Melbourne, Victoria, Australia

²School of Psychology, Deakin University

Abstract

Background: The quality and effectiveness of the support provided to people with disability who show challenging behaviour can be influenced by the design and content of their behaviour support plans (BSPs). This study examined some of the factors that might influence the quality of behaviour support plans and the impact of quality of BSPs on the use of restrictive intervention.

Method: An audit of the quality of a sample of BSPs submitted to the Senior Practitioner in Victoria in the years 2009 and 2010 was conducted using the *Behavior Support Plan Quality Evaluation, 2nd Edition* (BSP-QE II).

Results: Factors found to positively influence quality of BSPs included: involvement of behaviour consultants and involvement of clinicians from the Office of the Senior Practitioner (Office). Overall quality of plans was also negatively related to restrictive intervention use over time.

Conclusions: The findings support the need for behaviour intervention and provision of clinical support. The findings also provide tentative support for the notion that the inclusion of evidence-based quality components into behaviour support plan formats may reduce the use of restrictive interventions.

Keywords: Positive behaviour support planning, quality of behaviour support plans, learning disability, challenging behaviours, restrictive interventions

Introduction

There is evidence to suggest that without well-planned interventions, challenging behaviours, such as harm to self or others will persist over time (Totsika et al, 2010). Furthermore, in the absence of well designed behaviour support plans (BSPs) it is likely that these behaviours will be managed primarily with chemical and or other restrictive interventions, even when there is a lack of evidence about the efficacy of these interventions (Oliver-Africano, Murphy & Tyrer, 2009). Restrictive interventions such as restraint and seclusion impact directly on the person's human rights, limiting among other things, freedom of movement (mechanical restraint and seclusion) and the ability to think clearly

(eg, chemical restraint). Their continued use has been increasingly challenged (Allen et al, 2009; Ferleger, 2009; Sturmey, 2009).

The lack of efficacy of restrictive interventions is not surprising because they do not address the cause for the behaviour or provide for the person's needs, nor do they teach the person more adaptive ways to communicate or meet their own needs (Webber, Ramcharan & McLean, 2010). Alongside the lack of efficacy of restrictive interventions there is a considerable empirical literature suggesting that good behaviour support planning that incorporates bio-psychosocial assessments and evidence-based interventions is important as it results in

Correspondence: Dr Lynne Webber, Manager, Office of the Senior Practitioner, Disability Services, Department of Human Services, Level 7, 50, Lonsdale Street, Melbourne 3000, Australia.

reductions of behaviours of concern and leads to better outcomes for people with a disability (Carr et al, 2004; Cook et al 2007; Didden et al, 2006; Harvey et al, 2009). Although it follows that good quality behaviour support planning would also result in the use of less restrictive interventions, we know of no research that has examined this possibility (cf, Sturmey, 2009).

Previous research from the USA suggests that there are several factors that impact favourably on the quality of behaviour support planning. One of the best studied factors is the expertise of the support team. For example, Benazzi, Horner and Good (2006) found that behaviour support plans (BSP) developed by teams with knowledge about the context, the student, and behavioural theory, produced high quality behaviour support plans, as evaluated by experts.

Other researchers in USA have used a standard criterion-referenced tool, the Behavior Support Plan-Quality Evaluation II (BSP-QE II) (Browning-Wright, Saren & Mayer, 2003), to assess quality of BSPs and found that expertise in behaviour support is an important factor in overall quality of BSPs. For example, Kraemer et al (2008) found that special education teachers who have been trained in the key quality components of behaviour support plans write better quality plans than teachers without this training. Cook et al (2010) found that teachers with more advanced training in behaviour support developed better quality BSPs than teachers without this training. There is also evidence that teachers who work within schools with a 'school-wide' positive behaviour support focus also develop better quality plans than teachers from schools without such a focus (Medley, Little & Akin-Medley, 2008).

Similar trends have been found in our own evaluation of BSPs written for adults in Victoria, Australia. BSPs which had the inclusion of a behaviour consultant or specialist (that is, someone with expertise in behavioural assessment and interventions) showed a trend towards better quality plans than BSPs without this person's inclusion (Webber et al, in press). However, it was not possible for us to empirically examine the impact of this factor, since so few BSPs sampled had reported the inclusion of a behaviour consultant or behaviour specialist. Therefore, one of the aims of the present study was to examine a larger sample of BSPs and the impact of the reported inclusion of a person with specialist knowledge in behaviour support.

