negative symptoms are prominent, a great deal can be achieved by establishing a good collaborative relationship with patients. This is one of the important aspects of the recovery model (6), but is not specifically linked to CBT. It is also an important component of systematic environmental adjustment, or nidotherapy, in the treatment of schizophrenia (7,8). In further studies in this population, CBT should be compared with these other collaborative treatments.

The evidence base is subject to publication bias. There has been a great deal of concern in recent years about unpublished trials of drug treatment creating bias and distorting subsequent systematic reviews and meta-analyses. We all need to be reminded that psychological treatments in general are subject to publication bias, very clearly shown in respect of studies in depression (9). This is partly because single-blind methodology is less rigorous than double-blind methodology, and we need to be cautious when enthusiastic investigators are comparing a psychological treatment with a pharmacological one. Although Thase et al have claimed publication bias is not present in studies of CBT in schizophrenia, that bias is highly likely to be present. One of the major problems with complex psychological treatments is that

adequate numbers to test hypotheses in trials are relatively rare, and encouraging results with small trials are often not replicated in large ones with much more rigorous methodology, and better independent assessment (10,11).

Early results promising but must work harder. It is possible to summarize the position of CBT in the management of severe mental disorder in the same language as a school report on a precocious, talented, but somewhat self-satisfied adolescent: “C. Beatty has impressed everybody with his ability and flair, but in recent months has become a bit of a dilettante. He needs to knuckle down and concentrate on his core work a little more assiduously. We are sure he can do this, but he must not be distracted and needs to avoid spending too much time with his less critical friends”.

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Have the potential benefits of CBT for severe mental disorders been undersold?

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Thase et al's useful review and update on cognitive behavior therapy (CBT) for severe mental disorders (1) highlights the recurrent debate about

the magnitude of the impact of CBT on persons with psychosis, including the question raised by some as to whether the effectiveness of CBT for this population has been “oversold” (2,3). We would like to take this opportunity to adopt the opposite position, and to suggest that rather than the benefits of CBT being oversold, the potential benefits have actually been undersold. We argue our point by discussing three issues related to the evaluation and application of

CBT for persons with severe mental disorders, including inattention in meta-analyses to critical study variables, over-emphasis on comparing CBT to so-called non-specific therapy controls, and the relative lack of use of CBT in persons with psychosis to address the most conventional treatment targets for which CBT has been established in the general population.

The conclusions drawn by meta-analyses are only as accurate as the variables summarized from the original

studies. Researchers who conduct meta-analyses go to great lengths to measure a broad range of study characteristics, such as using standardized approaches to quantify methodological rigor, publication bias, and the outcomes themselves, and this has been true in work evaluating the outcomes from CBT for psychosis (2,4,5). However, despite this laudable attention to capturing study details, meta-analyses of research on CBT typically ignore the unique outcomes targeted by specific studies, and combine all available studies when evaluating the impact of CBT on symptom and functional domains (2). Because of the breadth of potential targets of CBT for psychosis, these procedures may inadvertently lead to drawing inaccurate conclusions.

CBT comprises a broad range of treatment elements that can be adapted and applied to a wide variety of symptoms and impairments, and the specific treatment target in any one study has important implications for interpreting the results of meta-analyses which include that study. Studies may target positive symptoms, negative symptoms, relapse, and/or functional impairments. Combining studies that target different outcome domains is like “comparing apples to oranges”, and can lead to an underestimation of the effects of CBT when the results of studies that did not target a specific domain are combined with those that did. For example, Sensky et al (6) evaluated the impact of CBT for psychosis on stable outpatients with persistent positive psychotic symptoms, Garety et al (7) focused on relapse prevention and psychotic symptoms in individuals who had recently experienced a relapse of psychosis, and Granholm et al (8) targeted defeatist attitudes and functional impairment in persons with schizophrenia. However, the results of all three studies were pooled in a recent meta-analysis examining the effects of CBT on psychotic symptoms (2), which likely obscured the results.

In a related fashion, inattention to critical population characteristics or contextual factors related to with

whom and where the study was conducted can lead to results that are biased against CBT. For example, Lewis and colleagues (9,10) evaluated the impact of adding CBT for psychosis to inpatient treatment for people recently hospitalized for a first or second episode of psychosis. Psychosis severity decreased dramatically for the CBT, the supportive therapy, and routine treatment groups from baseline to post-treatment and follow-up, with the CBT group showing slightly more rapid improvement, but no differences between the groups at follow-up. The study appears to be a failure of CBT. However, what does it teach us about the effects of CBT in the sizable population of people with schizophrenia-spectrum disorders who experience persistent psychotic symptoms and are the typical recipient of the treatment? Very little. And yet in a recent meta-analysis (2) this study was included along with other studies of CBT for psychosis conducted in very different settings, such as studies focusing on stabilized outpatients with psychotic symptoms.

