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Cognitive Behavioral Therapy in Prodromal Psychosis

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Abstract

There is a strong impetus in the psychosis research field to develop interventions that aim to prevent the onset of psychotic disorders. Over the past 15 years there has been a tremendous development in the work aimed at understanding the pre-psychotic period. More recently there has been a focus on developing and testing treatments both pharmacological and psychological that could potentially prevent or delay the onset of psychosis. One of the psychological treatments that has received the most attention is cognitive behavioral therapy (CBT). Relatively few trials have been completed and this paper reviews the existing trials. Implications of these trials for the treatment of this early phase as well as for designing future studies are discussed.

Keywords

Cognitive behavioral therapy; prodromal psychosis

INTRODUCTION

There is a strong impetus in the psychosis research field to develop interventions that aim to prevent the onset of psychotic disorders. The first steps towards this began more than 10 years ago with the development of valid and reliable criteria to identify individuals who are at risk for psychosis [1,2]. The criteria developed by the Australian group at the Personal Assessment and Crisis Evaluation (PACE) clinic in Melbourne, Australia are referred to as the ultra-high-risk criteria (UHR) using the Comprehensive Assessment of At Risk Mental State (CAARMS) [3]. Almost identical criteria, the Criteria of Prodromal Syndromes (COPS) were developed by the Yale group in the USA using the Structured Interview for Prodromal Syndromes (SIPS)[1]. In this paper for consistency, since participants are considered to be at high-risk of psychosis based on these clinical criteria we will use the term clinical high risk (CHR) to describe them.

The first study to address intervention at this early stage was carried out by McGorry and colleagues in Melbourne [4]. Fifty-nine young people at CHR were randomized to 6 months of active treatment (risperidone 1.3 mg/d plus a modified cognitive-behavioral therapy

(CBT) or needs-based intervention (NBI) [4]. Results suggested that these interventions may delay but not necessarily prevent the onset of psychosis in symptomatic high-risk participants. A second trial with a more rigorous design was initiated in 1999 by McGlashan and colleagues at Yale University and included additional sites at the Universities of Calgary, Toronto and North Carolina [5]. The PRIME (Prevention through Risk Identification Management & Education) study was a randomized double blind parallel study of 60 CHR participants comparing the efficacy of a low dose antipsychotic (olanzapine) versus placebo in preventing or delaying the onset of psychosis [6]. Although the results were not statistically significant, olanzapine reduced conversion to psychosis by 50% suggesting that interpretation of the findings is likely limited by the small sample size.

These first two landmark trials attempted to prevent or delay the onset of psychosis using antipsychotics. Medication seemed to alleviate the early symptoms in those who may be prodromal for psychosis and delay onset. Participants entering medication trials [4,7] are usually in the late pre-onset period as reflected by their high rate of attenuated psychotic symptoms, poor level of functioning and high rates of conversion to psychosis. However, at this time, in the absence of infallible markers for the risk of developing a psychotic illness, concerns about the feasibility, safety, and ethics of early intervention research with antipsychotics have been raised. Clinical trials using medication with CHR participants have generated a great deal of controversy and debate [8–12]. Despite offering substantial advantages over the traditional first generation medications, there are medical risks, in particular metabolic disorders, associated with the use of the second generation antipsychotics. This is of particular concern for those who are considered to be false positive, i.e. those who do not go on to develop psychosis [13]. Adherence was also a problem in this group [4] and the use of antipsychotic medications for prevention inevitably leads to the difficult question of length of prescription.