While the extent to which written plans are implemented by disability support staff remains largely unknown (cf,

Webber, McVilly, Fester & Zazelis, 2011), there is evidence to suggest that written intervention programs that include positive and proactive support are less likely to lead to breakdown in placements than those without a written intervention program (Broadhurst & Mansell, 2007). There is also evidence to suggest that the quality of BSPs can predict the successful implementation of strategies and ultimately the quality of the outcomes for the people being supported (Blood & Neel, 2007; Cook et al, 2010).

Allen et al, (2009) identified several predictors of reactive strategy (seclusion, physical restraint and sedation) use. They found that the presence of a behavioural plan predicted the likelihood that a reactive restrictive intervention would be used. However, this might have been due to the emphasis in the plans on reactive interventions. Allen et al note that they did not examine the quality of these plans, but hypothesised that if proactive therapeutic support was missing, then reactive procedures would inevitably be used. These findings further emphasise the importance of systematically evaluating the quality of the content of plans.

Most of the above mentioned research has been conducted in the USA or the UK. Previous research findings in Victoria, Australia demonstrates similar trends. The State of Victoria in Australia is the second largest State in Australia with approximately 25 per cent of Australia's total population. Approximately, 0.5 per cent of the population of Victoria is provided with a disability service from government operated and/or government funded organisations (non-government organisations). In Victoria, people with disability who are subjected to restraint (chemical or mechanical) or seclusion are required by law to have a behaviour support plan that specifies how the person will be supported and which restrictive interventions will be used (Disability Act, 2006). Disability service providers are required to report the use of restrictive interventions and provide a copy of the BSP to the Senior Practitioner who is responsible for monitoring and reviewing BSPs to ensure that the rights of people with a disability are protected (Disability Act, 2006). From July 2007–June 2008 approximately 8 per cent of people with an intellectual disability who received a government funded service were subjected to chemical, mechanical restraint and/or seclusion. These statutory reporting procedures provide an opportunity to examine, at a population level, some of the factors that influence the quality of BSPs and the influence of the quality of behaviour support planning on restrictive intervention use.

In previous work we found evidence that BSP-QE II provided a valid and reliable evaluation of behaviour support plans designed for adults in Australia (Webber et al, 2011). In terms of quality of the individual components of the BSPs we evaluated, we found that on average, most direct support professionals in Victoria were able to satisfactorily describe the problem behaviour and predictors of problem behaviour. However, BSP writers appeared to have more difficulty describing: (1) the factors supporting the behaviour of concern; (2) the environmental changes needed to be in place that would remove the person's need to use the behaviour of concern; (3) the reactive strategies that would be used when the behaviour of concern occurred; and (4) evidence of team co-ordination, that is, who would do what. Few of the BSPs reviewed included information about: (1) the function of the behaviour; or (2) the replacement or alternative behaviours that that could be taught. The lowest scores were found on the following four components of planning: (1) alternative skills that could be taught to people to replace the behaviours of concern; (2) how people would be reinforced to use new behaviours; (3) what the goals and objectives were in decreasing behaviours of concern and increasing positive behaviours; and (4) evidence that a team approach had been used in the development of the plan. Without close attention to these four areas of behaviour support planning, based on accepted best practice, we believe that it would be unlikely that BSPs will be successful in bringing about effective and sustainable changes in people's lives (cf Allen et al, 2009). In the current study we investigated this possibility by examining the impact of the quality of BSPs on restrictive intervention use. We hypothesized that the quality of plans would impact on the use of restrictive interventions; that is, plans rated as higher quality would be more likely to result in decreases of restrictive intervention use than plans rated as lower quality.