Meta-analyses are a powerful tool for evaluating the impact of an intervention by combining the results of multiple studies. However, the choice of which studies to include is not a trivial one, and needs to be made with an understanding of the nature of the intervention and target population. In the case of CBT, the penchant for meta-analyses to indiscriminately combine the results of studies targeting different outcomes in different populations or contexts has likely led to an underestimation of the true impact of CBT on selected targeted outcomes.

In most treatment systems for people with a serious mental disorder, resources to provide psychotherapy are limited. The primary question facing clinicians and policy makers is whether adding a particular form of treatment will significantly improve symptoms or functioning compared to the often-constrained services as usual. This question is particularly apt when discussing the inclusion of psychotherapy, which tends to be labor-intensive and not routinely provided

to this population, even when evidence supports it, in contrast to pharmacological treatment, which is often the standard of care even in the absence of compelling evidence to support the specific intervention (e.g., off label use, polypharmacy). Unfortunately, most of the controlled research evaluating the effects of CBT has not been designed to address this most basic question facing clinicians and policy makers: does CBT for psychosis added to customary care confer more benefits than customary care alone?

In the field of mental health, researchers usually think about the utility of interventions in very different ways from clinicians. In their zeal to prove that psychotherapy can be studied just as rigorously as medication, psychotherapy researchers have typically adopted a “gold standard” control group modeled after the placebo used in randomized pharmacological studies. The rationale for using a control psychotherapy intervention is not based on the presumed inertness of the intervention, but rather that it controls for “non-specific treatment factors” common across all psychotherapies. Psychotherapy researchers are under tremendous pressure to adopt research designs that compare a specific psychotherapy model (e.g., CBT) with a potentially active control psychotherapy (e.g., supportive therapy, befriending), rather than treatment as usual, because such designs are considered to be more “rigorous” or elucidating of the mechanisms underlying the experimental treatment by reviewers. However, the answers obtained using this research design typically have limited practical utility to settings where supportive therapy or befriending are not the standard of care. Comparing a psychotherapeutic intervention to another “control” psychotherapy is informative about the relative benefits of one intervention over the other, but not about the absolute benefit of the experimental intervention when added to usual services, the primary question at stake. Research (including meta-analyses) that concludes that CBT offers little more

than a control condition such as supportive therapy inadvertently misses the critical issue for most clinicians: is there a strong probability that this intervention will improve outcomes for the individuals with serious psychiatric illnesses with whom I work?

Aside from the fact that studies comparing CBT to a control psychotherapy do not provide a direct test of the added benefit of CBT in a typical clinical setting, there are at least two other problems with such research designs. First, designs that evaluate the relative benefit of CBT vs. another psychotherapy approach provide no reasonable basis for even *inferring* the degree of improvement provided by CBT over usual care. Unlike medication placebos, the effects of non-specific psychotherapeutic interventions for people with severe mental disorders are not well understood, hence even when CBT outperforms a control psychotherapy, the absolute benefit of CBT remains unclear. Second, there is modest evidence suggesting that supportive psychotherapy may be beneficial for people with schizophrenia (11). To the extent that “non-specific treatment factors” in psychotherapy *do* contribute to improved outcomes in people with severe psychiatric disorders, research designs that compare CBT with a control psychotherapy will underestimate the effects of CBT over usual care in a typical clinical setting, where even supportive therapy may be a rare commodity.

Although the primary evidence base for CBT lies in decades of research on its effects on depression and anxiety, somewhat surprisingly these two symptom domains have not been the focus of extensive CBT research in people with schizophrenia and other disorders with psychotic features. Depression frequently antedates the onset of schizophrenia, and is one of the most consistent and impairing clinical syndromes in the illness (12). Research trials of CBT for psychosis often target depression related to psychotic symptoms, and demonstrate positive effects in reducing depression. However, very limited research has evaluated the effects of

CBT on depression as the primary target symptom in this population (13,14), suggesting that CBT may be underutilized, and its effects under-appreciated in people with psychotic disorders.

Similar to depression, anxiety and anxiety disorders are also common in people with schizophrenia and related disorders, but have not been the focus of extensive CBT research. Some research does suggest that CBT is effective for anxiety disorders such as post-traumatic stress disorder (15) and social phobia (16) in people with severe psychiatric disorders. If CBT produces similar or even attenuated effects on anxiety in people with schizophrenia and other severe mental disorders as those reported in the general population, it would be an important tool for clinicians to alleviate much of the suffering caused by these disorders.

