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Opinion

Combining Cognitive Therapies (Cognitive Behavior Therapy & Cognitive Remediation Therapy) for Psychosis: Scientific Rationale and Possibilities

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Cognitive Behaviour Therapy for psychosis (CBTp)

Introduction

Cognitive Behavioural Therapy for psychosis (CBTp) is a flexible psychotherapeutic intervention that has been adapted to be delivered in inpatient and outpatient settings, in the group and individual formats, as a briefer and longer-term intervention, in the acute and residual phases of illness, and by less experienced clinicians [1]. Given the trend towards developing adjunctive treatments for psychotic disorders in recent years, Cognitive Behavioural Therapy for psychosis (CBTp) is becoming increasingly popular. CBTp is typically an integrated approach that contains various components, including psychosocial education about the illness, goal setting, symptom monitoring, cognitive restructuring, skills training, and homework assignments. With CBTp's growing popularity, many meta-analytic reviews of RCTs have been conducted, many of which established the safety and efficacy of CBTp [1,2].

Evidence for the effectiveness

With the growing attention towards producing methodologically rigorous research, results from recent meta-analyses examining CBTp are not as optimistic [3] conducted a meta-analytic review of 34 CBTp studies and found overall beneficial effects for the target symptom (ES = 0.40, 95% CI [0.252, 0.548]) as well as significant effects for negative symptoms, functioning, mood, and social anxiety with effects ranging from 0.35 to 0.44, suggesting a moderate effect. However, these researchers also examined methodological variables responsible for the inflation of effect sizes and found that lack of participant masking was responsible for an inflated effect size of approximately 50% - 100%. After taking participant masking into consideration, they found the rigorous CBTp studies to have a small effect size for the target symptom (ES = 0.22, 95% CI [0.017, 0.428]), and found no significant effect sizes for secondary variables (i.e. negative symptoms).

In a recent meta-analytic study, [4] analysed 34 studies to examine the pooled effect size for overall symptoms, positive symptoms, and negative symptoms. They found a pooled effect size of -0.33 (95% CI [-0.47, -0.19]) for overall symptoms, -0.25 (95% CI [-0.37, -0.13]) for positive symptoms, and -0.13 (95% CI [-0.25, -0.01]) for negative symptoms. However, similar to [3], these researchers took into consideration potential biases within a study, specifically allocation concealment, sequence generation and incompleteness of outcome data. After removing studies with a high risk of bias from the analysis, they found a pooled effect size of -0.15 (95% CI [-0.32, -0.01]) for overall symptoms, -0.10 (95% CI [-0.28, -0.09]) for positive symptoms, and -0.02 (95% CI [-0.15, -0.11]) for negative symptoms.

Overall, these studies suggest that CBTp has a therapeutic effect on schizophrenia in the small to moderate range. However, when controlling for potential sources of bias and examining methodologically sound research, these effect sizes further reduce. So far there is no report of the effectiveness of CBTp on cognitive functions.

How it works

CBT was first applied to schizophrenia in a single case study by Beck in 1952 [5]. Since then, CBTp has developed from the traditional model of CBT for depression while also incorporating cognitive theory and interventions for anxiety disorders. Normalization is an important component of the CBTp [6].

When CBTp first came about, it was believed that positive symptoms of schizophrenia (i.e. hallucinations and delusions) lay outside the realms of normal psychological functioning and, therefore, could only be treated by pharmaceutical interventions. As such, CBTp in its earliest form relied primarily on behavioural strategies, such as graded activity programs, to improve coping, build social and independent living skills, and increase compliance to medication. Although these approaches continue to be utilized when negative symptoms and functional outcomes are the main focus of intervention, over the year's changes in how positive symptoms were conceptualized led to the incorporation of cognitive therapy and techniques into CBTp.

Over the years, it became widely recognized that normal psychological processes are applicable to psychotic symptoms, and could, therefore, be amendable with cognitive theory. Cognitive models outline the role of faulty beliefs, increased attention to threat-related stimuli, biased information processing of confirmatory evidence, and safety behaviors (i.e. avoidance of specific situations) in the experience of hallucinations and delusions [7]. Additionally, it is believed that the distress is the result of the individual's personal meaning, understanding, and coping of the experience, rather than the experience itself. Thus, CBTp attempts to alter cognitive biases by

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Table 1: Comparison of CBTp and CR.

