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A systematic approach to practice-based evidence in a psychological therapies service

Mike Lucock, Chris Leach,
Huddersfield University and South West Yorkshire Mental Health NHS Trust,
Steve Iveson, Karen Lynch, Carrie Horsefield & Patricia Hall,
South West Yorkshire Mental Health NHS Trust

Address for editorial correspondence:
Mike Lucock
Cherry Trees
Mayors Walk
Pontefract
WF8 2RP
Abstract

This paper describes a systematic approach to generating practice-based evidence in a United Kingdom adult psychological therapies service. Routine clinical outcomes using standardised measures at referral, assessment, the beginning of therapy, discharge and six month follow up are reported. The system is integrated into the clinical service in many ways including contributing to risk assessment and feeding back clinical outcome data to the therapists. A number of issues related to such an approach are discussed in the light of the clinical governance and clinical effectiveness agendas in the UK NHS. These include practical constraints, the costs, getting staff on board, attrition from such services and service user involvement. Such an approach provides a framework for routine, systematic and integrated service evaluation that can be fed back to therapists. It contributes to the evidence for the effectiveness of psychological therapies in routine clinical settings and also provides opportunities to link evidence with practice in more creative ways to enhance therapists’ reflection on their practice.
**Introduction**

The clinical governance and clinical effectiveness agendas in the United Kingdom NHS emphasise the need for evidence based practice and routine service audit and evaluation. Also, despite the considerable evidence of efficacy based on research trials in psychological therapies (Roth & Fonagy, 1996), there is a need for evaluating the effectiveness of psychological therapies services in “usual service conditions” (Department of Health, 1999, page 116) - where a range of therapies is provided by a range of therapists to a range of clients with a range of problems. Effectiveness research in routine clinical settings is an example of “practice-based evidence” (Barkham & Mellor-Clarke, 2000) and is important to complement the so-called gold standard randomised controlled trials (RCTs). RCTs have good internal validity but tend to lack external validity when applied to the complexities of normal service delivery and to individual clients’ responses to treatment. In addition to its contribution to informing us of “what works for whom” (Roth & Fonagy, 1996), practice-based evidence can be used within services to feed data back to clinicians to inform their practice, and to feed back to clients as in single case methodologies (e.g., Kratochwill, 1978). In any form of applied research, evaluation or audit, it is important to “complete the loop” and feed back results to the service to inform positive service development and this is often not the case (Parry, 1992).

This paper describes a system of routine evaluation and practice-based evidence in a complex, multidisciplinary, psychological therapies service. The system is integrated into the clinical service and requires, and has benefited from, commitment from all therapists and administrative staff. It has developed over a number of years and although the work has been very successful and productive, our experience has
highlighted a number of issues and difficulties with such an approach. We hope that recognition of such issues will help stakeholders address the challenges and lead to realistic expectations of services in their attempts at meeting the demands of improving clinical effectiveness in routine service delivery.

**Overview of the service**

The service described in this paper is a multi-professional adult psychological therapies service receiving about 1200 referrals a year (in 2001-2002). About 80% of referrals are from General Practitioners. The service covers the communities of Wakefield, a small city in West Yorkshire, and the Pontefract area, made up largely of ex-mining communities. It serves a local population of 320,000 people across the Wakefield Metropolitan District. The areas have relatively high unemployment and a relatively low ethnic minority population. Most clients are seen in one of three main clinical bases and in addition some general practice-based sessions of clinical psychology and counselling are provided. The service comprises clinical psychologists, a specialist psychotherapy team, counsellors, nurse therapists, cognitive behaviour therapists and an art therapist. The service was formed in 1995 with the amalgamation of the Adult Psychology service with other psychological therapists and the introduction of counsellors trained in a range of psychological therapies. A range of therapies is provided including cognitive behavioural therapy, psychodynamic and psychoanalytic psychotherapies, person-centred approaches and integrative psychotherapies including cognitive analytical therapy. Initial assessments are carried out to determine suitability for psychological therapy and the most appropriate approach is recommended and provided, including individual, couple and group work. Waiting times for assessment and therapy vary and can be up to six
months for initial assessment (average is two to three months) and up to a year for longer term, more specialist, therapy (average wait for therapy is four months).

