

What can clinical behaviour analysis contribute to nidotherapy?

DAVID VEALE¹, GEORGINA SMITH² AND CLAUDIA DROSSEL³, ¹ NIHR Specialist Biomedical Research Centre for Mental Health, South London and Maudsley NHS Foundation Trust and The Institute of Psychiatry, King's College London, UK; ²The Haven, Paddington, St. Mary's Hospital, Central and North West London (CNWL) & Imperial College Healthcare NHS Trust, London, UK; ³University of Nevada, Reno, NV, USA

ABSTRACT

Nidotherapy is an approach that involves the assessment and modification of situational or interpersonal aspects. It is used to reduce the impact of severe mental disorder when previous therapies have failed and suggests that its methods result in improved social functioning. We describe nidotherapy as a novel intervention, and to enhance understanding, compare and contrast nidotherapy with clinical behaviour analysis. To facilitate establishing an evidence base, our recommendations include: clarification of the theory underlying nidotherapy; collaboration with clinical behaviour analysts to explore the role of situational and interpersonal changes within the theoretical system; design of single-subject experiments to gather data pertaining to individuals; consideration of Functional Analytic Psychotherapy to examine the therapeutic bond; a definition of the repertoires and competencies of nidotherapists to guarantee supervision; and long-term follow-up to rule out unintended effects of environmental changes. Copyright © 2009 John Wiley & Sons, Ltd.

Background

According to its founder, Professor Peter Tyrer, nidotherapy is a collaborative approach designed to minimize the impact of any form of mental disorder on the individual or society through systematic assessment and environmental modification (Tyrer, 2009; Tyrer & Bajaj, 2005; Tyrer & Kramo, 2007; Tyrer, Kramo, Miloskeska, & Seivewright, 2007; Tyrer, Sensky, & Mitchard, 2003). Nidotherapy is specifically *not* described as a treatment (Tyrer, 2009, p. 7). Rather, as a last-resort solution, it is supposed to address the living

conditions of those individuals with severe mental disorders whom local services have been unable to engage or to help. Nidotherapists have an important message: Accepting people the way they are, foregoing insistence on treatment and heeding individuals' wishes seem to improve social functioning. The key features of nidotherapy are reproduced in Table 1 (from Tyrer, 2002; Tyrer & Kramo, 2007).

One randomized controlled trial (RCT) suggests nidotherapy is more cost-effective than assertive outreach as treatment-as-usual (Ranger et al., 2009).

Table 1: Principles of nidotherapy

Principle	Summary
Collateral collocation Jointly planned achievable environmental targets	Seeing the environment from the client's point of view Setting clear goals for environmental change with agreement from all parties in advance
Let improvement in social functioning be your guide	If the targets are right, social functioning will improve; if social functioning does not improve, start again (cf. the nest principle)
Joint responsibility but client-owned	Both client and nidotherapist take joint responsibility for developing the nidotherapy programme but the client has to be the final owner
Wider environmental integration and arbitrage	Involving others, particularly a trusted arbiter, in resolving change that may not be desired by the client

Comparing and contrasting nidotherapy with other existing psychosocial interventions has been difficult. Evaluating previously published attempts, Tyrer and colleagues note nidotherapy has been classified as 'nothing but' systems theory, basic social casework, common sense or cognitive behaviour therapy (Tyrer et al., 2003, 2007). They maintain nidotherapy is its own entity and more *formalized* than current psychiatric or social work practice:

[Nidotherapy is] a complicated matching process whereby people's deep desires, vague wishes, fundamental opinions and lifestyle are understood sufficiently to ensure that environmental factors in all their forms are adjusted sensitively and specifically to make the best fit for the patient (Tyrer, 2009).

Moreover, its founders judge nidotherapy to differ from all other psychosocial interventions because nidotherapy explicitly does not target symptom reduction or any other change of the individual's affect, behaviour or cognition. Such change, if it occurs, is according to Tyrer (2009) secondary and coincidental.

