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Research paper

The effects of staff training on staff confidence and challenging behavior in services for people with autism spectrum disorders

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Abstract

The effects of a 3-day training course in the management of aggressive behavior in services for people with autism spectrum disorders were investigated using a quasi-experimental design. An experimental group received training over a 10-month period and a contrast group, which had received training before this study, did not. Staff training increased carer confidence, but there were no training effects of measures of staff coping, support or perceived control of challenging behaviors. Staff reports of service user challenging behavior management difficulties decreased in both the experimental and contrast groups. This study showed that staff training can increase staff confidence in managing aggression in people with autism spectrum disorders.

Keywords: Confidence; Training; Physical intervention

Aggressive behavior in people with intellectual disabilities in community settings is shown by approximately 2–15% of children and adolescents and approximately 10–15% of adults (Rojahn & Tassé, 1996). A review of intervention literature identified autism as a risk marker for aggression (McClintock, Hall, & Oliver, 2003). Aggression has many negative consequences,

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including rejection by peers, staff and family members, exclusion from integrated settings, use of restrictive behavioral practices, increased use of psychotropic medications, injuries to self, peers and staff, and increased costs (McDonnell & Sturmey, 1993). In response to this problem a range of community-based services for aggressive and other challenging behaviors have been developed (Hanson, Weisler, & Lakin, 2002).

A wide range of interventions have been developed for aggression in people with intellectual disabilities including those based on applied behavior analysis, psychotropic medication and other methods of intervention. A distinction has been made between planned behavioral interventions, such as environmental modifications and skills teaching, and reactive strategies, such as unplanned restraint (Allen, 2001). There is an extensive literature on planned behavioral intervention (Carr et al., 1999; Didden, Duker, & Cornelius, 1997; Scotti, Ujcich, Weigle, Holland, & Kirk, 1996), but less attention has been paid to evaluation of reactive strategies (Allen, 2001).

There is some evidence that reactive strategies are widely used in community settings, however. Emerson (2002) conducted several surveys of children and adults with mental retardation in community services. He surveyed 107 children and adolescents with challenging behavior who lived in community settings and found that 67% of them had their challenging behavior managed 'sometimes' or 'usually' managed by restraint. Sixty-eight per cent by seclusion, and 6% by sedation. In a second survey of 68 children and adolescents with intellectual disabilities 46% had experienced restraint, 67% seclusion, 2% sedation and 4% medication over the preceding 6 months. In a third survey of 656 of children with intellectual disabilities, 42% displayed challenging behavior. Of those who displayed challenging behavior 28% had experienced physical restraint, 32% seclusion, 1% sedation and 3% mechanical restraint over the preceding 6 months. Feldman, Atkinson, Foti-Gervais, and Condillac (2004) conducted a similar survey of formal and informal interventions strategies in 625 clients with behavior problems in Ontario from 96 agencies. Ninety-two per cent of the sample lived in community settings and 8% lived in institutions. They found that 56% had experienced medication for behavior control, 12.3% had experienced physical restraint, 11.4% had experienced confinement time-out, 5.9% had experienced mechanical restraints and 4.5% had experienced seclusion. These restrictive procedures were used both in formal programs and informally. Thus, data from both the United Kingdom and Canada indicate that reactive and restrictive strategies are commonly used in community settings.

In response to the need to implement reactive strategies more effectively a staff training courses (Allen, 2001), social policy (Harris, 2002; Harris, Allen, Cornick, Jefferson, & Mills, 1996) and regional and state challenging behavioral services (Hanson et al., 2002) have been developed. Most staff training interventions have been evaluated primarily through non-experimental pre–post-designs (Allen, 2001) although a number of quasi-experimental and experimental studies have been conducted. Allen and Tynan (2000) conducted a quasi-experimental study to evaluate the effects of a staff training course to increase staff members' knowledge of effective management of aggressive behavior and to increase their confidence in managing challenging behavior. Their design compared the scores of one group of staff, who had already been trained, with the scores of an untrained group of staff and then also compared the scores of the group of untrained staff prior to training with their scores after training. They found that trained staff knew more and were more confident that untrained staff. After training the scores on knowledge and confidence for the experimental group increased significantly.

Increases in confidence has been reported in several training studies (Baker & Bissmire, 2000; McDonnell, 1997; McGowan, Wynaden, Harding, Yassine, & Parker, 1999; Needham,

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Abderhalden, & Halfens, 2005; Thackrey, 1987). Other quasi-experimental and experimental studies have found similar benefits of staff training for psychiatric hospital staff (Phillips & Rudestam, 1995; Rice, Helzel, Varney, & Quinsey, 1985) and nursing students, although one randomized controlled study found staff training to be ineffective in changing staff behavior (Needham, Abderhalden, & Zeller, 2005). Finally, Van den Pol, Reid, and Fuqua (1983) used a single subject experimental design demonstrated that supervisors could be trained to teach their staff to correctly implement reactive strategies using behavioral skills training. Thus, although there are a number of quasi-experimental and experimental studies demonstrating benefits of staff training, their number is limited and positive outcomes are not always reported. Further, although studies have evaluated staff training procedures to better manage challenging behaviors in adults and children with mental retardation, no studies were identified that worked with services for people with autistic spectrum disorders.