The overall aim of the current study was to examine the impact of four factors on the quality of a random selection of behaviour support plans that were designed for children and adults with an intellectual disability who were accessing disability services in Victoria, Australia. First, based on previous work by Benazzi et al (2006) and Cook et al (2007) it was expected that there would be a difference in quality between plans developed with the involvement of disability professionals with 'typical' versus 'advanced' training in behavioural theory and practice (people working as behaviour consultants or

behaviour intervention specialists). That is, BSPs designed with the involvement of a behaviour consultant or behaviour intervention specialist were expected to be better quality than those designed without this involvement. Second, we also expected that those BSPs that had received oversight from expert clinicians within the Office of the Senior Practitioner would be better quality than those without this oversight. Third, also related to expertise we expected to find a difference between those BSPs which had the involvement of a disability professional who had attended an intensive series of behaviour support planning sessions with clinicians from the Office of the Senior Practitioner compared to those that had not. Fourth, based on previous work (Webber et al, in press), we expected that BSPs that used a template developed by the Office of the Senior Practitioner which specified the main components of good behaviour support planning would be better quality than those designed using alternative formats.

Finally, if good behaviour support planning positively impacts on restrictive intervention use, we expected that those with higher quality plans in 2008–2009 would be more likely to experience a decrease in the use of restrictive interventions for the reporting period 2009–2010 compared to the number of restrictive interventions that had received for the reporting period 2008–2009, in contrast to those people with lower quality plans for the same reporting periods.

Factors method

Factors design

The evaluation process was conducted under the provisions of the Disability Act (2006) that provides for the regular review and evaluation of behaviour support plans developed by disability support providers in Victoria, Australia. A desk audit was conducted involving a total of 394 randomly selected behaviour support plans submitted as a statutory requirement to the Senior Practitioner (Department of Human Services, Victoria), by government and community sector service providers in 2009–2010. The sample of 394 plans represented 20 per cent of the people who were reported to be subjected to a restrictive intervention in Victoria during the year 2009–2010 (N=1952). Plans were selected on the basis of every third plan submitted to the Office of the Senior Practitioner, but excluding duplicate (eg, updated) plans for the same people. For administrative purposes, plan selection was restricted to those submitted during the first three quarters of the reporting

year. One person (the third author) who had extensive experience in using the BSP-QE II, used the BSP-QE II to evaluate the quality of the 394 behaviour support plans. The validity and reliability of the BSP-QE II including the reliability of the present evaluator had previously been established (Webber et al, 2011).

Webber et al (2011) found that all of the items comprising the BSP-QE II are considered by experienced Australian practitioners as relevant and important to the development of, and for inclusion in, behaviour support plans for adults with intellectual disability supported in community based residential and day support services. Furthermore, the findings indicate acceptable levels of inter-rater agreement for the majority of the individual items, when used by people who have undergone some minimal training and practice. Interrater reliability using percentage agreement was found to range between 40 per cent (Team Coordination) to 100 per cent agreement (Reinforcement Strategies). On average, agreement between raters was found to be 82 per cent. The mean rating of kappa was 0.73. In addition, interrater agreement was calculated for two separate times in the assessment process. Interrater agreement was initially assessed after the first 10 plans had been rated and then after a further 20 plans had been rated. An agreement of approximately 75 per cent was found between the two raters after 10 plans had been rated and approximately 90 per cent after an additional 20 plans had been rated.

Independent variables

The independent variables were as follows:

1. *Involvement of a behaviour consultant.* Any BSPs that had recorded that a behaviour intervention specialist, behaviour consultant or psychologist as being consulted in the development of the BSP was included as having the involvement of a behaviour consultant.

2. *Reviews from clinical team members within the Office of the Senior Practitioner.* The clinical team included psychologists, mental health nurses and speech pathologists. Clinical assessment and recommendations and may have included advice to access other services (eg, a psychiatric review) or a visit from one or more of team members. Visits could range from a two-hour review of medication sheets, to half day thorough individual assessment and recommendations and may have included suggestions on how to reduce the use of restraint and seclusion and increase the use of positive

behaviour support. All clients who had received a review from the clinical team had this information noted on the recording sheet.

3. *Disability professionals who had attended intensive BSP training.* The Office's clinical team had provided a series of 8 x 5 hours of workshops to disability support professionals in 2008 and 2009. Participation of disability professionals was noted on the recording sheet for any BSPs that had received their involvement.

