



## Practice Development

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## Collecting subjective and rating scale data within a single case study design: cognitive behavioural therapy for a person experiencing psychosis

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### Accessible summary

- Cognitive Behavioural Therapy (CBT) for psychotic symptoms is seen as an increasingly important treatment option for individuals with long-term mental health problems such as schizophrenia. CBT for psychosis has been evaluated in a number of randomized controlled trials, with evaluation often being determined only by rating scale data.
- By using scale data alone within clinical practice it has been argued that this method only provides a narrow view of the effect of the specific intervention being utilized and what benefit this has had for the individual.
- This paper reports on a case study whereby scale data alone were inconclusive, yet the subjective viewpoint of the person receiving the therapy identified changes that were not evident within the scale data.
- Within current mental health services, collaboration and engaging with service users regarding their own outcomes are viewed as fundamental to a recovery-orientated approach. The findings from this case study recognize the potential flaws in utilizing a one-dimensional approach to determining outcome and highlights the value of reporting subjective data, not just within clinical practice, but within the wider literature on CBT for psychosis.

### Abstract

This paper reports on a case study for a person with a diagnosis of schizophrenia using cognitive behavioural therapy. A range of scales was used to detect treatment effect and outcome. No significant clinical changes were detected using the scales, which are routinely used with such interventions. Subjective data were also collected in the form of a narrative, with the recipient of therapy identifying outcomes, which are not reflected within the rating scale data. Implications for practice

include valuing the subjective experience reported by service users. The paper concludes that rating scale data and subjective accounts should be seen on an equal footing when evaluating specific therapeutic interventions.

## Introduction

There is a growing body of evidence suggesting that cognitive behavioural therapy (CBT) for psychotic symptoms is a promising adjunct to more established treatment modalities, namely medication. The source of the evidence has evolved from individual case studies, to a number of more recent randomized controlled trials which have been evaluated by means of a systematic review (Pilling *et al.* 2002, Jones *et al.* 2004). Within these trials, outcome is predominantly determined by empirical measures (rating scales and a range of assessments). There have been criticisms regarding the use of scales (Marshall *et al.* 2000), which are unpublished, indicating that the validity of certain measures may not be as accurate as they claim to be.

A case study, utilizing CBT with an individual who experiences psychotic symptoms will be used to support the suggestion that the addition of qualitative data, alongside more empirical assessment data may further inform the evaluation process. A subjective account of therapy and its effects produced by the individual client revealed insights that were not reflected in the quantitative outcome measures that were used in this particular case.

## Utility of rating scales

Practitioners in a variety of healthcare fields are using standardized clinical assessment tools more frequently than ever before, and their use of these tools is likely to increase (Gilgun 2004). Certainly, the increasingly widespread use of such assessment methods has improved means by which practitioners are reliably identifying important problems for service users with mental health difficulties.

A significant amount of work goes into the development of rating scales and formalized assessments. Most are validated through investigation, with findings being open to review. They have greatly contributed to the standardization of attempts made to assess and capture important aspects of psychiatric pathology.

These scales and assessments according to Mortimer (2007) are viewed as a quantifying and formalized guide to what practitioners should be doing within their clinical assessment. Interestingly there have been observations that assessments scores are often difficult to interpret from a clinical impression viewpoint (Leucht *et al.* 2005). Which suggests that despite their increasing use, the usefulness of the outcome of various assessments may be debatable?

There have been criticisms regarding what practitioners view as important, and develop scales and assessments for, are not necessarily what service users view as important when determining outcome from treatments, as such a discrepancy may exist between service user and professional priorities (McCabe *et al.* 2007).

McCabe *et al.* (2007) go on to argue that many symptoms, particularly within Psychiatry do not lend themselves to observation, as a result, accurate interpretation and identification by means of a scale or assessment may be impossible to achieve.

It is these issues therefore that the mental health practitioner should take into account when utilizing such scales and assessments, and not rely totally on the outcome of such methods. It is clear that our knowledge to date of psychotic symptoms and their effects on individual's lives has been achieved fundamentally by what service users tell us. Theories on how these symptoms emerge, and what factors lead to them being maintained, are anchored by the stories that we hear on a daily basis. We must endeavour not to venture too far from this principle when delivering interventions or we may be in danger of directing our focus on reduction of scores on a measure, and use this solely to judge whether or not treatment has been successful.

