
On Some Recent Claims for the Efficacy of Cognitive Therapy for People with Intellectual Disabilities

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Background Many authors have expressed concern regarding the efficacy of psychotherapy, including psychotherapy for people with intellectual disabilities.

Materials and Methods Recently, many authors have made claims for the effectiveness of cognitive therapy for treating people with intellectual disabilities. During this debate, applied behaviour analysis has been misrepresented by incorrectly labelling behavioural as cognitive techniques, repeated misrepresentations of

behaviourism and attributing the efficacy of treatment packages to cognitive components of undemonstrated efficacy when it is more parsimonious to attribute efficacy to behavioural elements of known efficacy.

Conclusions This article documents and corrects these errors.

Keywords: applied behaviour analysis, cognitive therapy, evidence based practice

Introduction

This concern over the efficacy of psychotherapy has been expressed for over 50 years (Eysenck 1952) and continues to this day in the form of questions over what psychotherapy works for whom in general mental health and behavioural problem (NICE 2003; Roth & Fonagy 2005). Similar concerns exist over the efficacy of psychotherapies for people with intellectual disabilities and autism (Jacobson *et al.* 2005), including the efficacy of psychodynamic psychotherapy (Beail 2003; Prout & Norwick-Drabik 2003; Lynch 2004; Sturmey 2005a), cognitive therapy (Stenfert-Kroese *et al.* 1997; Sturmey 2004; Hassiotis & Hall 2005) and a wide range of other psychological and non-psychological treatments (Jacobson *et al.* 2005). These concerns include the failure to adopt effective interventions and a tendency for treatment fads to occur which may be ineffective or even harmful to clients (Jacobson *et al.* 2005; Sturmey 2005b) and the absence of an adequate evidence base for commonly advocated psychological interventions, such as psychoanalytic and psychodynamic psychotherapy (Sturmey, 2003; Prout & Norwick-Drabik 2003), and cognitive and cognitive behaviour therapy (CBT; Sturmey 2004; Hassiotis & Hall 2005). This absence of

evidence for the efficacy of non-behavioural interventions contrasts with the extensive and comprehensive database for interventions based on applied behaviour analysis (ABA). This evidence base includes multiple randomized controlled trials (Prout & Norwick-Drabik 2003), meta-analyses of hundreds of single-subject experiments (Scotti *et al.* 1991; Didden *et al.* 1997; Carr *et al.* 1999; Shogren *et al.* 2004), consensus panels and expert opinions (New York Department of Health 1999a,b,c; Rush & Frances 2000; Committee on Educational Interventions for Children with Autism 2001; General Accounting Office 2005).

Recently, several authors have advocated the use of cognitive therapy in people with intellectual disabilities (Stenfert-Kroese *et al.* 1997; Stenfert-Kroese 1997; Taylor & Novaco 2005). They present the argument as one of equity of access (Bender 1993), disdain for people with intellectual disabilities on the part of therapists (Stenfert-Kroese 1997) and dissatisfaction with or apparent limitations of ABA (Willner, 2005; Stenfert-Kroese 1997; Taylor 2002; Taylor & Novaco 2005). However, these authors do not argue for the superiority of cognitive therapy and CBT over ABA, as there is currently no evidence to support such a position (Prout & Norwick-Drabik 2003; Hassiotis & Hall 2005; Sturmey 2005a).

Indeed, a recent meta-analysis identified only three studies – which included modified assertiveness training and anger management in adults with intellectual disabilities – which had some impact after treatment on ratings from individuals and carers, but not at 6-month follow-up (Hassiotis & Hall 2005).

During this discourse, there have been numerous assertions and errors made concerning ABA. These include mislabelling ABA as cognitive therapy, misrepresenting ABA, and attributing the alleged efficacy of treatment packages to cognitive therapy, when it is more parsimonious to attribute it to behavioural elements of the package of known efficacy. The purpose of this article was to document and correct these three kinds of errors.

Applied Behaviour Analysis Mislabelled

Meta-analysis misinterpreted

Several articles have recently and incorrectly claimed that non-behavioural methods of interventions were effective by citing outcome data on behavioural interventions. For example, Prout & Norwick-Drabik (2003) conducted a meta-analysis of psychotherapy outcome research. They identified nine experimental evaluations of psychotherapy in people with intellectual disabilities, with an average effect size of 1.01 (range 0.06–1.85). Subsequently, Lynch (2004) cited this study as supporting psychotherapy. However, a review of these nine outcome studies indicated that they were evaluations of behavioural treatments, such as assertiveness training, relaxation training and behavioural methods of weight reduction, and did not include any evaluations of psychodynamic or psychoanalytic treatment (Sturmev 2005a).

Respondent conditioning and extinction

Several common respondent conditioning procedures have been mislabelled as cognitive therapy. Feldman *et al.* (2004) conducted a survey of intervention methods for challenging behaviours. They developed a classification system for interventions, including categories such as behavioural and cognitive behavioural. Under ‘cognitive behavioural’ they included relaxation training, which refers to changes in the behaviour of muscles and involves no changes in verbal behaviour or private events. Relaxation training dates back to Wolpe’s (1958) classic text, *Psychotherapy by Reciprocal Disinhibition*, where it was one of the methods used during counter-conditioning response during systematic desensitization for a variety of anxiety and mood disorders.