**The Practice-based evidence system.**

*(Figure 1 about here)*

Figure 1 shows the system of practice-based evidence in the service. For many years, the service has carried out a routine evaluation of clinical outcomes (Lucock, Iveson & Leach, 1999), with measures at referral, assessment, beginning of therapy, discharge and 6 month follow up. The service uses the Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM; Barkham, Margison, Leach, Lucock, Benson, Mellor-Clarke, Evans, Connell, Audin & McGrath., 2001) and the Beck Depression Inventory (BDI, Beck et al., 1961) at referral and adds the Inventory for Interpersonal Problems (IIP-32, Barkham, Hardy & Startup, 1996) at the other stages. The IIP-32 is a shortened version of the 127-item IIP devised by Horowitz, Rosenberg, Baer, Ureno, & Villasenor, (1988). In the past the service has used other measures including the Beck Anxiety Inventory (BAI, Beck, Epstein, Brown, & Speer, 1988), but this was discontinued due to its cost and concerns about giving too many questionnaires to clients, particularly at referral, before clients have direct contact with the service. Figure 1 shows various other aspects of the system, including feedback to clinicians and linking clinical outcome data to service and clinical information.

**Integration with the clinical service.** There are a number of ways in which this system in integrated into the clinical service:

1. Along with the questionnaires sent by post, clients are invited to make general comments about their concerns at referral and these are responded to when necessary. For example the comments may raise risk issues and contact with
the client, referrer or general practitioner may be necessary. Clients scoring high on risk items of the CORE-OM and BDI are also identified and prioritising the referral is considered. At discharge and follow up, comments are also invited on the service received and these comments are fed back to the therapists and collated across the service.

2. In a recent development, the clinical outcome data are input into a computerised clinical information system used by the Trust and thereby linked with other information such as the clients’ problems, referrer, number of sessions and type of therapy. This allows audit reports to be written for the service and other stakeholders such as general practices.

3. Therapists receive feedback on clinical outcomes for their clients every year. This information includes individual and grouped data and graphs and both clinically and statistically significant cut offs. At their request, therapists also receive clear information to explain the graphs and cut offs.

4. Questionnaires are sent out with the standard correspondences, for example at referral they are sent with the letter acknowledging receipt of the referral and a service information leaflet.

5. Both therapists and clients give subjective ratings of the extent to which the therapy was beneficial, at discharge for therapists and at discharge and follow up for clients.

6. In addition to the routine monitoring of clinical outcomes, the service supports more specific evaluations such as group therapies and the use of other measures. An example is the pilot use of the Dissociative Experiences Scale (Carlson & Putman, 1997) at assessment at one of the clinical bases and for specific clients.
In a further development of feeding back evidence to therapists, the service has begun discussing findings with clinicians to make clinical sense of the data which could lead to clinical and service implications. This is at an early stage but we see this as an innovative development and have coined the phrase evidence-based reflective practice. An example is interviews carried out with clinicians about their views on whether or not clients had a sudden gain during therapy and what caused the sudden gain (see Stiles, Leach, Barkham, Lucock, Iveson, Shapiro, Iveson & Hardy, 2003). This approach, which is a creative way of linking research data with clinical perspective and therefore more likely to lead to effective clinical reflection, should be developed further. Examples of other areas to explore could be looking at clients who fail to respond to therapy, improve, get worse or drop out or clients who receive more than, say, 30 sessions. It recognises the importance and value of linking evidence to clinical experience in reflective practice.