## Case study

The following case study describes the application of CBT with a man aged 32, who has had a 12-year history of distressing auditory hallucinations with subsequent distressing beliefs. The client has given written permission for the case study to be used after reviewing a copy of the study.

A Community Psychiatric Nurse colleague who had been working with him for several years had referred Stephen (pseudonym) for CBT. He had been a client of the local Community Mental Health Team for some 12 years since he first became unwell. His treatment at the time of referral was Clozapine 425 mg daily (drug licensed for treatment resistant schizophrenia British National Formulary 2008). This treatment was supported by outpatient review with a Consultant Psychiatrist and community support from a Community Psychiatric Nurse. Stephen's symptom profile upon referral consisted of distressing auditory hallucinations occurring on a daily basis, sometimes lasting for several hours. Stephen believed these to be telepathic communications from unknown others who had access to his thoughts and could abuse and insult him verbally.

### Personal history

Stephen grew up in a small town and is the eldest of three children. His Father worked in the building trade, his Mother being a housewife. He recalls good memories of his early life, adding that his family were and still are very close. He described himself as a quiet and shy child who was never in any trouble. He recalls having a few close friends with whom he grew up. Attending the local secondary school was a 'nightmare' according to Stephen, adding that he was quite alone at this time, drifting away from earlier friends and spending time off school with his asthma.

Despite this he achieved well academically gaining five O levels and two A levels. He decided to go to University and study Celtic history. He recalls enjoying the first year immensely, making lots of new friends and living in the halls of residence. It was during this first year that he tried cannabis and he went on to use it more and more frequently. It was upon his return from the summer break to start his second year that he began to experience what appeared to be the first signs of mental health difficulties.

Stephen described having difficulties with various subjects and having to swap these. He was becoming more and more isolative, staying in his room for long periods. He described his first paranoid type experience occurring when he was looking for a lecture room. Everyone at this time appeared to know where the room was except for him and he believed that they would not tell him,

and were laughing at him as a result. As these experiences were becoming more frequent he decided to return home. Some weeks after his return home, Stephen was admitted to the local psychiatric hospital. The first of several admissions was then followed by admissions, some formally under the Mental Health Act. Since commencing Clozapine, Stephen has not had an admission to hospital.

Stephen currently lives on his own, although his brother often stays with him. He is currently unemployed and receives benefits. His interests are writing fantasy type stories, reading and working on his computer. He hopes one day to have work published. His social contacts are limited and mainly consist of his family who continue to be extremely supportive.

### Assessment

With cognitive behavioural approaches, interventions are based on a comprehensive assessment and formulation of the problem areas. In this particular case, assessment consisted of informal approaches as well as the utilization of formal assessment tools and rating scales. The tools were used in order to identify areas for further investigation and treatment, and to provide a baseline to which progress could be measured against.

The KGV (Kraweicka *et al.* 1977) was used initially to identify the severity of presenting symptoms and to provide areas for further investigation. It uses a semi-structured interview schedule and scores symptoms both reported from the client and observed by the rater between a normative range of 0–4. A score of 2 or above on any of the areas indicates an area of clinical significance that requires further investigation, possibly with more specific assessment. When used with Stephen clinical significance was found in the following areas;

Anxiety = 2 Depression = 2

Delusional beliefs = 2 Auditory Hallucinations = 4

The Beck Anxiety Inventory (Beck *et al.* 1988) is a 21-item self-report instrument designed to measure the severity of physiological and cognitive anxiety symptoms. The Beck Depression Inventory (BDI) II (Beck *et al.* 1996) is a revised 21-item self-report scale measuring the severity of depressive symptoms over the previous week. Scores from these scales were as follows:

Beck Anxiety Inventory = 12 (this score indicates mild anxiety being present)

BDI = 19 (this score indicates mild to moderate depressive symptoms).

The symptoms of delusional beliefs and auditory hallucinations were further investigated and rated with the psychotic symptom rating scales (PSYRATS) (Haddock *et al.* 1999). This scale measures the severity of a number of dimensions associated with auditory hallucinations and delusional beliefs.