Willner (2004) reported an interesting case study in which traumatic nightmares in a man with moderate learning disabilities was treated by repeated rehearsal of the nightmares, modifying the end of the nightmare and relaxation training. Willner described the procedure as cognitive therapy, presumably because the intervention involved asking the man to change the way he talked about the end of the nightmare. Yet, Willner noted that the man had poor verbal skills and did not measure any schemata or attributions probably because of this. This type of intervention is almost exactly the same as that noted in many earlier papers which reported treating nightmares by repeated rehearsal and modification/non-modification of the ending of the nightmare (Marks 1978; Burgess *et al.* 1994). Thus, Willner’s effective treatment of the nightmare is most parsimoniously explained by construing the nightmare as a conditioned stimulus and the process considered respondent extinction.

Differential reinforcement of verbal behaviour

A common error is that interventions that use modification of verbal behaviour by procedures, such as differential reinforcement of verbal behaviour or respondent extinction must be cognitive interventions, as they involve verbal behaviour. The operant nature of some of human verbal behaviour has been long known. For example, Greenspoon (1955) demonstrated that undergraduate students’ emission of plural words was influenced by the experimenter saying ‘mm-hmm’. Subsequent studies have revealed that the verbal behaviour of children with autism (Williams *et al.* 2003), psychotic speech in both people of average intelligence (Wilder *et al.* 2001) and people with intellectual disabilities (Dixon *et al.* 2001; Lancaster *et al.* 2004), and disruptive verbal behaviour in people with intellectual disabilities (Luiselli *et al.* 1981) and autism (Rehfeldt & Chambers 2003) can all be operant behaviour controlled by its consequences.

Matson *et al.* (1979) reported a single-subject experiment evaluating a behavioural package to change depressed behaviour in a 31-year-old man with mild intellectual disability. The treatment package included multiple components, including praising the man for positive self-statements. Matson *et al.* construed this correctly as differential reinforcement and did not report any measurement of attributions or schemata. However, Lindsay *et al.* (2005) discussed that ‘This study goes beyond a purely behavioral interpretation of depression. The authors employed positive self-statements which is a method to address dysfunctional cognitive strategies,

such as expecting negative outcomes, blaming oneself for negative outcomes or not crediting oneself for positive outcomes'. Differential reinforcement of verbal behaviour and cognitive therapy procedures, such as changing expectancies of negative outcomes can be distinguished from each other. In differential reinforcement of verbal behaviour, interventions take place in the natural environment and after the client emits the target verbal behaviour a consequence is delivered contingently upon the target verbal behaviour and subsequently, the frequency of the target behaviour increases (Greenspoon 1955). In cognitive therapy, some non-observable construct, such as negative expectancy of outcomes, is measured indirectly through client verbalizations. A therapeutic procedure is then used to change this unobservable construct, and subsequently outside therapy behaviour changes. Matson *et al.*'s study is clearly an example of the former, not the latter. It could be argued that even though this procedure was differential reinforcement of verbal behaviour, the true mechanism of change was cognitive restructuring. However, no measures of expectancy or other constructs used in cognitive therapy were taken. Hence, the more parsimonious explanation that behaviour change was due to differential reinforcement is to be preferred.

Self-regulation

Several authors have claimed that self-regulation is not a behavioural technique (Taylor *et al.* 2004; Taylor & Novaco 2005; Willner 2005) and that behavioural approaches must be supplemented or replaced by cognitive or cognitive-behavioural methods. For example, Taylor *et al.* (2004) wrote that '... behavioral approaches to the treatment of aggression ... tend not to be presented as "self-actualizing" in nature. That is, often they do not actively target self-regulation ...' (p. 204) and again Taylor & Novaco (2005) state that '... behavioural approaches, unlike direct treatments, do not explicitly encourage self-regulation of behaviour ...' (p. 50).

Skinner (1953) devoted an entire chapter in *Science and Human Behaviour* to behavioural analysis of self-control and its implication for treatment. Vernacular language often implies a controlling self who is the agent that causes our own behaviour. Yet, unobservable causes cannot be a part of science. Only independent variables that an experimenter can manipulate and their effects that can be observed on behaviour are all that science has to work with. Thus, self-control might at first appear to be an insurmountable challenge to ABA. However, a behavioural account of self-control

is possible. Skinner's analysis of self-control posits that control of one's own behaviour is no different than control of another person's behaviour. The independent variables that a person manipulated to influence another person's behaviour are the same as those that can be manipulated to control one's own behaviour. Thus, self-control consists of two classes of behaviour: controlling and controlled responses (p. 231). For example, a person might take a healthy snack to work and place it where it is readily available (the controlling response) in order to change the future probability of eating junk food (the controlled response). The variables that control the controlling responses, like those controlling other behaviour, are environmental variables. If we can identify and manipulate them, then we can teach self-control to people including people with intellectual disability.