A 3-day workshop (McDonnell, 1997; McDonnell, Dearden, & Richens, 1991a, 1991b, 1991c) was developed a course to promote the use of simple preventative strategies, a low arousal approach to reducing aggressive behaviors (McDonnell, Johnson, Reeves, & Lane, 1998) and physical interventions, which are designed to avoid pain and which are socially validated (Cunningham, McDonnell, Easton, & Sturmey, 2002; McDonnell & Sturmey, 1993, 2000; McDonnell, Sturmey, & Dearden, 1993). Previous non-experimental studies have demonstrated that such methods can reduce challenging behaviors and the use of restraint for individual clients (McDonnell et al., 1998) as well as for entire units (McDonnell & Reeves, 1996; McDonnell, Waters, & Jones, 2002). Thus, there was a need for a more rigorous evaluation of this staff-training course in services for people with autism spectrum disorders. We conducted a quasi-experimental evaluation of this 3-day course for 43 staff who received training and a contrast group of 47 community staff who had previously received training.

1. Method

1.1. Participants and settings

There were 90 participants in two service groups. There were 43 participants in the training group; 28 (65%) were women and 15 (35%) were men. Ten participants (23%) worked part-time, and 33 (77%) worked full time. Seven (16%) had worked for less than 1 year, 9 (21%) for 1–2 years, 10 (23%) for 3–5 years and 17 (40%) for over 5 years. There were 47 participants in the comparison group. Twenty-seven (57%) were women and 20 (43%) were men. Sixteen participants (34%) worked part-time, and 31 (66%) worked full time. Eight (17%) had worked for less than 1 year, 9 (19%) for 1–2 years, 12 (26%) for 3–5 years and 18 (38%) for over 5 years.

Both services provided care for adults diagnosed with autistic spectrum disorders. The staff in the training group provided residential social care and day services to 30 service users in four group homes and a day service. The group homes ranged from a dwelling with four individuals to one house with nine people. This service employed 50 staffs. Staff in the comparison group provided residential social care and day services to 48 service users in six group homes and 2-day services. Between six and eight people lived in the group homes.

1.2. Staff training

All staff in the experimental group participated in the 3-day training course (McDonnell, 1997). Half of this training course involved theoretical components, such as legal issues, causes

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of aggressive behavior, staff support and low arousal approaches. The remainder of the training course examined high frequency aggressive behaviors, such as hair pulling, biting, grabbing, airway protection, and one form of two person service user chair restraint in an upright posture. Teaching methods for the physical strategies involved modeling methods with rehearsal using role play. Further details of the course content and format can be found in previous publications (McDonnell et al., 1998; McDonnell et al., 1991a, 1991b, 1991c, 1993).

The three training courses took place over a period of 10 months and were conducted by the same trainers. The trainers completed a checklist of course content after each course in order to ensure that the same material was covered throughout. There was 100% agreement between the three training course that these items had been delivered.

1.3. Measures

The staff support and satisfaction questionnaire (3SQ) was a 21-item measure of staff support (Harris & Rose, 2002). The 3SQ had good test–retest reliability ($r = 0.82$) and high levels of internal reliability (Cronbach's alpha = 0.92). There were five subscales: role clarity, coping resources, risk factors, supportive people and job satisfaction. Each of the subscales contained items such as 'How clear are you about the main objectives you should be working towards in your job?' that were rated on a five-point Likert scale from very clear/very satisfied/always to very unclear/very dissatisfied/never.

The *shortened ways of coping scale* (Hatton & Emerson, 1995) was a 14-item measure with good reliability and internal consistency (average Cronbach's alpha = 0.76). It had two subscales: *wishful thinking* (alpha = 0.63) and *practical coping* (alpha = 0.76). The *wishful thinking* subscale included items such as 'I daydream or imagine a better time or place than the one I am in'. The *practical coping* subscale included items such as 'I think up a couple of different solutions to problems'. Items on both of the scales were rated on a four-point Likert scale from 'not used' to 'used a great deal'.

The *thoughts about challenging behavior questionnaire* was a 15-item measure, which examined perceived controllability of staff behavior (Dagnan, 2007). Thoughts that people may have when dealing with a person with a learning disability and challenging behavior (e.g. 'they are trying to wind me up') were rated on a five-point Likert scale from 'agree strongly' to 'disagree strongly'. The internal consistency of the pre-training scores ($N = 43$) was very high (alpha = 0.85).