Clinical outcome data

Routine evaluation of clinical outcome - Figures 2 and 3 show box plots of CORE-OM and BDI scores respectively at the 5 data points, referral, assessment, beginning of therapy, discharge and follow up. The centre point is the median and the central box covers the middle 50% of the data. The notches in the boxes show approximate 90% confidence intervals for the median. The dotted horizontal lines show cut-offs for clinical caseness. For example, the lower cut-off in Figure 2 is 1.25 (the average of the clinical cut-offs of 1.19 for men and 1.29 for women) (see Barkham et al., 2001). This shows that over three-quarters of the clients are within the clinical range on the CORE-OM at the three pre-therapy points (with actual percentages of 83%, 79% and
79% at referral, assessment and pre-therapy, respectively). Fewer than half of the clients are within the clinical range of the CORE-OM at discharge and follow-up (with actual percentages of 36% and 44% at discharge and six month follow-up). The upper horizontal line in Figure 2 shows the cut-off of 2.5 on the CORE-OM for severe problems (see Barkham et al., 2001), with actual percentages of 26%, 23%, 22%, 7% and 9% at the five data points. The differences between the average of the three pre-therapy measures and the discharge and follow-up measures were statistically significant ($t = 17.01$, $df = 318$, $p < 0.001$ for the comparison of pre-therapy and discharge measures, and $t = 11.21$, $df = 203$, $p < 0.001$ for the comparison of pre-therapy and follow-up measures), with mean reductions in CORE-OM from 1.8 before therapy to 1.1 at discharge and 1.2 at follow-up).

(Figures 2 and 3 about here)

Figure 3 shows similar results for the BDI, with three-quarters of clients scoring in the moderately or severely depressed ranges before therapy (with actual percentages of 75%, 73% and 75% at referral, assessment and pre-therapy, respectively) and under half of the clients in these ranges at discharge (35%) and six month follow-up (44%). The differences between the average of the three pre-therapy BDI measures and the discharge and follow-up measures were statistically significant ($t = 13.94$, $df = 290$, $p < 0.001$ for the comparison of pre-therapy and discharge measures, and $t = 8.84$, $df = 182$, $p < 0.001$ for the comparison of pre-therapy and follow-up measures), with mean reductions in BDI from 22.5 before therapy to 14.3 at discharge and 14.5 at follow-up. Very similar results were found with the other measures.

The comparison of pre-therapy and discharge CORE-OM scores is shown in the scatterplot in Figure 4, which tracks individual client progress. Points below the main
diagonal are those clients whose CORE-OM scores improved. Points outside the lines parallel to the diagonal are those clients who have reliably improved (bottom right triangle) or reliably deteriorated (upper left triangle) and those in the outlined boxes have shown reliable and clinical improvement (bottom box) or reliable and clinical deterioration, using the criteria offered by Jacobson & Truax (1991). 42% of clients show reliable and clinical improvement and none show reliable and clinical deterioration, while 58% show statistically reliable improvement and 3% show statistically reliable deterioration. The box-plot to the right of the figure shows the statistically reliable change information in a different form, slicing the data in the scatterplot diagonally across the plot.

(Figure 4 about here)

In summary, the routine evaluation of clinical outcome shows (a) stable baselines between referral and the commencement of therapy on all measures; (b) three-quarters or more of clients scoring in the clinical ranges of the outcome at referral; (c) these rates remaining constant at the three data points before therapy so there is no evidence of improvement without therapy; (d) the proportion scoring in the clinical ranges reducing at discharge to well under a half, with this proportion remaining about the same at 6 months follow up; (e) significant improvements on all measures after therapy, maintained at 6 month follow up.

_Evaluation of group therapy_ - Figure 5 shows a scatterplot comparing pre and post therapy Beck Depression Inventory scores collated from a series of anxiety management groups (other measures were also used). The graph shows the cut off for severe depression (a score of 30 and above) and the diagonal line distinguishes those clients whose scores have improved or worsened. This graph was part of the feedback
to the therapists conducting the groups and gives feedback on individual clients, the different therapy groups and data collated across the groups. Analysis of the collated group data showed the overall pre-post therapy change was highly significant (n= 49; z = 3.4, p< 0.001). Figure 6 shows pre and post therapy anxiety scores from the Hospital Anxiety and Depression Scale (HADS, Snaith & Zigmond, 1994) for the same series of groups. Again, collating the pre and post scores for the seven therapy groups, the overall change was significant (n = 43; z = 2.0, p< 0.05).

(Figures 5 and 6 about here)

**Tracking clients’ progress with sessional measures** - For a period of 18 months, clients’ progress during therapy was monitored using a short form of the CORE-OM every session. This related to research on the Phase model of change (Howard, Lueger, Marling, & Martinovich (1993) and sudden gains in psychotherapy (Stiles et al, 2003). Figure 7 shows an example of the progress of one client and important life events. Single case methodology is a long established approach and is a good example of practice-based evidence where feedback is provided for the therapist and can be given to the client. It has played a significant role in the development of innovative therapies, such as cognitive therapy for psychosis, which began with a series of single case studies (Chadwick & Birchwood, 1994).