There is however, another concern which is acceptability. Although one cannot deny the potential merit in preventing, delaying or attenuating the onset of acute psychotic illness from an individual and family perspective, the majority of these young people typically choose not to participate in medication trials. Data from the Calgary PRIME clinic [14] demonstrated that only 14% of all eligible individuals who met CHR criteria chose to be in the trial. Forty-seven percent of the eligible participants were concerned, bothered and debilitated by their symptoms but did not feel they required medication. The majority of eligible participants who had less marked symptoms chose to be involved in a range of interventions that included psychoeducation about risk, management of stress and symptoms, and ongoing monitoring of the symptoms with immediate access to a physician if necessary. This is emphasized further by the EDIE trial [15], which is described in detail below, but one potential headline from this randomized trial described is the 95% rate of participation, clearly emphasizing the acceptability of this form of intervention.

These issues led to a logical case for considering the application of psychological treatment approaches aimed at emergent psychotic symptoms experienced by this CHR group. Bentall and Morrison [12] suggest that the evaluation of psychological treatment approaches in this early phase of psychotic disorders would be a more acceptable and a much safer first step in the development of preventive interventions, which might in itself reduce or avoid the need

for drug treatment. Furthermore, since these participants are help-seeking even the false positives would be likely to benefit from the problem-orientated collaborative nature of a psychological intervention.

WHY COGNITIVE BEHAVIORAL THERAPY?

There are several arguments to support why CBT may be a beneficial psychological intervention for young people at CHR [15]. First, CBT has demonstrated effectiveness for those with schizophrenia to cope with psychotic symptoms and to reduce associated distress [16–19] as well as the risk of relapse [20,21]. Thus, it is likely to help with both the attenuated and brief intermittent psychotic symptoms. Secondly, CBT was originally developed for mood disorders and has an extensive evidence base for the treatment of anxiety disorders, which are common in the CHR group [22,23]. This means that a CBT approach would be a valuable intervention for the non-specific emotional problems that are often observed during this period of CHR. Thirdly, CBT approaches have also been useful in addressing substance use which is believed to be a common and important contributing factor in the development of psychosis in those at risk [24]. Fourthly, increased problems with metacognitions and self-schemas which are psychological processes typically targeted during CBT have also been observed in the CHR population [25]. Fifthly, CBT interventions fit very well in a vulnerability-stress model and may be an invaluable therapy to teach the types of coping strategies that may offer protection against environmental stressors that are likely to precipitate conversion [26,27]. The collaborative nature of CBT, in that it is problem-orientated and involves working towards shared goals, may make it more acceptable to young adults, particularly since they often express a preference for psychological interventions and to participate in trials of psychological interventions [28,29].

Thus, it appears that CBT could be the model of psychological intervention that holds the greatest promise for being effective in (i) addressing the range of symptoms and concerns present in the CHR period and (ii) teaching potentially effective strategies to protect against the impact of environmental stressors that may contribute to the emergence of psychosis.

THE RESEARCH

Several randomized control trials have been reported using CBT. Some of the earlier trials used CBT in conjunction with medications, one study compared CBT to medication and only a few studies have focussed specifically on CBT. These studies are summarized in Table 1.

RANDOMIZED CONTROLLED TRIALS (RCT) EXAMINING THE EFFECTIVENESS OF CBT

1. The EDIE trial led by Morrison at the University of Manchester was the first trial to use a CBT approach to prevent the development of psychosis [30]. In this study 58 individuals were randomized to either CBT (n=37) or monitoring (n=23). CBT was provided for the first 6 months and all participants were monitored on a monthly basis for 12 months.

Participants received on average 12 sessions of CBT. Results were that CBT significantly reduced the likelihood of making progression to psychosis as defined by (i) ratings on the PANSS [31] (6% vs 22%), (ii) of being prescribed antipsychotic medication (6% vs 30%) and (iii) of meeting criteria for a DSM-IV [32] diagnosis of a psychotic disorder (6% vs 26%). CBT also improved positive symptoms in the sample. However, significant differences were not found on the Global Assessment of Functioning (GAF) [33] or the General Health Questionnaire (GHQ) [34]. It is of note that 95% of participants consented to participate in this trial. One of the methodological concerns in this trial was the lack of blindness between the groups, although the allocation of a DSM-IV diagnosis was carried out by a consultant psychiatrist blind to treatment allocation.