The *challenging behavior confidence scale* (McDonnell, 1997) was a 15-item measure of self-confidence. Statements about violent people, such as 'I would be able to talk to a potentially violent person,' were rated on an 11-point Likert scale reflecting how confident participants would be to carry out any of the statements right at this moment. Previous research has produced good internal consistency ratings (Cronbach's alpha = 0.95; McDonnell, 1997).

The *checklist of challenging behavior* (Harris, Humphreys, & Thompson, 1994) was a 34-item checklist of various extra-personal challenging behaviors for use with individuals with intellectual disabilities. The original checklist contained items, which were collapsed categories ''Punching, slapping, pushing or pulling''. These items were separated and the new items ''Hitting Out (with open hand)'', ''Punching (clenched fist)'' and ''Grabbing'' were added. Items were rated on the frequency, severity of the injury caused, and the management difficulty that the behavior posed to carers. Ratings were based on behavior over the last 3 months and ranged from (1) ''has not occurred to'' (5) ''occur very often (daily)''. Severity ratings referred to the most serious injury caused by the behavior and ranged from (1) ''no injury'' to (5) ''very serious injury (caused very serious tissue damage such as broken bones, deep lacerations/wounds requiring

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hospitalization and/or certified absences from work).'' Management difficulty ratings were related to how difficult the carers found the behavior to manage and was scored on a scale of (1) ''no problem (I can usually manage this situation with no difficulty at all'') to (5) ''extreme problem (I simply cannot manage this situation without help.'').

1.4. Design

Two services were compared, one which had already received the same staff training and a second which received staff training in the management of challenging behavior. The experimental group received training over a 10-month period. This training was compared with a contrast group. There were two-time periods for administration of the main measures. The time periods were approximately 10 months apart. Thus, if there had been an effect of training the scores on the experimental group, but not the contrast group, should change significantly. Initially the pretest scores were compared using an independent Student's *t*-test between the two experimental groups. Subsequently, the data for all of the five dependent measures was analyzed using multivariate analysis of covariance (MANCOVA) with experimental group as *between-subjects* factor and the pre-training data as the *covariate* factor. Finally, each of the dependent variables was then analyzed using separate one-way analysis of covariance (ANCOVA) with experimental group as *between-subjects* factor and the pre-training data for each specific dependent variable as the *covariate* factor.

1.5. Procedure

The measures were completed by a staff who had a good working knowledge of the service users during part of structured interview. The interviewer said 'I am going to read out a list of behaviors and I would like you to respond using the scales provided'. The interviewer read the items out aloud. Staff then rated the items verbally. Wherever possible the same staff completed the measures at time two. The staff measures were administered at both time periods with the following instructions ''Please answer the following questions on your own before you talk to other staff about it. Do not put your name on the questionnaire, as the results will be compiled to give group scores. The answers you give will be treated as strictly confidential and only the group scores will be shown to others.''

2. Results

2.1. Staff measures

The relationship between the four staff based measures was investigated using Pearson's product moment correlations. Only one relationship approached significance (3SQ versus thoughts about challenging behavior, $r = 0.2$, $P < 0.06$). The other correlations were all non-significant. Hence, the measures were not deemed to be inter-correlated.

The pre-training scores for experimental group were found to be significantly higher than those for the contrast group for the following dependent variables; role clarity ($P < 0.01$), coping resource ($P < 0.01$), risk factors ($P < 0.01$), supportive people ($P < 0.01$), job satisfaction ($P < 0.01$), staff support ($P < 0.01$), and thoughts about challenging behavior ($P < 0.01$). Confidence, wishful thinking, practical coping and overall coping were not found to be significantly different between the experimental and contrast groups.

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Table 1
Means and standard deviations of confidence scores at time 1 and time 2

	Time 1	Time 2
Training group	92.7 (34.6)	111.2 (30.6)
Contrast group	87.8 (28.2)	88.0 (27.9)

The post-training scores were found to be significantly different between the experimental and contrast groups when analyzed using a MANCOVA ($F[1,83] = 3.61$, $P < 0.01$), with experimental group having higher scores than the contrast group for; role clarity ($F[1,83] = 6.63$, $P < 0.012$), coping resource ($F[1,83] = 14.84$, $P < 0.01$), risk factors ($F[1,83] = 13.81$, $P < 0.01$), supportive people ($F[1,83] = 12.94$, $P < 0.01$), staff support ($F[1,83] = 13.33$, $P < 0.01$). Staff confidence did show higher scores for this group at follow up compared to the contrast group (see Table 1) ($F[1,83] = 7.36$, $P < 0.008$). There were no significant differences between the experimental and contrast group for job satisfaction, thoughts about challenging behavior, wishful thinking, practical coping and overall coping.