Delusional Beliefs = 15 (maximum score 24)

Auditory Hallucinations = 30 (maximum score 44)

Following on from this assessment period, Stephen identified priorities in terms of what he wanted from therapy. His main priority was to believe that the voices that he was hearing were not due to telepathy and that only he could hear them. He also wanted to gain some control over them as they interfered greatly with his functioning and he felt powerless as a result. Stephen rationalized his choice of priorities by adding that in the past he had temporarily believed that the voices were not due to telepathy. This had been 'liberating' for him, and he clearly sought this as a goal. Garety *et al.* (1997) discuss the concept of cognitive flexibility as being a positive predictor of outcome with CBT. This information that Stephen gave appears to be an example of such a concept.

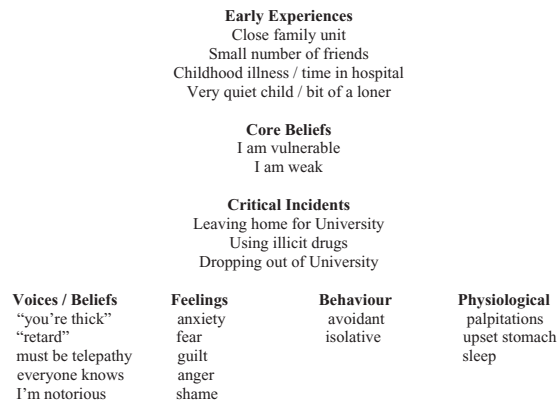
## Formulation

A comprehensive case formulation regarding Stephen's difficulties was developed following on from the assessment period (Fig. 1). This formulation serves as a guide to therapeutic interventions and also assists in the rationale given to patients about how their difficulties may have emerged and are being maintained.

The formulation is developed collaboratively with the client, and shared throughout its development. This sharing is tentative as the formulation is a hypothesis and there is a risk of dissonance developing which may be counterproductive to the relationship if the formulation is presented bluntly.

## Normalizing

The normalizing rationale is an approach used in order to decatastrophize beliefs about symptoms



**Figure 1**  
Case formulation for Stephen

such as voices, and begins to explore alternative reasons for their emergence. It provides a foundation for work on direct belief modification of catastrophic beliefs, as it is often the meaning associated or the catastrophic interpretation given to voices that contributes to the distress and maintenance of them (Morrison 1998).

Information was presented and discussed on the effects sleep deprivation (Oswald 1974), sensory deprivation (Slade 1984), hostage situations (Siegel 1984) and abusive situations (Hammersley *et al.* 2003) on individuals, and how these situations can result in auditory hallucinations, distorted perceptions and paranoid ideation. This discussion was supplemented with literature in order to maximize learning. The information on sleep deprivation was especially relevant to Stephen, as he would often experience voices late into the night, which would disrupt and ultimately reverse his sleep pattern. This would then result in reduced contact with others and so increase isolation. This was taken on as an early intervention by Stephen, with attempts to regulate his sleeping pattern.

This information appeared useful to Stephen. He was inquisitive and eager to develop new understandings. A good relationship appeared to be developing, which is fundamental in dealing with such difficulties. After 2–3 sessions, Stephen wanted to press on with belief modification work, as this was his primary goal for therapy.

## Creating doubt and belief modification

Stephen was eager to proceed to the examination of his belief in telepathy as a reason for his voices. Caution, however, must be exercised in ploughing

**Table 1**  
Evidence generated for and against telepathy

Evidence for belief in telepathy	Evidence against belief in telepathy
That I hear voices	People are buying mobile phones in record numbers Why do we continue to talk Why do people get lost, and are never found, e.g. at sea or in jungles If someone is being attacked why can't they contact police