A second paper from this group reported on the impact of CBT on subthreshold positive symptoms and emotional dysfunction over time [35]. Positive symptoms were rated with the PANSS [31] and emotional dysfunction (anxiety-depression) was measured using the five general psychopathology symptoms from the PANSS including anxiety, tension, depression, guilt feelings, and somatic concern. A moderate reduction in positive symptoms and emotional dysfunction over 12 months was observed in both treatment groups. Positive symptoms and emotional dysfunction were significantly associated and both decreased significantly over the course of the study, with the rate of improvement being more rapid in the earlier months compared to later months. The general reduction in positive symptoms and emotional dysfunction in both the control and treatment groups may reflect the influence of regular contact from the assessments. However, there was a significant beneficial effect of cognitive therapy on positive symptoms.

A third paper [36] examined the longitudinal outcome of the sample from the original trial of 2004 [30]. The aim was to determine if the CBT condition had a long-term impact on preventing transition to psychosis. All participants were monitored at monthly intervals for a period of 12 months following initial assessment and then every 6 months for the next 2 years. Depending on the criteria used to determine conversion, the number converting in the CBT group increased from two at 1 year to five to seven at 3 year follow-up. In the monitoring group the number converting at a year follow-up stayed the same or increased by one from seven to eight or six to seven. Using PANSS defined transition, the main effect of CBT was not significant (OR=0.38; 95% CI=0.08–1.88; P=0.236). When antipsychotic medication was used as the dependent variable, the main effect of CBT was significant (OR=0.13; 95% CI=0.02–0.76; P=0.024). This means there was an 87% reduction in the odds of receiving antipsychotics in the CBT group compared with those who received monitoring alone, after adjustment for baseline PANSS score, age, gender, and family history. When transition as defined by a DSM-IV diagnosis, was used as the dependent variable the main effect of CBT was not significant (OR=0.34; 95% CI=0.08–1.48; P=0.152). Interestingly an exploratory analysis shows that when metacognitive beliefs were included in the regression (i.e. beliefs which suggest that someone is likely to make the most of therapy) significant results were achieved for all three outcomes. These results suggest that over a 3 year period an initial 6 month package of CBT is effective in reducing the likelihood of being prescribed antipsychotic medication but is not effective in reducing the likelihood of transition to psychosis as defined by the PANSS or by a DSM-IV diagnosis. However, CBT did significantly reduce the likelihood of transition to psychosis defined

using the PANSS over the 3 year period, after controlling for beliefs that are targeted during therapy and baseline PANSS scores. However, one of the concerns with the follow-up study was the number of dropouts, only 17 (49%) from the CBT group and 10 (43%) participants from the monitoring group were available for follow-up at the 3 year time point.

The cognitive therapy used in this trial was based on an empirically validated cognitive model of psychosis [37]. The therapy adhered to the structure and principles of cognitive therapy, being time-limited (up to a maximum of 26 sessions over 6 months; average number of sessions was 12), problem-orientated, collaborative and involved the use of homework tasks and guided discovery. Initial stages of therapy included a cognitive-behavioural assessment, the development of a shared list of problems and goals and the generation of a case formulation based on the cognitive model. Common techniques, which were collaboratively selected on the basis of a shared case formulation, included the examination of advantages and disadvantages associated with particular ways of thinking and behaving, consideration of evidence, generations of alternative explanations and the use of behavioural experiments to evaluate beliefs. A comprehensive description of the therapy is provided in the published treatment manual [15].

2. The ADAPT (Access, Detection and Psychological Treatment) trial [38] was an RCT of CBT versus supportive therapy (ST) conducted in Toronto, Canada. The aim of this study was to explore the effectiveness of CBT compared to supportive therapy in preventing conversion to psychosis as well as improving presenting concerns in a sample of individuals at risk for psychosis. In total, 51 participants were randomized with 27 in the CBT group and 24 in the ST group. All participants met COPS criteria for attenuated positive symptoms based on the SIPS [1]. Overall, the mean number of sessions was 12 (SD=6.2, range 1–26). In the first 6 months, there were no conversions in the CBT group and three in the ST group. This was not a significant difference, but may be due to the size of the sample.