People learn a variety of self-control strategies, such as self-restraint by sitting on their hands, folding their arms or putting their hand over their mouth to reduce the future probability of fidgeting or saying something they should not. We learn to remove stimuli by leaving temptations such as cash or cigarettes to reduce wasteful spending and snacking at home. We learn to present the stimuli to make other behaviours more probably, such as putting on glasses and turning on the light to make reading and writing more likely. People may learn to punish our own behaviour, for example, by setting the alarm clock at night to reduce the probability of sleeping the next morning. Ultimately, the source of self-control is not the person's self-will, self-determination or cognitions that initiate behaviour, but rather the environmental variables such as the contingencies that control the controlling behaviour.

This analysis has been extensively used in ABA to teach self-control to people in many situations (Stokes *et al.* 1987; Guevremont *et al.* 1986, 1988; Whitman 1990). For example, in correspondence training, correspondence between verbal behaviour, such as self-instruction and subsequent behaviour, such as play, is taught. Self-control has been used to teach children to accurately self-observe and to subsequently accurately self-reinforce the absence of their own disruptive behaviour in order to control their own challenging behaviours (Bolstad & Johnson 1972), to teach children to self-instruct to increase subsequent play (Baer *et al.* 1988). This mechanism underlies other research enhancing the independence of people with developmental disabilities, such as teaching self-regulation of behaviour through time-management using a palm pilot (Davies *et al.* 2002) and activity schedules (Krantz

et al. 1993). Hence, a Skinnerian analysis of self-management accounts for the behaviour of self-managing and has been highly productive in producing a technology to enhance the self-management skills of people with intellectual disabilities.

Summary

The classic methods of ABA, such as skills training, respondent extinction, differential reinforcement of verbal behaviour, relaxation training and self-regulation have been incorrectly labelled as cognitive therapy.

ABA Misrepresented

Private events and ABA

Behaviourism is often incorrectly stereotyped as ignoring or denying private events. For example, Stenfert-Kroese (1997) stated that '... although a pure Skinnerian "black box" approach to cognitive processes has been rejected by most, and people with learning disabilities are now credited with thought (be it verbal or non-verbal) ...' (pp. 5–6).

This representation of ABA as denying or ignoring private events is a common error that has been repeated down the years (Chiesa 1994). Skinner (1953; chap. 16, 17 and 18) and Skinner (1985) repeatedly addressed the issue of private events. Skinner did not deny private events. Rather, he explicitly discussed the contents of the alleged 'black box' and provided an analysis of private events, including making a decision, having ideas and recall. From a radical behavioural perspective such private events are behaviour to be explained, but are not the causes of behaviour. Skinner (1953; p. 257) wrote 'We need not suppose that events which take place within an organism's kin have special properties ... A private event may be distinguished by its limited accessibility but not, so far as we know, by any special structure or nature ...'.

Stenfert-Kroese's (1997) characterization of Skinner's work as a 'black box approach' is inaccurate. The real challenge of Skinnerian analysis of private events is to construe them as behaviour to be explained, but not the causes of behaviour. Herein lies one of the fundamental differences between cognitive psychology, which posits private events, such as attributions and schemata, as the cause of observed behaviour, whereas radical behaviourism attempts to identify the environmental variables controlling all behaviour, including behaviour observable to only one person.

Client emotional needs

Willner (2005) claims that behaviourism cannot address emotion. Likewise, in Taylor & Novaco's (2005) review of theories of anger, they omit any behavioural account of anger, while devoting extensive space to psychoanalysis. They dismiss ABA approaches to anger and but Skinner (1953) devoted a chapter to the conceptualization of emotions, including anger, rage, loneliness, phobias, depression and so on. For example, in the case of anger, emotional behaviours include turning red, sweating palms, facial expression of anger, and observations of slamming doors, fighting, speaking curtly to others and approach behaviour to violent scenes. Some of these behaviours, especially those related to autonomic arousal, seem to be reflex behaviours, and others, such as slamming doors and violence on other people or objects seem to be operant behaviours. From a behaviour analytic perspective, emotions are not the causes of behaviour, but rather a complex of behaviours and statement about their relationship to the environment. For example, when we say someone is angry we say that certain stimuli, such as criticism from others or loss of reinforcers evoke conditioned responses, and establish violence and perhaps other consequences to others as powerful reinforcers. If we know the environmental variables that control anger, then we can manipulate them to change anger. We can remove the stimuli that evoke anger, conduct respondent extinction or present other stimuli that evoke incompatible behaviour. Likewise, we can conduct operant extinction (if we are foolhardy or brave enough) or at least reinforce other responses.