When each individual-dependent variable was analyzed using an ANCOVA, it was found that experimental group had significantly higher scores than the contrast group for; role clarity ($F[1,83] = 10.18$, $P < 0.002$), risk factors ($F[1,83] = 19.41$, $P < 0.01$), supportive people ($F[1,83] = 17.13$, $P < 0.01$), job satisfaction ($F[1,83] = 5.73$, $P < 0.019$), coping resource ($F[1,83] = 20.17$, $P < 0.01$), staff support ($F[1,83] = 21.36$, $P < 0.01$), confidence ($F[1,83] = 12.99$, $P < 0.01$) and practical coping ($F[1,83] = 4.51$, $P < 0.037$). There were no significant differences between the experimental and contrast group for thoughts about challenging behavior, wishful thinking, and overall coping. None of pre-training scores (covariate factor) for these dependent variables had significant effects. In addition, no significant interactions were found between the groups and the pre-training scores.

2.2. Challenging behavior checklist

Fourteen service users were compared from the two services. There was a main effect of time for management difficulty ($F[1,13] = 7.4$, $P < 0.02$), frequency ($F[1,13] = 5.6$, $P < 0.04$) and severity ($F[1,13] = 13.1$, $P < 0.005$). There were no other significant effects. Both groups reported lower ratings at time 2.

3. Discussion

Staff training to better manage aggressive behaviors in people with autism spectrum disorders increased staff confidence, but not other measures of staff belief, support or coping. There was no evidence of a reduction in client challenging behaviors as staff in both the treatment and contract group reported significant reductions in challenging behaviors. There was no evidence that training effected staff support (Harris & Rose, 2002), coping (Hatton & Emerson, 1995) or perceived control (Dagnan, 2007). Thus, there was only evidence that training impacted staff confidence.

We observed an effect on staff reports of service user challenging behaviors for both groups. This may be because there truly was no effect of staff training on subjective measures of aggressive behaviors or because the comparison group was an active rather than passive comparison group. In such a situation one might expect the behavior management ratings to decline in both groups. Another possibility is that this measure of behavior may be insensitive or

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inaccurate. Thus, there may have been effects on client challenging behaviors that would have been detectable through direct observation. Alternatively, it may that in some circumstances that staff training using generic lectures, modeling and role play alone is insufficient to change staff behavior sufficiently to change client challenging behavior (cf. Shore, Iwata, Vollmer, Lerman, & Zarcone, 1995).

The finding that staff training had a specific effect on staff confidence is open to at least two interpretations. First, the course specifically focused on teaching staff strategies to deal with aggressive behavior in a more confident manner and directly focused on staff fears when managing challenging behaviors. Thus, this particular form of staff training may have a relatively specific effect on staff confidence. Earlier research on staff training in physical interventions has also found improvements in staff confidence (Allen & Tynan, 2000; Baker & Bissmire, 2000; McDonnell, 1997; McGowan et al., 1999).

The present course teaches staff strategies that may be helpful with many clients. However, individualization of training in physical interventions may be necessary (Allen, 2001). Perhaps a small number of service users may require highly customized plans for physical intervention whereas a large number of staff and services users may benefit from generic physical intervention training.

Training workshops alone may be necessary but not sufficient for behavioral change to occur (Cullen, 1988), workshop training may also need to be followed up in the workplace to increase its effect. Shore et al. (1995) demonstrated that a verbal in-service training course explaining procedures to direct care staff was ineffective at changing staff behaviors related to implementing behavioral interventions and client challenging behaviors. Thus, it may be important to supplement staff training workshops, such as the one evaluated here, by ongoing consultation and further staff training and support which involves practicing skills with the client under supervision and whilst receiving feedback on implementation.

There were a number of limitations to this study. The design may limit the confidence with which we can conclude that training caused a change in staff confidence. Future research should also focus on variables that mediate staff confidence, such as staff fear and anger may be useful to consider in future studies. The effect of training on staff behavior measured through direct observation should also be addressed. Finally, there are number of extensions of this research. First, training parents in the methods described in this paper would be a natural extension of this work and would mirror research in teaching behavioral skills in organisations (Reid, Parsons, Lattimore, & Reade, 2005; Reid et al., 2003). Second, pyramidal approaches have been employed to teach behavioral skills (cf. Kuhn, Lerman, & Vorndran, 2003; Shore et al., 1995) could be applied to evaluating the training of trainers. Third, data on the use and effectiveness of the physical interventions described here would be beneficial. Fourth, increases in confidence have been reported in other studies (Allen & Tynan, 2000; Baker & Bissmire, 2000; McDonnell, 1997; McGowan et al., 1999) further investigation is needed about the behavioral correlates of this effect.

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