(Figure 7 about here)

**Benchmarking with other services** - Our work has also been benchmarked against other services and has contributed to the wider evidence base on the effectiveness of psychological therapies (Barkham et al, 2001; Stiles et al, in press). When
benchmarking against other services it is important to take into account differences between the services and the clients within each service.

Issues and reflections

*Getting staff on board* - The routine service evaluation involves all clinical and administrative staff in the service and therefore is a major challenge to implement systematically. The following factors were all found to be important in the “change management” aspects of the work:

a) Involving staff in the process from the beginning – “ownership”. For example, it was the decision of the clinicians to use the IIP-32 to reflect interpersonal issues in therapy. Administrative staff have a key role and contribute to developing and refining the system;

b) “Training” sessions were held at the outset to explain the system. The system is regularly refined and new staff are given information on the work and their role as part of their induction;

c) clear, written guidelines are available for administrative and clinical staff;

d) forums are available where issues and problems can be raised and resolved, for example, an administrative working group, research steering group and site clinical meetings;

e) there is clear accountability, so staff know who to contact regarding concerns, problems and queries;

f) informing staff about the NHS quality agenda – giving context to the research;

g) feedback of results to clinicians – this is now done routinely for individual clients and periodic presentations have been made for the service as a whole. The service supports specific requests from clinicians to evaluate group therapy and to use and analyse questionnaires other than the standard ones.
Despite these arrangements, the system is constantly throwing up problems and has to be revised. Aspects of the system falter at times due to pressure from other more important clinical priorities, new and existing staff forgetting to fulfil their role in the system, and frequent adjustments as clinical procedures change. Despite this, the culture of the service is such that routine evaluation is acceptable and carried out in a non-threatening way.

**Evaluation methods** - It is a truism that questionnaires only measure what they are designed to measure. Therefore, any evaluation will be limited and may miss out on important aspects of improvement and benefit. For example, measures are available to reflect general psychological state, specific symptom change (such as anxiety and depression), functioning in various aspects of a person’s life (such as interpersonal functioning) and satisfaction with the service. Also, questionnaires vary in how useful they are as outcome measures and research should be seen as evaluating the measures as much as evaluating the service. It is also important to consider the clinical significance of statistically significant improvements. Finally, more qualitative approaches exploring clients’ experience of assessment and therapy are required to complement and inform quantitative approaches. They will reveal richer information on what works and why it works and fit the developing user/carer led research agenda (Consumers in NHS Research, 1999).

**Attrition and statistical analysis** - In any psychological therapy service drop out, or attrition, is inevitable and presents a challenge in terms of recording and statistical analysis. Figures 2 and 3 show this very clearly and reflect a number of factors. For example, some clients referred never turn up, some clients assessed never turn up for therapy, some are still in therapy so discharge and follow up questionnaires have not yet been sent, some clients are not sent questionnaires and some do not wish to
complete the questionnaires (this is more prevalent after therapy). Whilst seeking to maximise the data obtained, routine clinical services should be realistic about such practical realities. Our own data comparing sessional measures with pre and post measures suggests that clients who do well in therapy are more likely to return questionnaires. It is therefore important to ask questions about the experience of clients who do not attend, drop out and do not complete questionnaires for whatever reason. Although engaging clients in research who have opted out of a service is difficult, this is an important area where qualitative research may be helpful.