ABA has been especially effective in dealing with certain kinds of emotional problems through respondent extinction, such as flooding, implosion, graded exposure and systematic desensitization for phobias, abnormal grieving, stereotypical nightmares, depression, sexual dysfunction, lack of assertiveness and post-traumatic stress disorders (Wolpe 1958). There have been a wide range of treatments of emotional disorders for people with intellectual disabilities using respondent extinction and counter-conditioning such as phobias (Silvestri 1977; Matson 1981a,b; Runyan *et al.* 1985; Spencer & Conrad 1989; Love *et al.* 1990; Luscre & Center 1996; Conyers *et al.* 2004). Relaxation training alone may be an effective treatment for a variety of disruptive behaviours that could be characterized as angry (McPhail & Charnove 1989; Mullins & Christian 2001) and can be effective in prompting adaptive behaviours, such as time on task (Lindsay *et al.* 1994) that might be compatible/incompatible with aggressive behaviour. ABA has also

addressed mood disorders, through the analysis and manipulation of activities correlated with mood regulation to increase happiness in people with severe and profound intellectual disabilities (Green & Reid 1999; Smith *et al.* 2005) including at least one report of improving mood in a person with intellectual disabilities and a mood disorder (Lindauer *et al.* 1999).

The behaviour analytic literature is smaller than that on treatment of other problems such as skills training and challenging behaviours, especially outside anxiety disorders. However, there are a number of experimentally well-designed studies demonstrating that ABA addresses a variety of emotional problems in people with intellectual disabilities. Hence, Willner's assertion that ABA does not address emotional needs in people is incorrect.

Limitations of ABA

Taylor's (2002) review of anger management in people with intellectual disabilities stated that 'they are intrusive and have not been tested in naturalistic settings with higher-functioning clients and low-frequency aggression' (p. 57). Indeed, there has been more research using ABA for aggression in people with severe and profound intellectual disabilities (Didden *et al.* 1997). This may reflect earlier behavioural work done in institutions, the greater severity of such problems and the lack of treatment alternatives. When reviewing behavioural studies of aggression in people with intellectual disabilities, it is important to distinguish basic from applied research. The differences may be subtle because although both kinds of research measure a behaviour of social importance, the aims of these two kinds of studies are different. For example, a basic study demonstrating whether or not aggression is sensitive to its consequences can adequately demonstrate that in an experimental setting. Such studies need only demonstrate procedural integrity and experimental control, but are unconcerned with issues such as generalization, maintenance or social validity. In contrast, applied studies take place in natural environments, must involve natural change agents, such as family members and staff, must address multiple settings and must result in socially significant reductions of the target behaviour, as well as meaningful improvements in the participant's quality of life. This is a much more difficult task than basic research as the resources required for such studies are very extensive and the possibility of losing experimental control, treatment integrity and loss of participants is much greater. Hence, there are probably many fewer applied than basic behaviour analytic studies of aggression in people with intellectual disabilities.

Yet, there are examples of the application of ABA to treatment of aggression in community settings with clients with intellectual disabilities. Carr *et al.* (2003) reported the outcome of behavioural treatment of demand-related aggression data in a 37-year-old man with autism and mild intellectual disabilities. During baseline, tasks that provoked aggression could not be completed because of aggression. A 'mood induction' procedure was used in which tasks associated with positive mood were identified and delivered intermittently for at least 15 min prior to presentation of the provocative task. In approximately two-and-a-half years of treatment and follow-up data, aggression no longer occurred during presentation of the provocative task Whitaker (2002) reviewed 247 studies and identified 19 studies that showed $\geq 70\%$ reduction in aggression, which took place in a typical client setting and included follow-up of at least 1 month after the end of treatment. Some of these 19 studies took place in workshops, family homes, community placements, group homes, as well as institutional settings. Thus, there is literature demonstrating that behavioural interventions can be effectively conducted in community settings in people with mild intellectual disabilities and with long-term maintenance and follow-up data.

The issues of maintenance, follow-up, generalization and implementation in community settings are important issues for all forms of therapies, including cognitive therapy. Many studies of cognitive therapy in people with intellectual disabilities have taken place in institutional settings, such as locked forensic units (e.g. Taylor *et al.* 2002; Burns *et al.* 2003) or with people under court-ordered treatment, where non-compliance or failure to report progress could result in incarceration (Lindsay *et al.* 2003, 2004). Proponents of cognitive therapy have claimed that results of the therapy can be generalized to another setting whereas those of ABA treatment cannot. However, generally they have not yet reported data on this issue. Indeed, in one of the few studies to do so, Burns *et al.* (2003) found that although anger management was effective in three forensic inpatients with intellectual disabilities during therapy, their anger levels returned to pretreatment levels after treatment ended. Thus, generalization and maintenance of change may also be problematic for cognitive therapy.

Summary

ABA has been misrepresented as an approach that denies the existence of private events, self-regulation, human emotion and that is limited to high-frequency

problems in people with severe intellectual disabilities in institutional settings. A simple review of the writings of Skinner and published research shows that these claims are untrue.

Efficacy of Cognitive Therapy and Treatment Packages

Multi-component treatment packages

Many interventions are packages of several or sometimes some intervention methods. They may include both classic behavioural methods as well as cognitive methods. For example, Lindsay's work with sexual offenders included instructions, self-recording, differential reinforcement of adaptive behaviour, skills training, relaxation training, as well as cognitive restructuring (Lindsay & Smith 1998; Lindsay *et al.* 2003, 2004). Likewise, the Taylor & Novaco (2005) anger management package includes behavioural techniques, such as self-monitoring, relaxation training, graded exposure to antecedents that elicit aggression, self-instruction, problem solving, role play and skill rehearsal. Hence, in many CBT packages, cognitive therapy procedures are confounded with behavioural procedures and no conclusion can be drawn from such outcome studies as to which component is responsible for change. Some studies (e.g. McPhail & Chamove 1989) have found that relaxation training alone may reduce aggressive behaviour in people with intellectual disabilities. Thus, in the absence of component analyses of these CBT treatment packages, it may be more parsimonious to attribute change to behavioural components that have already been evaluated.