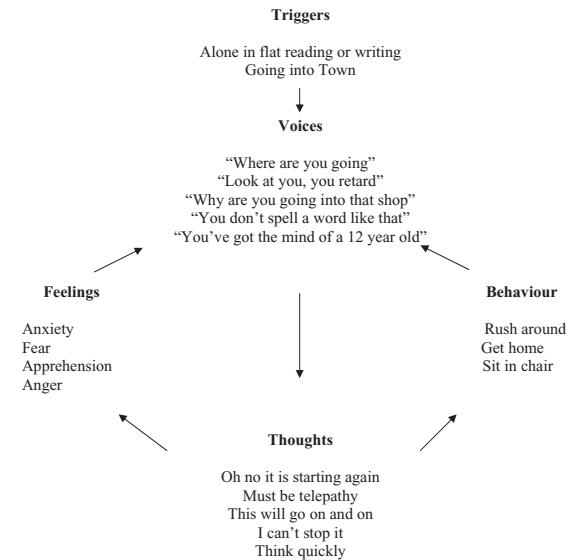
ahead with the examination of beliefs and presenting alternatives. What needs to be considered is that any new belief acquired is a belief that is acceptable to the person (Nelson 1997). Additionally negative cognitions may develop following modification surrounding the fact that the person has had a fixed belief, in some cases for years that has resulted in possible missed opportunities and significant distress during this time. For this reason, Nelson (1997) discusses the approach of partial modification as oppose to total modification of a distressing belief.

With Stephen a baseline conviction of 75% in the belief that his voices were due to telepathy was established. This was followed with a homework exercise where Stephen would look on the Internet for information on telepathy. Stephen returned having found several sites on the subject, yet described the sites as a 'bit dodgy'. This was an important area for discussion as the issue of credibility of information was highlighted, and the need not to just to accept information on face value but to examine it carefully.

Following this a discussion took place on what evidence we could generate both for and against the existence of telepathy. Collaboration was fundamental here as it would have been easier to present a list of evidence against the belief in telepathy. A more productive approach is by using discussion and Socratic questioning. The list generated was recorded and presented in Table 1.

Stephen could only identify one piece of evidence he had regarding evidence 'for' telepathy, and he identified that this was only his viewpoint. The evidence generated in the 'against' column, was preceded with the question 'if telepathy was an actual method of communication, why do we continue to talk', to use one example.

The effect of this approach was quite dramatic with Stephen; he reported a reduction in belief conviction to approximately 30–40%. His mood



**Figure 2**  
Maintenance formulation

clearly lifted in the session, yet he also stated that he felt 'dizzy'. He added that this was 'wholly positive', yet for the first time he had 'seriously doubted' his belief in telepathy. This reaction may have been due to his belief being examined in this way for the first time. As a result, it is hypothesized that the foundations of the belief were shaken, which resulted in a physical response.

Following this session Stephen reported a period whereby his mood was improved, he was writing more, and he was having less periods of voice activity. The reasons for this change were discussed, which gave an opportunity to reinforce the cognitive model.

Following on from this what was agreed was to examine circumstances that led to Stephen experiencing voices and how he responded at the time. Again the rationale was to reinforce the cognitive model and to develop a link with Stephen's beliefs, feelings and behaviours. Morrison's (2002) maintenance formulation for voices was used to represent this cycle. The formulation developed is presented in Fig. 2.

**Reality testing**

A well-planned and executed empirical test is one of the most powerful ways to effect belief change (Chadwick *et al.* 1994). The specific purpose of reality tests is to produce evidence relevant to a delusional or indeed alternative belief (Nelson



1997). After presentation and discussion of this rationale to Stephen he was agreeable to conducting these exercises.

Credible evidence is important in seeking to modify distressing beliefs, and utilizing Stephen's earlier observation regarding 'dodgy' websites, a discussion on what type of tests would provide credible evidence. The process was designed to carry out tests similar to telepathy experiments. After discussing such tests as guessing colours, shapes or numbers, and deciding that the probability of guessing the right answer was high, it was decided to carry out tests where someone would either want to, or have to respond in a behavioural way if telepathic communication was viable. Nelson (1997) highlights these approaches as being beneficial, as belief in telepathy is a common explanation for the experience of voices.

Initially a test was conducted in-session, where Stephen was asked to think that the room that we were in had a small fire in the metal litterbin. The hypothesis being tested here was that if people had access to Stephen's thoughts, then someone from the building would presumably come and investigate. When no one came to investigate after a period of time, a discussion took place on this outcome, and the possible reasons why.

To follow this test up Stephen agreed to carry out a reality test as a homework exercise. This test was to take place when Stephen was in his local town area. The test was for Stephen to think of a phrase that was a little unusual and obscure. What was decided upon was 'New York cabbage'. Stephen was to think of this phrase when he was in the local town, with the accompanying thought 'if anyone approaches me and says this phrase I will give them ten pounds'. Again the test was set up to test Stephen's belief, that if people did have access to his thoughts then presumably people would approach him, and say the phrase.