We agree with nidotherapists that their focus on environmental solutions in the service of the client's values, rather than symptom reduction, may not be shared by all healthcare agencies; however, we fear that nidotherapy is not *formalized* or *systematized* enough. Within nidotherapy, there

is no clear theoretical rationale delineating the relationship between environmental factors and psychosocial functioning. There are no experimental data that demonstrate how particular changes in a person's setting may lead to improvement. Furthermore, it is not clear which aspect of the setting to alter and why. No long-term follow-up data are available to examine the possibility of unintended consequences of changes in environmental settings. Without scientific grounding of the process of change, nidotherapy will be regarded as a non-specific, palliative approach taken by caring and enthusiastic clinicians in West London.

We will compare and contrast the environmental approach taken by nidotherapists with that taken within clinical behaviour analysis (CBA). We will argue that of all psychotherapies, nidotherapy has the most to learn from CBA because of the focus on environmental modifications and for this reason we have not considered other types of psychotherapy. Our aim is not to critique nidotherapy as being 'merely CBA' (although it has similarities), but to illustrate a theoretical grounding and systematic, data-based approach from which nidotherapy could benefit. While nidotherapy rejects 'person-centred planning, cognitive-behavioural therapy, modelling and shaping' (Tyrer, 2009, p. 7) for their alleged focus on symptom-reduction, we hope nidotherapy will not

reinvent the wheel, as much about arranging systematic environmental modifications and observing their effects on affect, behaviour and cognition can be learned from CBA. For more than half a century, CBA has studied person-environment relations, and its treatment models have been informed by basic and applied research, from Applied Behaviour Analysis (Cooper, Heron, & Heward, 2007) to developments such as Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999b). The goal of the present paper is to offer nidotherapists recommendations regarding both theoretical and empirical issues. We hope to increase the likelihood that nidotherapy be understood and systematized in its own right.

Theory—the role of adaptation

Nidotherapy grounds itself in Darwin's theory of natural selection as outlined in the *Origin of Species*, with successful adaptation of a species being the key to its persistence. Nidotherapists recognize that promoting a better person-environment fit is not a novel approach—in the 1970s and 1980s theories of stress reduction used the concept and extended Darwin's inter-species processes to inter-individual competition. In essence, theorists argued that the better the person-environment congruence, the less stressful the situation, and by inference, the less the competition. Accordingly, nidotherapy recommends:

Thus with those who are persistently mentally ill, we should abandon the strategy of getting them to compete with others who are conventionally more fortunate and better able to compete, and instead attempt to match their special strengths with environments that suit them and which are not troubled by their weaknesses (Tyrer, 2009).

CBA, like nidotherapy, also consistently aligns itself with principles and theories of causation and explanation from evolutionary biology (Skinner, 1971). Unlike nidotherapy, however, CBA is interested in studying the variables affecting the

psychosocial level and thus a person's affective, behavioural and cognitive patterns. CBA assumes the aptness (or the 'fit') of a pattern to the current psychosocial environment is the outcome of selection by consequences: The pattern in question has at one time or another 'tracked' its environment. According to contemporary evolutionary theory and CBA, 'adaptation' is thus a historical concept that describes the origin of affective, behavioural or cognitive patterns.

Frequent references by nidotherapy to 'environmental change' and 'adaptation' may suggest a greater similarity between CBA and nidotherapy than is actually present. Nidotherapy seems to treat 'adaptation' as synonymous with 'accommodation'. Rather than viewing behaviour change as a function of selection by consequences, nidotherapy emphasizes the 'deliberate development of artificial environments, or purposive planning of person placement in an unusual environment' to accommodate a person's chronic mental disorder or 'untreatable status'.

Theory—the role of changeability

Consequently, a second major difference between CBA and nidotherapy arises from nidotherapy's assertion that a person who refuses some treatment for symptom reduction is 'unchangeable' that becomes the reason for referral. CBA, in contrast, assumes that a person's behaviour patterns track past or current psychosocial demands. CBA, similarly to motivational interviewing or other approaches based upon a stage of change model, proposes that even the behaviour of persons who refuse to participate in treatment can be understood (and changed) in the context within which it occurs. One current theme in the history of CBA is the repeated demonstration, over past decades, that presumably 'unchangeable' populations can be helped—when assessment is continuous and informs treatment, which is in turn functional and individualized.

Thus, while CBA puts prediction and influence, that is change, square into the centre of its philosophy and science, nidotherapy explicitly denies influence through environmental modification (or regards this influence as an epiphenomenon). In lieu of a coherent theoretical system, nidotherapy cannot make predictions. The danger is that nidotherapy will become the 'palliative care' of the mental health system: When everything else has failed, discontinue current, potentially aversive treatments and finally listen to and grant the client some of his or her wishes.