However, there are no studies showing that cognitive therapy alone produces such changes. Hence, it is more likely that behavioural interventions are responsible for change. In order to conclude that cognitive therapy is responsible for change, it would be necessary to conduct a component analysis of such treatment packages, compare cognitive therapy alone with some credible placebo condition, or compare behavioural intervention plus cognitive placebo with behavioural plus cognitive therapy. Even as cognitive therapy is superior to placebo, the question of whether it is a preferred treatment would still remain unanswered. Only direct comparisons of cognitive therapy with therapies with established records of treatment efficacy, such as relaxation training, could answer such questions by providing data on superior behaviour change, better costs, better safety, or greater social acceptability.

Treatment integrity

In addition to the documented procedures in treatment packages, there may also be undocumented learning processes that might account for the apparent effects of treatment. For example, Truax (1966) conducted observations of Carl Rodgers allegedly conducting Rogerian therapy. An important component of the Rogerian therapy is unconditional positive regard. However, the observation of Carl Rogers' behaviour indicated that his regard was highly conditional; specifically, Rogers interacted positively with his client contingent upon their report of improvement. Hence, it is possible that if any behavioural change occurred during Rogerian therapy it may be entirely due to differential reinforcement of change by the Rogerian therapist.

Skinner (1953) noted that psychoanalytic psychotherapy may include other learning processes. He speculated that the psychoanalyst who says little other than periodic reflections provides an environment with little or no punishment for client verbal behaviour, no matter how unusual. For those clients whose verbal behaviour has been punished by the impatient, bored or irritated reactions of other people, the frequency of talking about their problems will increase (especially if the therapist inadvertently reinforces client verbal behaviour). Client verbal behaviour may be conditioned stimuli that elicit conditioned negative emotional responses. If the clients repeatedly expose themselves to these conditioned stimuli, then psychoanalytic psychotherapy may include a respondent extinction process.

Such data have not yet been collected during cognitive therapy in people with intellectual disabilities or other populations. Hence it is not known if this mechanism may account for any change in behaviour following cognitive therapy. Future research into cognitive therapy should exclude this possibility by observing the contingency between client reports of progress and therapist behaviour or including a control group with contingent therapist verbal reinforcement for reports of change in the control condition.

Another simple behavioural mechanism that might account for change during cognitive therapy may result from the inclusion of third parties, such as family members or staff either during therapy or during consultation and staff/parent training associated with cognitive therapy. When third parties are present during therapy, such as anger management, they may learn behavioural procedures, such as identifying behaviour chains and redirecting the client early in the behavioural chain to other behaviours. They may also perhaps learn how to

discriminate client adaptive and maladaptive behaviour and differentially reinforce other behaviour. They may learn to prompt relaxation training, appropriate social or problem-solving skills or implement time-out procedures. In effect, cognitive therapy with the presence of third parties may merely function as a form of staff or parent training. In order to exclude this possibility, future research should either exclude third parties from trials of cognitive therapy or conduct observations of third-party behaviour in the natural environment to ensure that it did not change and thus changes in staff or parent behaviour are not confounded with cognitive therapy.

Conclusions

Recent critiques of behavioural approaches to behavioural and psychiatric issues in people with intellectual disabilities have commonly involved incorrectly labelling classic behavioural techniques as cognitive therapy, misrepresentation of behavioural therapy and attributing the efficacy of treatment packages to cognitive therapy. The argument for the use of cognitive therapy with people with intellectual disabilities on grounds of equity access is a false argument. Doubtless, many therapists do not wish to work with people with intellectual disabilities. ABA can be difficult to implement in a variety of settings. However, neither of these points are evidence for the efficacy of cognitive therapy or the lack of effectiveness of ABA. The real ethical problem is that there are a wide range of interventions based on ABA that are effective for a wide range of behavioural and psychiatric disorders that most people do not receive (Feldman *et al.* 2004). This results in widespread use of restrictive procedures in community settings, such as restraints (Emerson 2002; Feldman *et al.* 2004) and other unregulated restrictive behavioural procedures (Feldman *et al.* 2004) and psychotropic medication (Singh *et al.* 1997) in the absence of regulated and effective delivery of ABA. The ethical imperative of beneficence requires that people, including people with intellectual disabilities, receive known effective treatments. Those effective treatments are based on ABA.