Stephen reported back the following session that no one had approached him and it was clear that his mood was improved. He came to the conclusion that it was unlikely that people could access his thoughts in town and as a result he reported significantly less anxiety while in the town area. Stephen also reported in the following weeks that the experience of voices when he was in town was almost non-existent and on occasions not being present at all.

Despite this breakthrough with Stephen with his experiences in local public places, he continued to

experience significant periods of voice hearing while alone in his flat. Reality testing did not appear to have any impact on these episodes therefore distraction techniques were practised, along with rational responding. Distraction techniques consisted of identifying a range of possible behavioural or mental activities designed to distract the individual from the experience of voices (Haddock *et al.* 1996). Stephen identified a range of activities such as reading out loud to himself, playing music through headphones and engaging in relaxation. These he found helpful on occasions, although voices would often be 'delayed' and return some time later in the day.

Through rational responding, the approach was to collate all information relating to disconfirmatory evidence from reality tests, behavioural exercises, lines of argument against belief in telepathy and coping statements. This information was then recorded on a Dictaphone machine by Stephen, and for him to take this machine away with him. As Nelson (1997) observes, the effects of disconfirmatory evidence are much greater sitting in the therapist's office, than when the individual is alone experiencing voices. What became apparent with Stephen is that he would lose his sense of objectivity, and become physically and psychologically aroused with anger and frustration when experiencing voices in his flat. This would then have a negative effect on the experience and the voices would continue. These recordings had a beneficial effect with Stephen, and although he continued to experience voices of a continued distressing nature, the frequency and duration was reduced when reported by him.

## Outcome

At regular intervals throughout therapy with Stephen, rating scales were completed and recorded, the results of which are presented in Table 2.

**Table 2**  
Rating scale measurements at intervals in therapy

	PSYRATS: voices	PSYRATS: beliefs	Depression inventory	Anxiety inventory
Baseline	30	15	19	12
+4 months	28	13	17	12
+7 months	28	13	16	13
+12 months	28	13	17	12
+18 months	27	13	16	11

PSYRATS, psychotic symptom rating scales.

As can be seen, very small gains were achieved in the areas that the measures were intending to measure. It could be argued that if this particular case had been within a randomised controlled trial, then the results would have not been significant, and probably deemed unresponsive to this form of treatment. However, from the information that Stephen was providing through interview, a slightly different picture emerged. For example, Stephen reports almost no voice experience when he is out in public places. He does not experience voices from the engines in passing cars. The long episodes of voices in his flat have reduced in frequency to once every week/2 weeks. Clearly, there is a level of discordance between the subjective information and the outcome from rating scales.

Through the sessions and at the conclusion, Stephen has relayed a subjective account of what he believed he had achieved through therapy. This highlighted such factors as hope being instilled from using the techniques taught, and sense of control returning over the voice experience. It portrayed a story of development that is only superficially captured with the rating scales. What emerges is the amount of learning that appears to have taken place for Stephen and how he appears to have fully grasped the concept of the cognitive model.

It even seems that there is a chance to control or stop all of the voices.

It is interesting to note that the hope that Stephen refers to is not reflected, as one would imagine, in the BDI II (Beck *et al.* 1996). Additionally, a reduction in anxiety is not as significant on the scale measurement, as one would imagine, if the experience of auditory hallucinations when out in public places had all but stopped, as this appeared to cause Stephen a significant amount of distress to the extent that he would cut short his visits to the local town.

I have improved as a result of therapy, to the extent that certain types of voices that I have had for periods during many years are now under my control.

This narrative reveals a richness of data that is just not evident with scales. One gets a feel for the effect and significance that engaging in such therapy has had for Stephen. It is hypothesized that similar findings may have emerged had trials of CBT for psychosis had facilities built into them for collection of such data. It is also this account that begs the question about the sensitivity of the scales used and

their ability to fully represent changes that had taken place for Stephen.

The discovery that there are practical measures I can take to change the situation is an encouraging one.

I do not just have to take the medication and hope for the best.