Interpreting the 'adaptation' of nidotherapy as an 'accommodation' for disability, the CBA literature most relevant would be the design of prosthetic environments (Lindsley, 1964). Such prosthetic environments consisted of a systematic accommodation of environments to serve populations with special needs. While the goal of prosthetic environments more than 40 years ago was the integration of developmentally disabled individuals into classroom environments specifically, and the provision of educational services to cognitively impaired individuals generally, nidotherapy specifies its goal as 'improved quality of life' and 'mental harmony' in the absence of treatment.

As 'quality of life' is a vaguely defined construct, one of the problems of environmental accommodation or design in nidotherapy is the lack of adequate assessment of nidotherapy's effects on the people for whom benefits are being sought. Case examples described in the nidotherapy literature have demonstrated changes in affect and behaviour: Most environmental changes in the case histories shared by nidotherapists (Tyrer, 2002; Tyrer & Kramo, 2007) consisted of the clients' move from a very restrictive to the least restrictive setting, and provision of access to meaningful activities. According to the anecdotes, these environmental changes—often explicitly requested by the clients—were accompanied by improvements in psychosocial functioning. We conclude that such individuals are therefore not untreatable: the issue is to demonstrate which aspects of nido-

therapy are effective components, and whether long-term improvement is indeed obtained.

Assessment

In an ideal world, theory drives clinical assessment. Nidotherapists engage in an 'environmental analysis' considering all aspects of the physical, the social and the personal environment. For example, a nidotherapist may assess the degree to which privacy is available, family relationships, personal feelings and social isolation. Nidotherapist and client, in collaboration, draw up a list of change targets. Yet, there is no guidance on which circumstances to change, as there is no theoretical link in nidotherapy between altering aspects of environmental settings and the subsequent effect on affective, behavioural or cognitive patterns.

Compared with nidotherapy, the practice of CBA is more formalized and has the goal of understanding affect, behaviour, and cognition within the contexts in which they occur. To gain an understanding, *specific* features of the context (or social interaction) are changed in a way agreed upon by the client. The change process and its goals in CBA are thus transparent. Tyrer and colleagues eschew talking about change and instead refer to improvements in social functioning; however, 'change' does not imply symptom reduction. Improvements in social functioning or engaging in any personally meaningful and valued activity that seemed out of reach before therapy would count as 'change' (Martell, Addis, & Jacobson, 2001). Already in 1974, Goldiamond formulated this constructional—rather than symptom-reductive—view within CBA. Thus, both nidotherapy and CBA share a focus on the primary therapeutic outcome as being unrelated to symptoms or to precursory modifications of opinions, beliefs or emotions.

In contrast to nidotherapy, CBA utilizes a more formal descriptive analysis to explore antecedents, behaviours (including affect and cognition) and consequences. Whereas nidotherapy focuses exclu-

sively on environmental settings, the context that comprises antecedents and consequences in CBA can be physical, personal (including one's bodily sensations; or narratives about the self, such as 'I am . . .') or interpersonal. In CBA, this relationship between behaviour and psychosocial context over time constitutes the unit of analysis. Behaviour and context are sliced for analytic purposes. Clear definitions of target behaviours (notably, improvements such as 'social functioning') permit observation and measurement. Detailed observation or self-monitoring on how behaviour and context interact and how they are related constitutes the descriptive analysis (see Drossel, Rummel, & Fisher, 2009). If nidotherapy could acknowledge that altering environmental settings leads to changes in behaviour or social functioning, then such a descriptive analysis would be the missing piece shedding light on the change process.