	CBTp	CR
Theory	Based in Beck's model of CBT. However, some differences too. The techniques developed in the UK	A behavioral approach mostly developed and tested in the US
Focus therapy	Psychotic symptoms, with an attempt to correct thinking errors, beliefs, etc.	Cognitive functions (attention, memory, concentration)
Techniques	Guided discovery, behavioral experiments, cognitive restructuring, behavioral activation, etc.	Drill and practice, Strategy Use
Evidence	Small to moderate effect Size on psychotic symptoms, distress, etc.	A moderate effect on cognitive functions, small effect Size on psychotic symptoms. Good when combined with social skills etc. No effect on distress reported
Limitations	No report of effectiveness on cognitive functions. Limited by availability of therapists, costly training and supervision.	No or small effect on psychotic symptoms. Still limited to laboratories. Not available in clinical services.

addressing the content of thoughts and styles of thinking.

Despite the theoretical similarities between CBTp and CBT for non-psychotic disorders, there are some key differences. In CBTp (Table 1) sessions are often shorter in duration and more flexible, and the homework is often simplified, in order to adapt to the cognitive functioning of this population. Additionally, stigma is often addressed by normalizing some of the negative beliefs and assumptions people have about schizophrenia, and to instill more optimistic perspectives by providing alternative explanations [7]. Finally, based on research implicating sleep disturbances, affect, and safety behaviors in positive symptoms, these behaviors are important targets for CBTp [7].

Cognitive Remediation (CR)

Introduction

Cognitive Remediation (CR) attempts to improve functional outcomes by using drill and practice, compensatory, and adaptive strategies to target cognitive deficits, such as memory, attention, and problem solving [8]. Therapy is aimed at helping individuals with schizophrenia that experience cognitive impairment. An important difference between CBT and CR is that CBT teaches you to think your way through emotionally challenging problems, whereas CR helps improve the underlying neuropsychological functions that help you think, concentrate and learn. However, CR does not directly address the psychopathology (for example, hallucinations and delusions).

Cognitive impairment is a core feature of schizophrenia and plays an important role in the poor social functioning of this population. The social cognitive deficits associated with this disorder are a large contributor to overall levels of disability, thereby adding to the social and economic cost of schizophrenia. It has been suggested that improvements in cognitive functioning is known to reduce positive and negative symptoms [9]. Reduce the risk of relapse and hospital admissions [10], and have a positive impact on social and occupational functioning [11,12], making CR an attractive intervention for the treatment of schizophrenia.

Cognitive remediation for schizophrenia has been recently defined as "a behavioural training based intervention that aims to improve cognitive processes (attention, memory, executive function, social cognition or metacognition) with the goal of durability and generalisation" [13]. It has been shown to be effective in improving cognitive abilities in individuals with schizophrenia [14]. This research suggests that CR can improve functioning across a wide range of cognitive domains, particularly social cognition, reasoning, and problem-solving. However, there is some evidence to suggest that patients who receive CR as an early intervention experience greater functional, social, and cognitive gains than individuals with a more advanced illness [15].

Evidence for effectiveness

To date, there have been many meta-analytic reviews examining the efficacy of cognitive remediation for improving cognitive outcomes. In one of the first reviews [16], found CR to have no benefit on a number of cognitive functions and, therefore, concluded that this intervention could not be recommended for clinical practice. However, since then a number of rigorous reviews have established the clinical efficacy of CR in reducing cognitive deficits in schizophrenia. In their most influential meta-analysis, [14] found CR to be effective in improving global cognitive functions. In their influential meta-analysis (2,104 participants), [14], reported that CR can have durable effects on global cognition and functioning. The effect on psychotic symptom, however, was small and disappeared at the follow-up assessment. No treatment element (remediation approach, duration, computer use, etc.) was associated with cognitive outcome. They also found that CR was more effective for those individuals who were clinically stable. When CR was combined with psychiatric rehabilitation Similarly, much larger effect was present when a strategic approach was used along with adjunctive rehabilitation. However, inspite of variability in methodological rigor, this did not moderate any of the therapy effects. Even in the most rigorous studies, the effect sizes were small to moderate. Moreover, [14] suggests that interventions which use drill and practice plus strategy approaches result in significantly improved psychosocial functioning when compared to those that use drill and practice alone (drill plus strategy: ES = 0.47, 95% CI [0.22, 0.73], drill and practice: ES = 0.34, 95% CI [0.11, 0.78]) [17]. Reported that CR was associated with significant improvements across cognitive performance (0.41), psychosocial functioning (0.36), and symptoms (0.28). The same authors confirmed that the effects of CR on functioning were stronger when it was combined with psychiatric rehabilitation than in those that provided cognitive remediation alone.

It can therefore be summarized that there is no strong evidence for the effectiveness of CR on psychopathology. This is understandable from a clinical point of view, as the CR simply focuses on cognitive functions, not on psychotic symptoms. CR programs appear to be more successful when combined with psychiatric rehabilitation programs. In such programs the skills training or cognitive remediation exercises are used in combination with psychosocial groups or work rehabilitation programs [18]. Further, CR has been reported to impact functional outcome when individuals are given opportunities to practice the cognitive skills in real-world settings [19]. To achieve generalization to daily functioning it is necessary to

include cognitive remediation in broader programs in conjunction with other psychosocial interventions [19].