4. *BSP template developed by the Office of the Senior Practitioner.* The Office of the Senior Practitioner developed a BSP template for the use of disability practitioners which was based on statutory requirements and good practice guidelines and included the main components of a behaviour support plan including behaviour, assessment of behaviour, positive behaviour supports and restrictive intervention use. The use of the template was not mandated but made available to all disability service providers in Victoria. Any BSP that had used the BSP template developed by the Office of the Senior Practitioner was noted on the recording sheet as having used the Office template.

Dependent Variables

There were two main outcome variables:

1. *The Behavior Support Plan – Quality Evaluation guide II.* The BSP-QE II assesses 12 components of behaviour support planning, including: (1) defining the problem behaviour; (2) specifying the predictors for each behaviour; (3) analysing what is supporting the behaviour to occur; (4) specifying environmental changes; (5) hypothesizing functions that relate to the predictors of the behaviour; (6) describing replacement or alternative behaviours that relate to the function of the behaviour; (7) teaching strategies for alternative behaviour/s identified; (8) specifying reinforcers for the alternative behaviour/s; (9) outlining reactive strategies; (10) specifying the goals and objectives that can be used to evaluate progress; (11) details of team coordination; and (12) details of communication strategies among staff. The BSP QE scoring criteria was revised and has been renamed the BSP QE II. The validity and reliability of the BSP-QE II has previously been established in the USA (Browning Wright et al, 2003; Cook et al, 2007) and more recently in Australia (Webber et al, in press).

To assess quality of BSPs using the BSP QE II, each of the quality components is rated on a three-point scale

(0, 1, or 2 – higher ratings indicating higher quality), based on an objective description specifying the features that are expected of each component. Overall, a behaviour support plan can obtain a score ranging from 0 (ie, none of the quality criteria are present in any of the 12 areas) to 24 (ie, all quality criteria are present across all areas). Analyses were conducted on BSP-QE II sub-scale and total scores, with higher scores indicative of higher quality BSPs.

2. Restrictive interventions. The total number of restrictive intervention events per person’s plan (n=394) were summed for the two reporting years, July 2008–June 2009 and July 2009–June 2010. Restrictive intervention events included any reports of chemical, mechanical restraint and seclusion use of any type (ie., routine – used on a regular basis; PRN – as needed and specified in a BSP; and emergency – if needed, but not specified in a BSP).

Analysis

Descriptive and multivariate statistical analyses were employed as appropriate.

Results

Characteristics of the plans. Table 1 shows the main demographic characteristics of the 394 behaviour support plans in terms of client’s background and involvement from different people. All people had a cognitive impairment and showed behaviours of concern such as harm to self and or others and were subjected to one or more restrictive intervention including chemical, mechanical restraint and or seclusion. It should be noted that the proportion of males and females, first people (people indigenous to Australia), children and adults and whether services were provided by government or non-government

Table 1. Demographic characteristics of the behaviour support plans

Characteristic	N	Per cent
Gender: Male/Female	267/127	68/32
First people (indigenous Australians)	10	2.5
Children/adults	113/281	29/71
Government/Non-government services	236/158	60/40
Inclusion of a behaviour specialist on BSP team	112	29
Office BSP format used	349	89
Inclusion of a team member who had attended Office led BSP professional development	56	14

services were similar to the proportion of these characteristics in the total population of people who were subjected to restrictive interventions, suggesting that the sample of BSPs were a good representative sample of the population from which they were drawn (cf Office of Senior Practitioner, 2011). BSP-QE II total scores were used as the main dependent variable in the following preliminary analyses.

Preliminary analyses revealed no difference between the average total BSP-QE II scores for: (1) males ($M=10.9$, $SD=3.4$) and females ($M=10.3$, $SD=3.5$); (2) first people (indigenous people) ($n=10$; $M=9.9$; $SD=3.0$) and other people ($M=10.7$; $SD=3.47$); (3) children ($M=9.92$, $SD=3.1$) and adults ($M=11.05$, $SD=3.54$); (4) Government provided services ($M=10.81$, $SD=3.58$) and Non-government Services ($M=10.56$, $SD=3.27$). None of these variables were considered further in the following analyses. Significant differences in the quality of behaviour support plans were found between different types of services $F(1, 359) = 7.88$, $p=0.0001$ (Accommodation $M=11.51$, $SD=3.5$), (respite $M=9.4$, $SD=3.04$), (day programs $M=9.9$, $SD=3.24$), and (congregate care $M=12.12$, $SD=2.3$). Significantly higher average scores were found for people older than 18 years of age ($M=10.96$, $SD=3.53$) than people who were younger than 18 years of age ($M=9.95$, $SD=3.12$) ($F(1, 359) = 8.5$, $p=0.004$). However, service type and age are confounded, because some service types, such as day services, are only offered to adults and the majority of people who access respite services are younger than 18 years of age.