The role of the therapeutic alliance

In comparing nidotherapy with CBA and developing hypotheses regarding the process of change in nidotherapy, we find it useful to use the framework of Bordin's therapeutic alliance (Bordin, 1979, 2006; Dryden, 2008). There are three major components of the therapeutic alliance that effect change: bonds, goals and tasks. The nature of each of these components differs across different psychological and social therapies:

Therapeutic bond

The therapeutic bond refers to the nature and the quality of the relationship between client and therapist. Nidotherapy emphasizes a strong therapeutic bond as, by definition, the client group is disengaged from routine services, refuses drug treatment and is not seeking change (i.e. symptom reduction). According to Tyrer and colleagues, it is vital to collaborate with the client to identify areas for change in their physical setting and interpersonal relationships. Importantly, nidotherapists

go the extra mile in empathy, collaboration and negotiation for the duration of therapy. They represent themselves as liaised with the clinical team, but independent. Practically, nidotherapists see clients in their homes or residential arrangements. Nidotherapists spend a lot of time developing a therapeutic bond by experiencing the clients' worlds and becoming independent advocates for them. Acceptance is a key concept, such that nidotherapists are to ask themselves: 'Am I doing this because I want to change this attitude, symptom, behaviour or need, or am I accepting this as part of the person and want to accommodate it?' (Tyrer, 2009, p. 9)

There is an implication in the nidotherapy literature that clinical behaviour change efforts preclude collaboration, understanding and empathy. Indeed, with references to Huxley's *Brave New World* (Tyrer, 2009, p. 4), there is an implicit assertion that the services of typical mental health delivery systems are coercive and discriminatory: 'Current therapeutic delivery systems . . . are perceived as making [individuals] into people they are not' (p. 5). Not surprisingly, these allegations have met with stern rebuttal. Ani and Ani (2007) for example, contested: 'The views attributed to the "standard" perspective (which we assume refers to usual clinical practice) do not represent the practice or belief of any clinician we know'. In addition to endorsing the above criticism, clinical behaviour analysts would also reject the procedural notion that only individuals who did not benefit from the expert-knows-best, rule-governed and prescriptive therapeutic stance would be eligible to access collaborative care and contextual assessments.

Collaboration, empathy and understanding are important characteristic in any psychotherapeutic setting, not only nidotherapy or CBA. As a matter of practice, however, a clinical behaviour analyst spends a lot of time observing his or her own reactions to the client's behavioural, cognitive and affective patterns. These observations are also integrated into the descriptive analysis of dyadic social interactions, mentioned before. The clinical

behaviour analyst collaborates with the client on the formulation of treatment goals under consideration of these observations and the client's description of other social experiences outside of session (Dougher & Hayes, 2000; Hayes et al. 1999b; Kohlenberg & Tsai, 1991). Nidotherapy offers the client the opportunity to discontinue care that has been ineffective for quite some time (i.e. to escape from ineffective and unworkable social stalemates). CBA would predict that under these circumstances (removal of aversive social contingencies; introduction of respectful, attentive social partners), the client's social behaviour would change, depending on the social contingencies inherent in the interaction with the nidotherapist. As mentioned before, in the absence of theory, nidotherapy is silent on these predictions.

Because of its work with individuals considered 'unchangeable' by other service delivery agencies, we suspect that nidotherapists may frequently encounter emotionally demanding interactions with their clients. For this reason, solid training and supervision seem crucial (see, e.g. Linehan, 1993, for a discussion of support for therapists). We suggest nidotherapy work to reach a clearer definition of the desired competencies of a nidotherapist. What are the attributes considered essential to the developing the therapeutic bond? Such definition would inform future independent studies of nidotherapy by confirming that therapists are adhering to the therapy and are competently applying its principles.

Goals

Client goals can be negotiated on different time scales: outcome goals, mediating goals or processes and session goals. The goals of nidotherapy need to be clarified, as publications differ in emphasis. Highly consistent with the alteration of environmental settings in CBA, Tyrer and Bajaj (2005) state that improvement in social functioning is used *as a guide* to the choice of environmental change. However, Tyrer et al. (2003) define nido-

therapy as not primarily concerned with changing behaviour but understanding core beliefs for subsequent environmental changes. Tyrer and Kramo (2007) go further by declaring that the philosophy of nidotherapy is one of acceptance of a handicap and its environmental accommodation.