How it works

There is still a limited understanding of how the active therapy ingredients contribute to changes in the brain and translate into improved functioning [14]. There are currently two main models of CR: compensatory and restorative. Compensatory treatments attempt to eliminate or bypass a specific cognitive deficit by using other, intact cognitive abilities and/or environmental resources [19]. Conversely, restorative treatments take advantage of the brain's plasticity by attempting to correct a specific deficit by repairing the underlying compromised function [19]. Additionally, within these two models are two approaches to CR. The first approach, the drill and practice approach, suggests that cognitive improvement can be obtained by completing frequent and intensive tasks that are tailored to the individual's ability. The second approach proposes that the drill and practice approach should be supplemented by strategy use to increase the potential for generalization to real world problems. Research suggests that this second approach is the most beneficial in improving cognitive and psychosocial outcomes in patients [17,14].

CR is based on scientific principles of learning and, therefore, utilizes a number of learning strategies;, for example errorless learning, scaffolding, massed practice, positive reinforcement, and information processing strategies. Based upon the model and approach of the specific CR intervention, these learning strategies are applied to the task differently and to varying degrees. CR programs can be standardized (i.e. provide a standard set of exercises) or individualized (i.e. target specific deficits of the individual), and can focus on a specific cognitive domain or multiple cognitive domains. However, it has been suggested that all CR strategies are complementary and synergic in that the strengthening of one function may lead to the development of new strategies, which could then influence the individual's daily life [18,19]. Nevertheless, the treatment response for CR can be influenced by training of the therapist, the motivation of the patient, intensity and type of training, and baseline cognitive resources [19].

Neurologically, CR has been shown to improve frontal activity prevent gray matter decay [13] and improve brain network efficiency [20] and task-related blood flow in the front temporal areas [21]. However, future research is needed to understand the mechanism by which CR produces these brain effects.

The Way Forward

Overall, there is ample research documenting the efficacy of CR in improving cognitive and social functioning in patients with schizophrenia. However, this research suggests that CR interventions are more successful when they are combined with psychiatric rehabilitation programs, and social skills training. The major drawback of CR is a lack of effect on psychotic symptoms. Similarly, while the CBTp has been found to be effective in reducing symptoms of psychosis, it does not address the cognitive impairment in psychosis. It, therefore, makes perfect sense to combine the two. We believe that the functional outcomes may be significantly enhanced with a combination of these two cognitive therapies because Combined Cognitive Therapy for psychosis (CCTp) (i.e., a combination of CBTp and CR) can hopefully address psychotic symptoms, cognitive impairment, and social functioning. Box 1 highlights the differences between the two approaches.

Theory Based in Beck's model of CBT. However, some differences too. The techniques developed in the UKA behavioral approach mostly developed and tested in the US.

Focus of therapy Psychotic symptoms, with an attempt to correct thinking errors, beliefs, etc. Cognitive functions (attention, memory, concentration).

Techniques Guided discovery, behavioral experiments, cognitive restructuring, behavioral activation, etc. Drill and practice, Strategy Use.

Evidence Small to moderate effect Size on psychotic symptoms, distress, etc. A moderate effect on cognitive functions, small effect Size on psychotic symptoms. Good when combined with social skills etc. No effect on distress reported.

Limitations

No report of effectiveness on cognitive functions. Limited by availability of therapists, costly training and supervision. No or small effect on psychotic symptoms. Still limited to laboratories. Not available in clinical services.

The CCTp should also be considered as a preventative tool or as a way to delay the onset of schizophrenia in at-risk populations. Given that cognitive deficits and prodromal psychotic symptoms are common before the onset of psychoses and are associated with poor prodromal adjustment, it is possible that targeting cognitive deficits and prodromal psychotic symptoms, early in the course of schizophrenia may prevent neurobiological and clinical deterioration. Given the ethical concerns of administering antipsychotic medication to young people, research on the use of CCTp during this critical period may have profound clinical, social, and economic implications.

Although CBTp is widely available in the UK, there is a lack of trained mental health professionals who can deliver this evidence-based intervention in North America. CR, on the other hand, is widely available in North America, but not in the UK. However, CR in North America is available in laboratories and is yet to be part of the routine mental health care delivery. Luckily, recently there has been a focus on delivering these interventions in a stepped care approach, using brief, self-help and guided self-help versions of these interventions [22]. Further, mobile and digital media are being increasingly used for the delivery of these interventions. The CCTp delivered in brief or self-help format through digital or mobile technology might be the most cost effective way of improving social and cognitive functioning and reducing psychotic symptoms and distress in those with schizophrenia in the future.