Symptoms were measured using the Scale of Prodromal Symptoms (SOPS) [1], Calgary Depression Scale for Schizophrenia (CDSS)[39], Social Anxiety Scale (SAS) and Social Interaction Anxiety Scales (SIAS)[40] and functioning with the Social Functioning Scale (SFS)[41]. There was a significant improvement in SOPS positive symptoms over time ($p<0.001$), but there was no statistically significant difference in the change rate of attenuated positive symptoms over time between the two groups ($p = 0.44$). There were no significant differences on the CDSS and no time effects except for a significant improvement for the ST group between baseline and 6 months ($t=4.94$, $p<0.05$). Both groups improved over time on the SIAS ($F=0.09$, $p>0.05$) and on the SAS there was a significant time effect for the ST group between baseline and 18 months ($t=3.55$, $p<0.05$). There were no significant differences between the groups in negative symptoms or social functioning nor was there any significant time effect within the groups for these measures. The groups did differ in the rate of improvement of attenuated positive symptoms over the first 6 months. The CBT group had an earlier more rapid improvement although the ST group caught up by 6 months.

The CBT intervention was a manualized problem-focused intervention based on French and Morrison 2004 [15]. Strategies used included normalization, generating and evaluating

alternative beliefs, core beliefs, safety behaviours, metacognitive beliefs, core beliefs, social isolation, and relapse prevention. Supportive therapy consisted of finding out how the previous week had been, advice was offered to assist with immediate problems, psychoeducation and how to manage stress were also offered. Treatment took place over the course of 6 months and participants were followed for 12 months thereafter.

3. German Network RCT trial was an RCT examining the effectiveness of CBT in the early prodromal phase of the illness. This multi-site trial was preceded by an uncontrolled pilot study. The pilot study [42] was developed to explore the benefits of CBT in the early prodromal state of a pre-psychotic phase. The purpose of the trial was to prevent transition to the later prodromal period. The early prodromal state was defined (i) by the presence of certain self-experienced cognitive thought and perception deficits known as Basic Symptoms [43] and/or (ii) by the presence of a clinically relevant decline in functioning in combination with well-established risk factors [44]. This was an uncontrolled prospective design with pre and post-treatment measures.

The sample contained 12 participants with a mean age of 22 years. A transition to psychosis was considered to have occurred if it was believed that antipsychotic medication should normally be recommended. This threshold was established through the use of the PANSS [31]. Predictive basic symptoms were assessed with the Early Recognition Inventory and the Interview for the Retrospective Assessment of the Onset of Schizophrenia (ERIRaoS) [45], depression was examined using the Montgomery-Asberg Depression Rating Scale [46], anxiety was measured with a modified German version of the Social Phobia and Anxiety Inventory (SPAI) [47]. In addition, social adjustment was assessed with the GAF [33].

The intervention was based on a cognitive behavioural model with a focus on principles used for people with psychosis [48,49]. Individual therapy was available for 30 sessions and group therapy for 15 sessions. Individual sessions focused on assessment and engagement, psychoeducation, stress, symptoms, and crisis management. Group therapy focused on positive mood and enjoyment, training social skills, and mastering difficult situations. Each session followed a detailed protocol containing the aims of the session, examples of interventions and model responses from the therapist. The program was delivered to clients for 12 months as an outpatient treatment program. Ten of 12 participants completed the 12 month intervention period and the post-treatment assessment. Significant improvements were observed post-treatment in prodromal symptoms, depression, anxiety and social adjustment. None of the 10 participants who completed the intervention converted to psychosis.