In general, within nidotherapy there seems to be confusion between environmental change as a process (with the goal of improved social functioning), and environmental change *per se* as an outcome goal. We note that in all case vignettes described in the literature, there seem to be problem behaviours (such as 'antisocial behaviour' or 'excessive cannabis use'). Clients' personalities are labelled at face value as 'aggressive', 'abusive, difficult, or sometimes threatening'. Not to inform a client of a potential behaviour change as a function of environmental modification and speaking of improvement in social functioning as an 'epiphenomenon' seems to us as somewhat disingenuous. Clients would not be referred for nidotherapy unless there was an identified problem behaviour that had been judged, by definition, as 'untreatable'. This means that clients are referred to nidotherapy when other professionals have concluded that *no change was possible*, creating further confusion about the role of the nidotherapist and the expectations of his or her clients. Considering this *a priori* impossibility of change, if improvement in social functioning cannot be demonstrated, then nidotherapy is unlikely to attract interest from mental health practitioners, commissioners or research funding agencies.

Part of the difficulty involves the lack of a specific description of the problem behaviour contained within the case vignettes. For example, 'aggression' is too vague a term and not a specific enough description. When a key worker knocks on a client's door, the client may not open the door and engage in profanities. Refusal of services (or, as mentioned in some vignettes, supervision) may be interpreted as 'aggressive behaviour'. Tyrer (in a debate with D.V. and G.S.) has stated that 'aggression' could be expressed appropriately in a suitable environment, such as armed forces. Again, this is

not a specific enough description of behaviour: even if a person were in the armed forces, 'aggressive behaviour' emitted in the wrong context within the Army would still be considered a problem.

The goals of nidotherapy must be clarified, so that (1) the outcome delineates an improvement in specific behaviours comprising 'social functioning' and (2) changes in the environmental setting (including development of the therapeutic bond) are acknowledged and studied as the process by which the outcome is obtained. The lack of clear outcome goals may serve a potential function for nidotherapy, as it may increase social acceptability by the potential client and the wider professional community. Asserting the absence of concrete treatment goals may, at best, be a rhetorical device to find a niche for nidotherapy without inciting the ire of directly competing treatment approaches (see also Tyrer & Kramo, 2007, p. 119: 'Nidotherapy is not usually in competition with other forms of treatment because it is not aiming to treat the individual directly.'). It could also be argued that the lack of outcome goals and improvement in social functioning may initially be *covert* and not necessarily shared with the client. Discussing therapeutic goals with a client may be counterproductive if it disrupts the therapeutic bond and makes it less likely to achieve the desired goal (but see Miller & Rollnick, 2002). Informed consent requires a clear therapist–client agreement.

Experimental designs examining the effects of nidotherapy's therapist–client relationship and concomitant changes to the environmental settings on client social functioning would greatly contribute to the knowledge about chronic—and supposedly intractable—mental illness. So far, the monitoring of client and therapy interactions within nidotherapy appears informal, likely because the change process and its goals are not explicit or specific enough.

Tasks

Therapists and clients engage in action to achieve predetermined goals or follow an agreed-upon

direction. Therapy is more effective when these tasks have been identified and defined in a collaborative fashion and approved by the client during the intake and consent sessions.

From the perspective of CBA, the therapist is part of the environmental (interpersonal) setting and has the opportunity to attend to client behaviours that *compete* with problem behaviours (e.g. social skills that make the problem behaviours unnecessary). We (D.V. and G.S.) have observed video examples of nidotherapy sessions during which the therapist effectively shapes the client's interpersonal repertoire by informal contingency management (e.g. ignoring ineffective or disruptive verbalizations, and attending or responding to effective and constructive problem-solving statements). Nidotherapists could shape their clients' interpersonal skills more efficiently by learning the principles of contingency management within the therapeutic relationship (Kohlenberg & Tsai, 1991; Kohlenberg et al., 2004). In Functional Analytic Psychotherapy (FAP), the therapist and the client collaboratively identify episodes within the therapeutic relationship that are examples of the client's general social difficulties. Then, with the consent of their clients, FAP therapists use their interactions with the clients to tag difficulties and improvements. The effect of the therapist's behaviour on the client is observed, and interactions are adjusted as necessary. Highly skilled therapists tend to engage in such shaping 'naturally'. FAP applies the principles of behaviour analysis more systematically to improve complex social functioning and remedy seemingly egregious and recalcitrant social skills deficits.

Thus, from the perspective of CBA, we are both theoretically and empirically interested in what nidotherapists *do* to achieve improved social functioning as their outcome. Further elaborating on our interest in the activities of nidotherapists, we suggest that nidotherapy consider the history, current therapies and the methods of CBA to explore its process of change and its goals. Current CBA therapies represent a complex family with an interest in both acceptance and change (e.g. Hayes,

Follette, & Linehan, 2004), fellow travellers of nidotherapy at an international level.