In order to adjust for the effect of age on service type (eg, accommodation, respite and day services), age was used as covariate in all further analyses. Unless otherwise specified, all further analyses used a Multivariate Analyses of Covariance, with Sheffe post hoc tests and Cohen’s d where appropriate.

Impact of a behaviour consultant. BSPs designed with the involvement of a behaviour consultant or behaviour intervention specialist ($n=119$) were found on average to be better quality than those designed without this involvement $F(1, 392) = 6.59$, $p=0.01$ (Consultant: $M=12.47$, $SD=3.32$; no consultant $M=10.00$, $SD=3.26$). This was a medium to large effect (Cohen’s $d = 0.75$, $r=0.35$). The BSPs that had a behaviour specialist’s involvement showed significantly higher scores on all quality components except for reactive strategies and goals and objectives.

Impact of the Office's clinical team. BSPs that had received oversight of the clinical team from the office were better quality than those without this oversight. On average, BSPs with the Office's clinical oversight were better quality ($M=11.6$, $SD=3.66$) than those that had not received this input ($M=10.36$, $SD=3.32$), $F(1, 383)=4.36$, $p=0.04$, though, this was a relatively small effect (Cohen's $d = 0.35$, $r=0.17$). BSP's with the Office's clinical team involvement showed significant impact on three aspects of behaviour support planning: (a) the description of the behaviour of concern ($F(1, 392)=4.9$, $p=.03$); (b) environmental changes ($F(1, 392)=5.89$, $p=0.02$); (c) alternative behaviour that meets the same function as the behaviour of concern ($F(1, 392)=11.12$, $p=.001$). In all instances Cohen's $d < 0.36$, $r < 0.18$, constituting a small effect.

Impact of the Office template. The BSPs that had used the BSP template provided by the Office of the Senior Practitioner were not significantly higher quality ($M=10.85$) than those that had not used the Office BSP template ($M=9.3$). It should be noted the majority of BSPs ($n=349$, 86 per cent) had used some version of the template developed by the Office of the Senior Practitioner.

Impact of BSP professional development series. There was no significant difference between those people who had attended the intensive series of behaviour support planning sessions ($M=11.3$, $SD=2.95$) compared to others who did not ($M=10.6$, $SD=3.54$).

Impact of quality of BSPs on restrictive intervention use. The total number of events in year 2008–2009 ranged from 0 to 889 events per year with a mean of 21.99 events ($SD=63.2$) in 2009–2010 events per year with a mean of 23.8 events ($SD=60$). These data were not normally distributed for either year, so the data was grouped into two groups: (1) those people who experienced no change or an increase in restrictive intervention events between years 2008–2009 and 2009–2010 (56 per cent of the sample of 394 people); and (2) those people who experienced a decrease in number of restrictive intervention events from 2008–2009 to 2009–2010 (36 per cent of the sample). Data was missing for 7.9 per cent of the sample). As expected people who had received fewer restrictive intervention events within the year (July 2009–June 2010) compared to July 2008–June 2009 had better quality BSPs ($M = 11.28$, $SD=3.2$) than those who had received the same number or increases in restrictive intervention events ($M=10.43$, $SD=3.5$), $F(1, 360)=5.77$, $p=0.017$. Though,

this was a relatively small effect, Cohen's $d = 0.25$, ($r=0.13$)

BSPs that were associated with decreases in restrictive interventions from 2008–2009 to 2009–2010 were more likely than BSPs associated with no change or increases in restrictive interventions to have better descriptions of: (a) environmental changes ($F(1, 361)=8.22$, $p=0.004$), Cohen's $d=0.32$ ($r=0.16$); (b) functions of behaviour of concern ($F(1, 361)=7.19$, $p=0.008$), Cohen's $d=0.28$ ($r=0.14$); and (c) teaching strategies ($F(1, 361)=7.98$, $p=0.005$), Cohen's $d=0.29$ ($r=0.15$). However, as with the previous analyses, while all of these reached statistical significance, the effect sizes were relatively small, accounting for only approximately some 2 per cent of the variance in ratings of quality.