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References

- Baer R. A., Detrich R. & Wenginger J. M. (1988) On the functional role of the verbalization in correspondence training procedures. *Journal of Applied Behavior Analysis* **21**, 345–356.
- Beail N. (2003) What works for people with mental retardation? Critical commentary on cognitive-behavioural therapy and psychodynamic therapy research. *Mental Retardation* **41**, 468–472.
- Bender M. (1993) The unoffered chair: the history of therapeutic disdain toward people with learning disabilities. *Clinical Psychology Forum* **54**, 7–12.
- Bolstad O. D. & Johnson S. M. (1972) Self-regulation in the modification of disruptive classroom behavior. *Journal of Applied Behavior Analysis* **5**, 443–454.
- Burgess M., Marks I. M. & Gill M. (1994) Postal, self-exposure treatment of recurrent nightmares. *British Journal of Psychiatry* **165**, 388–391.
- Burns M., Bird D., Leach C. & Higgins K. (2003) Anger management training: the effects of a structured program on the self-reported anger experience of forensic inpatients with learning disability. *Journal of Psychiatric Mental Health Nursing* **10**, 569–577.
- Carr E. G., Horner R. H., Turnbull A. P., Marquis J. G., Magito McLaughlin D., McAtee M. L., Smith C. E., Anderson Ryan K., Ruef M. B. & Doolabh A. (1999) *Positive Behavior Support for People with Developmental Disabilities: A Research Synthesis*. American Association on Mental Retardation, Washington, DC.
- Carr E. G., Magito-McLaughlin D., Giacobbe-Grieco T. & Smith C. E. (2003) Using moodratings and mood induction in assessment and intervention for severe problem behaviour. *American Journal of Mental Retardation* **108**, 32–55.
- Chiesa M. (1994) "Radical Behaviorism": *The Philosophy and the Science. A Wholly Distinct View of the Subject Matter of Psychology. That this Position Comes under the Behaviorist Heading at Wall will Eventually be Shown to be an Accident of History*. Authors Cooperative Inc, Boston, MA.
- Committee on Educational Interventions for Children with Autism (2001) *Educating Children with Autism*. National Academy Press, Washington, DC.
- Conyers C., Miltenberger R. G., Peterson B., Gubin A., Jurgens M., Selders A., Dickinson J. & Barenz R. (2004) An evaluation of in vivo desensitization and video modeling to increase compliance with dental procedures in persons with mental retardation. *Journal of Applied Behavior Analysis* **37**, 233–238.
- Davies D. K., Stock S. E. & Wehmeyer M. L. (2002) Enhancing independent time-management skills of individuals with mental retardation using a Palm top personal computer. *Mental Retardation* **40**, 358–365.
- Didden R., Duker P. C. & Corzilius H. (1997) Meta-analytic study on treatment effectiveness for problem behaviours with individuals who have mental retardation. *American Journal of Mental Retardation* **101**, 387–399.