CBA

The development of CBA can be traced to Skinner, who first described lawful environment–behaviour relations in the 1930s. From this was born ‘applied’ behaviour analysis in the 1950s. Orienting towards the areas of greatest needs, applied behaviour analysts worked to free individuals with developmental disabilities from restrictive settings, to demonstrate that a presumably ‘unchangeable’ population could acquire not only self-care but also academic skills, and to provide developmentally disabled individuals with access to ‘mainstream’ life choices—such as schooling. From its beginnings, behaviour analysis was interested in clinical issues (e.g. Azrin, Holz, Ulrich, & Goldiamond, 1961); however, its explicitly experimental and principled approach to studying the effects of interpersonal changes on subsequent behaviour was marginalized (Salzinger, 2006). In the mid-1970s, CBA developed an evidence-based treatment of depression (Lewinsohn & Graf, 1973). In the 1980s, explicitly ‘functional analytic’ therapies emerged from their behavioural roots and stressed individualized analyses of antecedents, behaviours and consequences to inform intervention. Emphasizing the importance of context and descriptive functional analyses are, amongst others, Dialectical Behavior Therapy (Linehan, 1993), Acceptance and Commitment Therapy (Hayes et al., 1999b), FAP (Kohlenberg & Tsai, 1991), Behavioral Activation (Martell et al., 2001) and Mindfulness-based Cognitive Therapy (Teasdale et al., 2000). CBA is gradually building an evidence-base influencing the delivery of mainstream cognitive behavioural therapies. With nidotherapy, these therapies share its emphasis on broader goals, indicative of improvements rather than symptom reduction. They tend to be delivered using broad principles in contrast to treatment manuals for more specific disorders.

To illustrate their relevance to nidotherapy, we would like to point to research conducted within the last two decades, which has demonstrated that private events (i.e. events inaccessible to others, such as thoughts, images, worries, ruminations) often come to guide subsequent behaviour and that efforts to stop these private events tend to have paradoxical effects: The more attention is paid to them, the more they might take over a person’s life, and the harder they are to avoid. Thus, ‘acceptance’ of private events is at the heart of many of the therapies mentioned above (e.g. involving psychotic behaviour, see Bach & Hayes, 2002). One may speculate that, to the extent that nidotherapy may encourage their clients to accept private events (such as hearing voices, etc.) and to take the ‘John Nash’-approach to chronic mental illness, nidotherapists may decrease the social distress and handicap experienced by the individual and open him or her to new (interpersonal?) experiences. Because we find the theories underlying CBA of interest to nidotherapy, we would encourage nidotherapists to both contribute to and learn from these other therapies, by participating in international conferences, reviewing journal articles and using the existing knowledge base of CBA.

Single-case experimental design

We have asked that nidotherapy demonstrate how changes in aspects of the environmental setting lead to improvement in specific social functioning. Here, we suggest using single-case experimental designs instead of case vignettes and correlational evidence. Ranger et al. (2009) have conducted one RCT on cost-effectiveness, not alleviating concerns about neglecting the process of change and its clearly defined goals. Behaviour analysis has demonstrated a firm link between altering environmental settings (including aspects of interpersonal relationships) and predictable effects on affective, behavioural and cognitive patterns innumerable times. This link has not been demonstrated or acknowledged by nidotherapists, who are

working with a potentially severely impaired population in community settings. RCTs answer global questions, such as, 'Is this intervention more cost-effective than treatment-as-usual?' RCTs do not influence theory or answer questions about, 'How did it work?', 'Why didn't it work for some individuals?', or 'What components of a complex intervention are most effective for this particular individual?'

Historically, single-case or small *N* experimental designs arose from medicine and psychophysics. They are theory-free although currently mostly associated with applied behaviour analysis. The Medical Research Council in the UK recommends single-case experimental designs as a way of evaluating complex interventions (Craig et al., 2008). Single-case experimental designs rely on many observations over time, rich in detail and individualized (for guidance on how to conduct single-case research in clinical practice, see Hayes, Barlow, & Nelson-Gray, 1999a).