Data analysis strategies are required that are able to cope with drop out and the complexity of services such as ours. Our work has also drawn attention to the inadequacy of much of the data analysis used in the published literature. The large amount of missing data is a key feature of any health service research (including that in research clinics). Most data analysis strategies gloss over the problems of missing data by not drawing attention to the problem and/or by assuming the data are missing at random. For example, the Howard et al. (1993) study on the phase model in psychotherapy includes 540 clients, but most of the data analysis involves much smaller samples (e.g., n = 307 for some comparisons). They explicitly acknowledge the problem of attrition by grouping the analyses into those for short-, medium- and long-term therapy, but the data analyses reported implicitly assume that this reduction is the result of random dropout. The cost impact of clients missing appointments (DNA’s) in NHS clinics is huge and cannot be assumed to be random. For example, clients with severe mental health problems may miss appointments simply because their problems are so severe they cannot face addressing them. On a session-by-session basis, missed sessions may coincide with difficult times in therapy and are very much tied in with the client’s issues and the process of the therapy.
Cost of the work - Since the work is integrated into the service it is difficult to make a precise measurement of the financial cost to the service. However, the costs are significant and include administrative and secretarial time (about 0.6 whole time equivalent), research assistant support (about 0.4 wte) and time from two Clinical Psychologists with research expertise (ML and CL). Despite the integration with the service and care to ensure a good skill mix, such work incurs significant financial costs in terms of staff time. It is interesting to reflect on the extra posts introduced to the NHS to support financial governance in the 1990’s compared to the expectation on clinical services to address the clinical governance demands within existing resources. Despite the costs, however, we would argue it is good value given the outcomes of audit, evaluation, service and clinician development and contributing to the research on the effectiveness of psychological therapies in routine settings. Another aspect of the cost is the measures. Although we have used commercial measures, the cost is significant and we recommend the use of public domain measures such as the CORE-OM and the IIP.

User/carer involvement – This is an area we have begun developing more recently although it is at an early stage. It is important to involve service users in research where possible in a meaningful, not tokenistic, way and, if possible, throughout the process. This may raise particular issues in psychological therapies services given the importance of transference issues and the effect of a client’s involvement in research on the therapy. It may be deemed more appropriate to involve recently discharged clients. Despite such issues, meaningful involvement should be established and we have began this with the involvement of clients in a specific research project appropriate to their involvement in the service – clients who have attended anxiety management groups contributing to the development of self help material.
Discussion

We have shown that in a large and complex psychological therapies service it is possible to conduct routine evaluation of clinical outcome and to develop a culture conducive to reflecting on the quality of the service. It is important to acknowledge the costs and difficulties to set up and maintain such a system and in making use of the information in a way that drives service improvement. A significant challenge is to involve all staff in the work and to enable it to be seen by therapists in a non-threatening way. It is only when this is achieved that the work can be used to feed back into the service in a positive way to support service improvements. Another related issue is the need to integrate an ongoing service evaluation into the service itself, for example by using measures to contribute to risk assessment, clinical assessment and prioritising referrals. If the system is seen as an onerous and unrelated addition to the clinical service it is unlikely to be maintained.

At a service level, the need to evaluate services is clearly documented and accepted. At an individual practitioner level, reflection on practice has also become an increasingly advocated principle. For example, it is now acknowledged that important aspects of a capable practitioner include reflective practice (Sainsbury Centre for Mental Health, 2001). Within psychological therapies, reflection on practice through clinical supervision, case discussion and ongoing education and training events (continued professional development) are well established and seen as essential ways of ensuring effective practice. It would be helpful to explore ways in which this reflection on practice could be more informed by evidence as well as training, supervision and experience, utilising practice based evidence to improve individual clinicians’ practice. For example, a study by Lambert, Whipple, Smart, Vermeersch, Nielsen and Hawkins
(2001) found that feedback to therapists on the clients’ progress during therapy increased the number of treatment sessions and improved outcome. Greater use of practice based evidence to inform practice is consistent with the concept of the scientist practitioner (Barlow, Hayes & Nelson, 1984), single case methodologies and evidence based reflective practice described earlier in this paper. Generating routine practice-based evidence over time will also result in large databases that can be used to inform important research questions. For example, our database of sessional measures has been looked at in relation to research on sudden gains in psychological therapies (Stiles et al, 2003) and the use of growth curve modelling and nearest neighbour technologies in predicting response to psychological therapies (Lutz et al, in preparation). The data can also be used to explore longer term trends, allow benchmarking with other services and explore the properties of measures and how they behave over time. The data can also inform research questions such as factors influencing treatment success and failure and engagement in and drop out from therapy. Such questions are likely to be of most interest to clinicians and therefore will engage them in the research process by providing meaningful and useful evidence that enables them to more effectively reflect on their practice.
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