## Discussion

In attempting to understand this apparent level of discordance between the use of scales and the subjective account, one must critically examine possible reasons for it. It could be argued that the subjective information provided by the written account is biased by virtue of the fact that the account was being given to the therapist who delivered the therapy. Consequently, this subjective account could have had a favourable element to it, in order not to affect a relationship that had developed or give the impression that such intense, long-term therapy was not helpful. This potential for bias may cast doubt on the validity of the account that Stephen produced. Interestingly, a challenge to this argument could be made by the fact that Stephen completed the rating scales between therapy sessions, in the same way as he produced his subjective account of therapy. No interview was carried out with Stephen that may have involved leading questions in order to gain his viewpoint of the therapy. Nevertheless, the mere process of asking for Stephen's account of therapy, may have introduced a bias that may have resulted in a generally positive outcome being identified by him.

Additionally, because of the collaborative relationship that had developed, this discordance was discussed with Stephen when reviewing the outcome data from the scales and his subjective feedback. He commented on the restrictions that the scales imposed, and how he was never fully comfortable about where he placed a mark on a particular scale, and whether this represented how he felt or what he believed to be the most accurate reply.

Individuals engaged in CBT for psychosis can switch with ease between contradictory positions regarding their beliefs. This raises doubts about the reliable measurement of delusional conviction (Messari & Hallam 2003). If the characteristic of belief conviction is fluid and changes quickly, then to give an accurate portrayal of its position with a percentage score over a week, as is used with the

PSYRATS is going to be difficult. Without the subjective information, however, this understanding would not emerge about the difficulties of measuring belief conviction.

It is possible also that the scope of the outcome measurements used in this particular case may not have been sufficient to capture the complexity of the change that had taken place. The PSYRATS (Haddock *et al.* 1999) is commonly reported in the literature on CBT for psychosis (Dunn 2002, Morrison *et al.* 2004) as an outcome measure that has good reliability and validity. A more comprehensive scale might have been indicated that examined not just the symptoms of auditory hallucinations and delusional ideation, but more general psychopathology.

This last point is an interesting one to consider, as the sole use of a scale will always dictate what and where success will be judged. However, this may not always be the case and success may not follow the linear path that a scale presumes. When treating individuals with severe and enduring mental health difficulties, a discrepancy has been frequently reported in what the professionals view as their primary goals and what are the goals of those that use the services are aspiring to (Repper & Brooker 1998). Without the subjective data, the outcome could have been deemed poor, and not clinically significant. However, the subjective account challenges that position.

Attempts to access patient accounts when delivering CBT for psychosis may be achieved with the use of the single case study method. There is the facility within this approach to present raw, un-interpreted data within the body of the case study, an approach similar to the one used within this study. This method may provide the impetus for developing further how these accounts are accessed and presented.

The wider adoption of the case study method allows clients to become producers of evidence and not just recipients (Jones & Scannel 2002). It is important for service users to be involved in all stages of the research process (Thornicroft *et al.* 2002) The recognition (and inclusion) of subjectivity as a valid contributor to outcome, with interventions such as CBT for psychosis, presented within a single case design, would appear to support this priority.

Case study or case reports have the ability to show how evidence can be applied at all stages within a treatment regime. Inclusion of subjective outcome data from service users themselves

somehow completes the reality of delivering treatments in practice (Godlee 1998). With the emphasis of the case study being on context, this serves to enhance ecological validity by including the views of the participant, which is far more valid than statistical support for a theoretical proposition (Jones & Lyons 2004).

The recognition of other approaches that may also include subjective data, as an outcome must be considered alongside the randomized controlled trial when conducting CBT for psychosis. We may be in danger of missing out on important and significant findings merely on the basis that we did not examine the intervention by qualitative means.

## Summary

It is important to state that scales and assessments exist to inform clinical judgement, and not to replace it. Quite often scale data alone are used to determine outcome, and this is the basis on which the success of various treatments depend on. In a sense, clinical judgement is dependant solely on this scale data. Additionally in clinical practice, reliance solely on scales and formalized assessments may inhibit the development of assessment skills within the individual practitioner.

A single case study design was identified as an initial method of revealing the value of subjectivity when used to determine outcome. It is this subjectivity that may validate and provide a context for any change that may have taken place for an individual receiving therapy.

The inclusion of subjective accounts, alongside rating scale and formal quantitative assessments when determining outcome for CBT with psychotic symptoms is recommended. Further investigation is required as to what may be the best method to facilitate this within larger controlled trials.

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