Single-case designs are especially relevant for answering clinical questions pertaining to individuals (e.g. individuals with 'aggressive behaviour'). Meta-analyses have been used to summarize findings from single-case designs, for example by using mean increase from a well-defined social functioning baseline as a measure of effect size across studies. Thus, a meta-analysis may, for example demonstrate one day that nidotherapy effectively increases social functioning than interventions specifically targeting skills deficits associated with social isolation or paranoid behaviour. It may only then make recommendations on which type of clients may benefit from nidotherapy. Single-case designs are labour-intensive yet crucial in demonstrating change processes and establishing an evidence-base of a new therapy. Here, we suggest collaboration with CBA to facilitate the implementation of designs.

Follow-up

So far, the nidotherapy literature has not provided follow-up data. As mentioned before, CBA has

shown an undisputable link between environmental manipulations and subsequent affective, cognitive or behavioural changes. For this reason, it is important to document that there are no unintended consequences as a result of changes in environmental settings (Willems, 1974). For a simplified example, aversive environmental interventions such as a high-pitched noise, may disperse groups of young people and prevent them from congregating and becoming disruptive. The follow-up question would be: What is the alternative social setting for these young people? If research does not monitor the long-term, potentially unintended, consequences of an intervention, then the conclusions may not be taken at face value if they then congregate in a different area. Nidotherapy might, for example provide someone with a more accommodating environment (such as working as a security guard at night and living alone). The person may initially report greater satisfaction, or being in harmony, with his or her circumstances as a result of the change. In the long run, though, it is important to know whether there is an emergence of paranoid behaviour and self-reports of distress and poorer quality of life, as the person has fewer opportunities to interact with others.

We understand that long-term follow-up is difficult. It is even more difficult to document that the situational or interpersonal changes, thought to benefit the person in the short-term, may produce undesirable consequences with time. Nevertheless, it is important to undertake long-term follow-up of novel interventions (even if they do not claim to be such) and to be on the lookout for any unintended consequences as a result of an altered physical or interpersonal situation.

Summary of recommendations

- (1) *Clarify the theory.* Are the outcomes of nidotherapy improvements in social functioning, with concomitant decreases in problem behaviour? Do alterations of the client's physical and/or interpersonal situation constitute the process whereby the outcome is achieved?

- (2) Consider collaborating with clinical behaviour analysts. Would a descriptive analysis of environment-behaviour relations relevant to nidotherapy contribute to the understanding and dissemination of nidotherapy?
- (3) Design single-subject experiments. In line with decades of research suggesting that altered physical, interpersonal and personal circumstances may lead to decreases in problem behaviour and improvements in social functioning, is the systematic exploration of environment-behaviour relations of interest to nidotherapists?
- (4) Consider the use of FAP to further enhance and examine the therapist-client relationship. Initially, would it be helpful if a clinical behaviour analyst conducted a descriptive analysis of the nidotherapist's and his or her client's behaviour?
- (5) Define the repertoires and competencies of nidotherapists.
- (6) Define the needs of supervision and competencies in an effective nidotherapist.
- (7) Conduct long-term follow-up to rule out unintended consequences of situational and interpersonal changes.

Acknowledgements

D.V. acknowledges support from the National Institute for Health Research Specialist Biomedical Research Centre for Mental Health award to the South London and Maudsley NHS Foundation Trust and the Institute of Psychiatry, King's College London.