References

1. Gaudiano B. Is symptomatic improvement in clinical trials of cognitive behavioural therapy clinically significant? Journal of Psychiatric Practice. 2006; 12: 11-23.

2. Gould RA, Mueser KT, Bolton E, Mays V, Goff D. Cognitive therapy for psychosis in schizophrenia: an effect size analysis. Schizophr Res. 2001; 48: 335-342.

3. Wykes T, Steel C, Everitt B, Tarrier N. Cognitive behaviour therapy for

schizophrenia: Effect sizes, clinical models and methodological rigor. Schizophrenia Bulletin. 2008; 34: 523-537.

4. Jauhar S, McKenna P, Radua J, Fung E, Salvador R, Laws K. Cognitive-behavioural therapy for the symptoms of schizophrenia: Systematic review and meta-analysis with examination of potential bias. British Journal of Psychiatry. 2004; 204: 20-29.

5. BECK AT. Successful outpatient psychotherapy of a chronic schizophrenic with a delusion based on borrowed guilt. Psychiatry. 1952; 15: 305-312.

6. Kingdon, David G, Turkington D. Cognitive Therapy of Schizophrenia. 2008. Guilford Press.

7. Tai S, Turkington D. The evolution of cognitive behavior therapy for schizophrenia: current practice and recent developments. Schizophr Bull. 2009; 35: 865-873.

8. Wykes T, Brammer M, Mellers J, Bray P, Reeder C, Williams C, et al. Effects on the brain of a psychological treatment: cognitive remediation therapy: functional magnetic resonance imaging in schizophrenia. British Journal of Psychiatry. 2014; 18: 144-152.

9. Peterson L, Jeppesen P, Thorup A, Abel M, Ohlenschlaeger J, Christensen T, et al. A randomized multicentre trial of integrated versus standard treatment for patients with a first episode of psychotic illness. BMJ. 2005; 331: 603.

10. Bark N, Revheim N, Huq F, Khalderov V, Ganz ZW, Medalia A. The impact of cognitive remediation on psychiatric symptoms of schizophrenia. Schizophr Res. 2003; 63: 229-235.

11. Craig T, Garety P, Power P, Rahaman N, Colbert S, Fornells-Ambrojo M, et al. The Lambeth Early Onset (LEO) Team: Randomised controlled trial of the effectiveness of specialised care for early psychosis. British Medical Journal. 2004; 329: 1067-1070.

12. Marshall M, Rathbone J. Early intervention for psychosis. Cochrane Database Systematic Review. 2011; 6.

13. Eack S, Hogarty G, Cho R, Prasad K, Greenwald D, Hogarty S, et al. Neuroprotective effects of cognitive enhancement therapy against gray matter loss in early schizophrenia: Results from a 2-year randomized controlled trial. Archives of General Psychiatry. 2010; 67: 674-682.

14. Wykes T, Huddy V, Cellard C, McGurk SR, Czobor P. A meta-analysis of cognitive remediation for schizophrenia: methodology and effect sizes. Am J Psychiatry. 2011; 168: 472-485.

15. Bowie C, Grossman M, Maya G, Oyewumi L, Harvey P. Early Intervention Psychiatry. 2014; 8: 32-38.

16. Pilling S, Bebbington P, Kulpers E, Garety P, Geddes J, Martindale B, et al. Psychological treatments in schizophrenia. II. Meta-analyses of randomized controlled trials of social skills training and cognitive remediation. Psychological Medicine. 2006; 32: 783-791.

17. McGurk SR, Twamley EW, Sitzer DI, McHugo GJ, Mueser KT. A meta-analysis of cognitive remediation in schizophrenia. Am J Psychiatry. 2007; 164: 1791-1802.

18. Barlati S, Deste G, De Peri L, Ariu C, Vita A. Cognitive remediation in schizophrenia: Current status and future perspectives. Schizophrenia Research Treatment. 2013; 1-12.

19. Medalia A, Choi J. Cognitive remediation in schizophrenia. Neuropsychol Rev. 2009; 19: 353-364.

20. Pendaes R, Pujol N, Catalan R, Massana G, Rametti G, Garcia-Rizo C, et al. Brain effects of cognitive remediation therapy in schizophrenia: A structural and functional neuroimaging study. Biological Psychiatry. 2013; 73: 1015-1023.

21. Pu S, Nakagome K, Yamada T, Ikezewa S, Itakura M, Satake T, et al. A pilot study on the effects of cognitive remediation on hemodynamic responses in the prefrontal cortices of patients with schizophrenia: A multi-channel near-infrared spectroscopy study. Schizophrenia Research. 2014; 153: 87-95.

22. Naeem F, Xiang S, Munshi T, Kingdon D, Farooq S. Self-help and guided self-help interventions for schizophrenia and related disorders Cochrane database of systematic reviews. 2015.

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