- Dixon M. R., Benedict H. & Larson T. (2001) Functional analysis and treatment of inappropriate verbal behavior. *Journal of Applied Behavior Analysis* **34**, 361–363.
- Emerson E. (2002) The prevalence of using reactive management strategies in community based services in the UK. In: *Ethical Approaches to Physical Interventions. Responding to Challenging Behaviours in People with Intellectual Disabilities* (ed. D. Allen), pp. 15–31, BILD Publications, Plymstock.
- Eysenck H. J. (1952) The effects of psychotherapy: an evaluation. *Journal of Consulting & Clinical Psychology* **16**, 319–324.
- Feldman M. A., Atkinson L., Foti-Gervais L. & Condillac R. (2004) Formal versus informal interventions for challenging behaviours in persons with intellectual disabilities. *Journal of Intellectual Disabilities Research* **48**, 60–68.
- General Accounting Office (2005) *Report to the Chairman and Ranking Minority Member, Subcommittee on Human Rights and Wellness, Committee on Government Reform, House of Representatives. Special Education. Children with Autism*. GAO, Washington DC.
- Green C. W. & Reid D. H. (1999) Reducing indices of unhappiness among individuals with profound multiple disabilities during therapeutic exercise routines. *Journal of Applied Behavior Analysis* **32**, 137–147.
- Greenspoon J. (1955) The reinforcing effect of two spoken sounds on the frequency of two responses. *American Journal of Psychology* **68**, 409–416.
- Guevremont D. C., Osnes P. G. & Stokes T. F. (1986) Preparation for effective self-regulation: the development of generalized verbal control. *Journal of Applied Behavior Analysis* **19**, 99–104.
- Guevremont D. C., Osnes P. G. & Stokes T. F. (1988) The functional role of preschooler's verbalizations in the generalization of self-instructional training. *Journal of Applied Behavior Analysis* **21**, 45–55.
- Hassiotis A. & Hall I. (2005) Behavioural and cognitive behavioural interventions for outwardly directed aggressive behaviour in people with learning disabilities (Cochrane review). *The Cochrane Library* **1**, DOI:10.2002/14651858.
- Jacobson J. W., Foxx R. M. & Mulick J. A. (2005) (eds) *Controversial Therapies for Development: Fads, Fashion, and Science in Professional Practice*. Lawrence Erlbaum, Mahwah, NJ.
- Krantz P. J., MacDuff M. T. & McClannahan L. E. (1993) Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behaviour Analysis* **26**, 137–138.
- Lancaster B. M., LeBlanc L. A., Carr J. E., Brenske S., Peet M. M. & Culver S. J. (2004) Functional analysis and treatment of the bizarre speech of dually diagnosed adults. *Journal of Applied Behavior Analysis* **37**, 395–399.
- Lindauer S. E., DeLeon I. G. & Fisher W. W. (1999) Decreasing signs of negative affect and correlated self-injury in an individual with mental retardation and mood disturbances. *Journal of Applied Behavior Analysis* **32**, 103–106.
- Lindsay W. R. & Smith A. H. W. (1998) Response to treatment of sex offenders with intellectual disability: a comparison of men with 1- and 2-year probation sentences. *Journal of Intellectual Disabilities Research* **42**, 346–353.
- Lindsay W. R., Fee M., Michie A. & Heap I. (1994) The effects of cuic control relaxation on adults with severe mental retardation. *Research in Developmental Disabilities* **15**, 425–438.
- Lindsay W. R., Allan R., MacLeod F., Smart N. & Smith A. H. W. (2003) Long-term treatment and management of violent tendencies in men with intellectual disabilities convicted of assault. *Mental Retardation* **41**, 47–56.
- Lindsay W. R., Allan R., Parry C., MacLeod F., Cottrell J., Overend H. & Smith A. H. W. (2004) Anger and aggression in people with intellectual disabilities: treatment and follow-up of consecutive referrals and a waiting list comparison. *Clinical Psychology and Psychotherapy* **11**, 255–264.
- Lindsay W. R., Stenfort-Kroese B. & Drew P. (2005) In: *Cognitive-Behavioral Approaches to Depression in People with Learning Disabilities, Mood Disorders and People with Mental Retardation* (ed. P. Sturmey), pp. 241–272. NADD Press, Kingston, NY.
- Love S. R., Matson J. L. & West D. (1990) Mothers as effective therapists for autistic children's phobias. *Journal of Applied Behavior Analysis* **23**, 379–385.
- Luiselli J. K., Pollow R. S., Colozzi G. A. & Teitelbaum M. (1981) Application of differential reinforcement to control disruptive behaviours of mentally retarded students during remedial instruction. *Journal of Mental Deficiency Research* **25**, 265–273.
- Luscre D. M. & Center D. B. (1996) Procedures for reducing dental fear in children with autism. *Journal of Autism and Developmental Disorders* **26**, 547–556.
- Lynch C. (2004) Psychotherapy for persons with mental retardation. *Mental Retardation* **42**, 399–405.
- Marks I. (1978) Rehearsal relief of a nightmare. *British Journal of Psychiatry* **133**, 461–465.
- Matson J. L. (1981a) A controlled outcome study of phobias in mentally retarded adults. *Behaviour Research and Therapy* **19**, 101–107.
- Matson J. L. (1981b) Assessment and treatment of clinical fears in mentally retarded children. *Journal of Applied Behavior Analysis* **14**, 287–294.
- Matson J. L., Dettling J. & Senatore V. (1979) Treating depression of a mentally retarded adult. *British Journal of Mental Subnormality* **26**, 86–89.
- McPhail C. H. & Chamove A. S. (1989) Relaxation reduces disruption in mentally handicapped adults. *Journal on Mental Deficiency Research* **33**, 399–406.
- Mullins J. L. & Christian L. (2001) The effects of progressive relaxation training on disruptive behavior of a boy with autism. *Research in Developmental Disabilities* **22**, 449–462.
- New York Department of Health (1999a) *Clinical Practice Guidelines: Report of the Recommendations. Autism/Pervasive Developmental Disorders. Assessment and Intervention for Young Children (age 0–3 year)*. Publication Number 4215. New York Department of Health, Albany, NY.
- New York Department of Health (1999b) *Clinical Practice Guidelines: Quick Reference Guide. Autism/Pervasive Developmental*