References

- Ani, C., & Ani, O. (2007). We are all nidotherapists. *Psychiatric Bulletin*, 31, 6, 234.
- Azrin, N. H., Holz, W., Ulrich, R., & Goldiamond, I. (1961). The control of the content of conversation through reinforcement. *Journal of the Experimental Analysis of Behavior*, 4, 25-30.
- Bach, P., & Hayes, S. C. (2002). The use of Acceptance and Commitment Therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 70, 5, 1129-1139.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice*, 16, 252-260.
- Bordin, E. S. (2006) Theory and research on the Therapeutic alliance. In A. O. Horvath, & L. S. Greenberg (Eds.), *The working alliance: Theory, research, and practice* (pp. 13-37). New York: Wiley.
- Cooper, J., Heron, T., & Heward, W. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Craig, P., Dieppe, P., MacIntyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: The new Medical Research Council guidance. *BMJ Editorial*, 337, 979-983.
- Dougher, M. J., & Hayes, S. C. (Eds.). (2000). *Clinical behavior analysis*. Reno, NV: Context Press.
- Drossel, C., Rummel, C., & Fisher, J. E. (2009). Assessment and cognitive behavior therapy: Functional analysis as key process. In W. O'Donohue, & J. E. Fisher (Eds.), *General principles and empirically supported techniques: Cognitive behavior therapy* (pp. 15-41). Hoboken, NJ: John Wiley & Sons.
- Dryden, W. (2008). The therapeutic alliance as an integrating framework. In W. Dryden, & A. Reeves (Eds.), *Key issues for counselling in action* (pp. 1-18). London: Sage.
- Hayes, S. C., Barlow, D. H., & Nelson-Gray, R. O. (1999a). *The scientist practitioner: Research and accountability in the age of managed care* (2nd ed.). Boston, MA: Allyn and Bacon.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. (1999b). *Acceptance and Commitment Therapy: An experiential approach to behavior change*. New York: The Guilford Press.
- Hayes, S. C., Follette, V. M., & Linehan, M. (2004). *Mindfulness and acceptance: Expanding the cognitive behavioral tradition*. New York: The Guilford Press.
- Kohlenberg, R. J., Kanter, J. W., Bolling, M., Wexner, R., Parker, C., & Tsai, M. (2004). Functional analytic psychotherapy, cognitive therapy, and acceptance. In S. C. Hayes, V. M. Follette, & M. Linehan (Eds.), *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (pp. 96-119). New York: The Guilford Press.
- Kohlenberg, R. J., & Tsai, M. (1991). *Functional Analytic Psychotherapy: Creating intense and curative therapeutic relationships*. New York: Plenum.
- Lewinsohn, P. M., & Graf, M. (1973). Pleasant activities and depression. *Journal of Consulting & Clinical Psychology*, 41, 2, 261-268.
- Lindsley, O. R. (1964). Direct measurement and prosthesis of retarded behavior. *Journal of Education*, 147, 62-81.

- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: The Guilford Press.
- Martell, C. R., Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: Strategies for guided action*. New York: Norton.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York: The Guilford Press.
- Ranger, M., Tyrer, P., Miloskeska, K., Fourie, H., Khaleel, I., North, B., & Barrett, B. (2009). Cost-effectiveness of nidotherapy for comorbid personality disorder and severe mental illness: Randomized controlled trial. *Epidemiologia e Psichiatria Sociale*, 18, 2, 128–136.
- Salzinger, K. (2006). Behavior analysis in the real world. *Behavior and Social Issues*, 15, 192–195.
- Skinner, B. F. (1971). *Beyond freedom and dignity*. New York: Knopf.
- Teasdale, J. D., Williams, J. M., Soulsby, J. M., Segal, Z. V., Ridgeway, V. A., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68, 615–623.
- Tyrer, P. (2002). Nidotherapy: A new approach to the treatment of personality disorder. *Acta Psychiatrica Scandinavica*, 105, 6, 469–471.
- Tyrer, P. (2009). *Nidotherapy: Harmonising the environment with the patient*. London: RCPsych Publications.
- Tyrer, P., & Bajaj, P. (2005). Nidotherapy: Making the environment do the therapeutic work. *Advances in Psychiatric Treatment*, 11, 3, 232–238.
- Tyrer, P., & Kramo, K. (2007). Nidotherapy in practice. *Journal of Mental Health*, 16, 1, 117–129.
- Tyrer, P., Kramo, K., Miloskeska, K., & Seivewright, H. (2007). The place for nidotherapy in psychiatric practice. *Psychiatric Bulletin*, 31, 1, 1–3.
- Tyrer, P., Sensky, T., & Mitchard, S. (2003). The principles of nidotherapy in the treatment of persistent mental and personality disorders. *Psychotherapy & Psychosomatics*, 72, 6, 350–356.
- Willems, E. P. (1974). Behavioral technology and behavioral ecology. *Journal of Applied Behavior Analysis*, 7, 151–165.

Address correspondence to: Dr David Veale, The Centre for Anxiety Disorders and Trauma, The Maudsley Hospital, 99 Denmark Hill, London SE5 8AF, UK. Email: David.Veale@iop.kcl.ac.uk