Discussion

The current study was designed to examine the impact of several factors on quality of behaviour support plans as assessed by the BSP-QE II. As expected, the results show that the availability of behaviour consultants and other clinicians appear to result in improved quality of plans, when compared to plans without this input. Moreover, the impact of behaviour consultants was found to have a significant impact on most components of BSP quality. These findings are consistent with previous studies conducted in the USA, focusing on behaviour support plans for children in schools (Browning-Wright et al, 2007; Cook et al, 2007) in showing that involvement of consultants with expertise in behaviour support for people with an intellectual disability increases the quality of behaviour support plans.

The results of this study are important because this is the first study that we know of, showing that overall quality of behaviour support planning impacts on restrictive intervention use. Moreover, as predicted, significant differences in understanding the functions of behaviours of concern and positive behaviour support aspects (namely, environmental changes and teaching strategies) were the main components showing significant differences between BSPs that were associated with decreases in restrictive intervention use and BSPs that were associated with no change or increases in restrictive intervention use.

Two findings were contrary to expectations: (1) the lack of significant differences between those who used the Office BSP template and those who used another template and (2) the finding that the professional development provided to disability professionals was

not sufficient to make a difference in terms of quality of BSPs. It should be noted that both results were in the direction predicted, but failed to reach significance. There are several possible reasons for these findings. First, with respect to the lack of significance between those who had used the Office template and an alternative template, one possible reason is that while the Office template did include a number of prompts to assist those using it to focus on 'best practice' principles for the design of BSPs, it was primarily designed to ensure service providers met the administrative requirements of the Disability Act 2006. It is possible therefore that the original Office template, in terms of clinical practice criteria, did not differ substantially in quality from those formats already in use by service providers. In recognition of this, the Office is currently developing a new and more comprehensive BSP template, taking into account the quality components of the BSP-QE II which will be available in an on-line format.

The lack of significant difference between BSPs developed by those who attended an intensive series of professional development workshops and those who did not, is consistent with other research findings showing that although staff can remember new information and feel more confident in their skills, they may not necessarily apply the information (Lowe et al, 2007). It is also possible that participant's working models of support was not compatible with information presented in the sessions; that is, if someone's implicit theory or working model of support is based only on reinforcement and consequences, they may have difficulty incorporating positive behaviour support components into their current working model. Our future research will investigate this possibility.

Three main limitations of our study should be taken into account when interpreting the findings. First, restrictive intervention use is difficult to measure because a restrictive intervention event is variable. For example, it may include one episode of seclusion once a month or 10 medications given every day; clearly the impact of

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restrictive intervention events is not equivalent from one person to the next. However, although event is a blunt measure of restrictive intervention use, it is the most parsimonious measure under the circumstances. Future research needs to examine the impact of quality on plans on different types of restrictive interventions to determine if the results obtained here is the same for people subjected to different types of restrictive interventions. Secondly, both the behaviour consultant group as well as the Office clinical group is a diverse group; for example, it may include people with a psychology, speech pathology, nursing or disability background. We did not have access to the personal qualifications and therefore it is not possible to examine whether people with some types of qualifications have a greater impact than others on plan quality. Finally, although most of our results were statistically significant and in the direction expected, the average difference in total BSP-QE II scores in most analyses would not be deemed to be clinically significant. This was reflected in the relatively small effect sizes for most analyses, except for the presence of an expert consultant vs. no consultant which showed a relatively strong effect. However, it should be noted that any change in restrictive intervention use is remarkable given the relatively short period of time, one year. These findings need to be followed up over a longer period of time in future research projects.

In sum, the results of our study provide tentative evidence showing the availability of behaviour consultants and other clinicians impacts positively on the overall quality of behaviour support plans that were designed for people who show challenging behaviour. In addition, people who had higher quality plans were subjected to fewer restrictive interventions than people who had lower quality plans which provided preliminary evidence that plan quality is important to reducing the overall number of restrictive interventions.

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