In conclusion, a growing body of research supports the efficacy of CBT for severe psychiatric disorders, but, as Thase et al note, access to CBT remains limited for most people with these conditions. While there has been an ongoing debate as to the magnitude of the impact of CBT, there are strong reasons to suggest that reviews of the research literature and commonly employed research designs have led to a systematic underestimation of the benefits of adding CBT to usual services. Specifically, meta-analyses that have failed to take into account the treatment targets, study populations, and contexts of different studies of CBT may underestimate treatment effects by combining the results of studies focusing on very different outcomes. Research designs that compare CBT with another active psychotherapeutic intervention in order to control for “non-specific treatment factors” will underestimate the incremental benefit of adding CBT to usual services to the extent that such control treatments produce some clinical benefit. Last, CBT has had only limited application to the problems of depression and anxiety as a primary treatment focus for people with schizophrenia and related disorders, despite the preponderance of evidence supporting the

effects of CBT for these symptoms in the general population. This suggests that CBT may have untapped potential for addressing these problems in people with severe mental disorders. The confluence of these factors, combined with the lack of access to CBT for most people with severe mental disorders, suggest that the true benefits of CBT have been undersold, not oversold, to clinicians, researchers, policy makers, consumers of mental health services, their families, and the public at large.

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CBT for psychosis: effectiveness, diversity, dissemination, politics, the future and technology

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Cognitive behavior therapy for psychosis (CBTp) was always going to be controversial, given the backwash in the US from the failure of psychoanalysis, the influence of biological psychiatry and neuroscience, and the globalization of the pharmaceutical industry. Talking therapies will attract criticism in spite of the evidence for their efficacy, a consistent albeit small effect. The evidence is summarized in the paper by Thase et al (1), but a number of points are worth making.

There is considerable heterogeneity in the CBTp studies, in the nature of the treatment and in the populations recruited, which may well result in some confusion.

CBTp has developed mainly in the UK, with different centres proposing their own theoretical models and array of clinical techniques. There were a number of reasons for this. The British tradition of social psychiatry and the work of the Medical Research Council Social Psychiatry Unit over five decades or more in investigating the importance of social factors in the course of psychosis was a significant challenge to purely biological explanations. Associated with this was the development of stress-vulnerability models of psychosis. Later, family intervention studies demonstrated that psychosocial interventions could reduce relapse rates in schizophrenia.

The second important factor was the expansion of CBT in the treatment of anxiety and depression. This provided

the diversity of techniques, theoretical development and skills base that allowed expansion into the treatment of psychosis. As well as approaches to cognitive therapy developed by Beck, other cognitive and behavioral approaches were also influential, such as self-management, rational emotive therapy and applied behavioral analysis. In a systematic review (2), we classified the treatments used in 34 trials depending on the cognitive or behavioral focus of the intervention, and found that larger effect sizes were associated with more behavioral techniques. Cognitive therapy could, perhaps unkindly, be considered "the bastard child of the medical model", and the importance of social, familial and environmental factors emphasized in earlier more behavioral formulations were sidelined with the increased interest in internal (thinking) processes.

Finally, the expansion of clinical psychology in the UK National Health Service (NHS) resulted in a workforce, skills base and clinical and research opportunity that provided fertile ground for CBTp to develop. The NHS provided the infrastructure, opportunity and ideology for innovation.

Thus, there has been considerable variation in the theoretical and clinical developments of CBTp, which makes comparisons across trials problematic. It must also be accepted that trials are limited by practical, temporal and financial considerations, which means that questions such as the necessity or benefit of long-term and continuing treatment with CBTp are rarely answerable.

In addition, there is variation in the stage of illness, with inevitable confusion concerning therapeutic goals. Although the majority of studies have investigated drug resistant community based chronic patients, with a view to further reducing symptoms, and this was clearly the initial driver of CBTp, other later trials have had other goals. For example, attempting to speed recovery and influence course in acute recent onset patients, reduce relapse, prevent the development of psychosis in high risk patients, reduce substance abuse in dual diagnosis, treat the effects of trauma/post-traumatic stress disorder. All this has resulted in different patient populations, theoretical models, treatment approaches and therapeutic goals, making aggregated comparisons difficult.

It is worth noting that Wykes et al (2) found that generic CBTp did not reduce feelings of hopelessness, a risk factor for suicide, while a recent study with a theoretically based intervention was successful in reducing suicide behavior (3), indicating that specialist interventions are required for specific clinical problems. This has clearly become the focus of the second wave of studies, increasing the diversity of both cohorts and interventions, and increasing the difficulty in across study comparisons.

A related issue is the appropriateness of various outcome measures. Outcomes used by researchers are not necessarily those most important to patients. Thus, aggregation or single symptom measures in meta-analyses may miss important treatment effects or inflate them. One