- Disorders. Assessment and Intervention for Young Children (age 0–3 year)*. Publication Number 4216. New York Department of Health, Albany, NY.
- New York Department of Health (1999c) *Clinical Practice Guidelines: The Guideline Technical Report. Autism/Pervasive Developmental Disorders. Assessment and Intervention for Young Children (age 0–3 year)*. Publication Number 4217. New York Department of Health, Albany, NY.
- NICE (2003) *Mental Health Clinical Guidelines*. <http://www.nice.org.uk/page.aspx?o=91523> (accessed on 16 March 2005).
- Prout T. & Norwick-Drabik K. M. (2003) Psychotherapy with persons who have mental retardation. *American Journal on Mental Retardation* **108**, 82–93.
- Rehfeldt R. A. & Chambers M. R. (2003) Functional analysis and treatment of verbal perseverations displayed by an adult with autism. *Journal of Applied Behavior Analysis* **36**, 259–261.
- Roth A. & Fonagy P. (2005) *What Works for Whom. A Critical Appraisal of Psychotherapy Research*, 2nd edn. Guildford Press, New York.
- Runyan M. C., Runyan M. C., Stevens D. H. & Reeves R. (1985) Reduction of avoidance behavior of institutionalized mentally retarded adults through contact desensitization. *American Journal of Mental Deficiency* **90**, 222–225.
- Rush A. J. & Frances A. (2000) (eds) *The Expert Consensus Guideline Series, Treatment of Psychiatric and Behavioral Problems in Mental Retardation*. *American Journal on Mental Retardation* **105**, 159–228.
- Scotti J. R., Evans I. M., Meyer L. H. & Walker P. (1991) A meta-analysis of intervention research with problem behavior: treatment validity and standards of practice. *American Journal on Mental Retardation* **96**, 233–256.
- Shogren A., Faggella-Luby M. N., Bae S. J., Wehmeyer M. L. (2004) The effect of choice-making as an intervention for problem behavior: a meta-analysis. *Journal of Positive Behavior Interventions* **6**, 228–237.
- Silvestri R. (1977) Implosive therapy treatment of emotionally disturbed retardates. *Journal Consulting and Clinical Psychology* **45**, 14–22.
- Singh N. N., Ellis C. R. & Wechsler H. (1997) Psychopharmacoepidemiology of mental retardation: 1966–1995. *Journal of Child Adolescent Psychopharmacology* **7**, 255–266.
- Skinner B. F. (1953) *Science and Human Behavior*. The Free Press, New York.
- Skinner B. F. (1985) Cognitive science and behaviourism. *British Journal of Psychology* **76**, 291–301.
- Smith A. J., Bihm E. M., Tavkar P. & Sturmey P. (2005) Approach-avoidance and happiness indicators in natural environments: a preliminary analysis of the Stimulus Preferences Coding System. *Research in Developmental Disabilities* **26**, 297–313.
- Spencer C. R. & Conrad P. L. (1989) Treatment of acrophobia of an institutionalized adult with mental retardation. *Mental Retardation* **27**, 1–4.
- Stenfert-Kroese B. (1997) Cognitive-behaviour therapy for people with learning disabilities: conceptual and contextual issues. In: *Cognitive–Behaviour Therapy for People with Learning Disabilities* (eds B. Stenfert-Kroese, D. Dagnan & L. Loumidis), pp. 1–16. Routledge, New York.
- Stenfert-Kroese B., Dagnan D. & Loumidis L. (1997) *Cognitive–Behaviour Therapy for People with Learning Disabilities*. Routledge, New York.
- Stokes T. F., Osnes P. G. & Guevremont D. C. (1987) Saying and doing: a commentary on a contingency-space analysis. *Journal of Applied Behavior Analysis* **20**, 161–164.
- Sturmey P. (2004) Cognitive therapy with people with intellectual disabilities: a selective review and critique. *Clinical Psychology and Psychotherapy* **11**, 223–232.
- Sturmey P. (2005a) Against psychotherapy with people who have mental retardation. *Mental Retardation* **43**, 55–57.
- Sturmey P. (2005b) Secretin is a robustly ineffective treatment for autism: a review of 15 double-blind randomized controlled trials. *Research in Developmental Disabilities* **26**, 87–97.
- Taylor J. L. (2002) A review of the assessment and treatment of anger and aggression in offenders with intellectual disabilities. *Journal of Intellectual Disabilities Research* **46**(Suppl. 1), 57–73.
- Taylor J. L. & Novaco R. W. (2005) *Anger Treatment for People with Developmental Disabilities. A Theory, Evidence and Manual Based Approach*. Wiley, New York.
- Taylor J. L., Thorne I., Robertson A. & Avery G. (2002) Evaluation of a group intervention for convicted arsonists with mild and borderline intellectual disabilities. *Criminal Behaviour and Mental Health* **12**, 282–293.
- Taylor J. L., Novaco R. W., Gillmer B. T. & Robertson A. (2004) Treatment of anger and aggression. In: *Offenders with Developmental Disabilities* (eds W. R. Lindsay, J. L. Taylor & P. Sturmey), pp. 201–219. Wiley, New York, Chichester.
- Truax C. (1966) reinforcement and non-reinforcement in Rogerian psychotherapy. *Journal of Abnormal Psychology* **71**, 1–9.
- Whitaker S. (2002) Maintaining reductions in challenging behaviours: a review of the literature. *The British Journal of Developmental Disabilities* **48**, 15–25.
- Whitman TL. (1990) Self-regulation and mental retardation. *American Journal on Mental Retardation* **94**, 347–362.
- Wilder D. A., Masuda A., O'Connor C. & Baham M. (2001) Brief functional analysis and treatment of bizarre vocalizations in an adult with schizophrenia. *Journal of Applied Behavior Analysis* **34**, 65–68.
- Williams G., Pérez-González L. A. & Vogt K. (2003) The role of specific consequences in the maintenance of three types of questions. *Journal of Applied Behavior Analysis* **36**, 285–296.
- Willner P. (2004) Brief cognitive therapy of nightmares and post-traumatic ruminations in a man with learning disability. *British Journal of Clinical Psychology* **43**, 459–464.
- Willner P. (2005) The effectiveness of psychotherapeutic interventions for people with learning disabilities: a critical overview. *Journal of Intellectual Disabilities Research* **49**, 73–85.
- Wolpe J. (1958) *Psychotherapy by Reciprocal Inhibition*. Stanford University Press, Stanford, CA.