The purpose of the multi-site RCT [50] was to examine the impact of CBT on social adjustment relative to healthy controls. In total 113 participants who met criteria for the early initial prodromal state (EIPS) as described in the pilot study, were randomly assigned to either CBT (n=54) or supportive counselling (SC) (n=59). Sessions for both interventions were delivered over a 12 month period and follow-ups occurred at 24 and 36 months.

An integrative CBT intervention was developed which addressed self-experienced cognitive thought and perception deficits, negative symptoms, anxiety, depressive symptoms, family

and occupational problems. A modified vulnerability-stress coping model [51] served as the global framework of the intervention, with improving coping resources and stress-management as underlying strategies of the treatment. The CBT strategies that were used drew heavily from strategies used for people with psychosis [48,49]. In the manualized SC condition [52] psychoeducation, and counselling in a supportive unstructured style were delivered on an individual basis. The SC condition was manual-based with a maximum of 30 sessions over 12 months. The measures included the ERIRAOS [53], PANSS [31], GAF [33], and the Social Adjustment Scale II (SAS II)[54]. Subscores of the SAS II included work, social activities/leisure, physical well-being, and the general adjustment summary.

There was a significant difference between the groups in the number of sessions attended. On average participants in the CBT group attended 23 sessions of individual and group therapy compared to the SC group who attended an average 16 sessions. Improvements were observed in both the CBT and the SC group as indicated by significant time interactions on all SAS II dimensions. For CBT, a significant improvement was found on the dimension of work ($t=1.77$, $p<0.01$) and the global rating ($t=4.225$, $p<0.001$). For the SC group improvements were found pre and post-treatment on the dimensions of work ($t=3.16$, $p=0.003$), social activities ($t=2.25$, $p=0.03$), and the global rating ($t=4.225$, $p<0.001$). At 12 months there were no significant differences between the two interventions.

One of the difficulties of both the RCT and the pilot study is comparisons to other studies since these studies had a focus on young people who were defined as being in the early phase of the CHR period. A second concern is that it is difficult to ascertain which part of the intervention may have contributed to the improvement since the treatment was a mixture of individual and group sessions.

4. Ongoing trials - EDIE-2. One notable trial is the EDIE- 2 trial led by Morrison at the University of Manchester [55]. A total of 288 participants were randomized to either CBT plus monitoring ($n=144$) or monitoring alone ($n=144$). The CAARMS [3] was used to determine those at CHR. All participants received monthly monitoring for the first 6 months and every 3 months up to a total of 2 years. The minimum follow-up was 12 months. In the monitoring plus CBT group, sessions were offered on a weekly basis up to a total of 25 sessions and four additional sessions in the subsequent 6 months.

The CBT approach allowed for an individualized approach with key components focusing on the development of a problem and goal list, early formulation, normalizing psychotic-like experiences, the use of behavioral experiments and generating evidence to test appraisals. As in the first trial, the CBT approach is based on the French and Morrison manual [15]. Those in the monitoring condition received warm, empathetic, and non-judgmental face-to-face contact, as well as supportive listening and referrals to appropriate local services for unmet needs and crisis management when needed. Measures used in addition to the CAARMS included the SCID, the Beck-Depression Inventory for Primary Care (BDI-PC) [56] and the Social Interactions Anxiety Scale (SIAS) [57]. Medication use was also recorded including prescriptions for antipsychotics and other psychiatric medications, as well as the number and duration of psychiatric hospitalizations. The Manchester Short Assessment of Quality Life was also administered [58]. A total of 83.7% ($n=241$) of

participants met APS entry criteria. At baseline participants were moderately to seriously impaired in their GAF scores ($M=50.00$, $SD=10.57$). As a group, participants BDI-PC score indicated depression ($M=9.73$, $SD=4.48$), as well as difficulties with social anxiety ($M=41.18$, $SD=16.98$).

RCTS THAT INCLUDE CBT AS ONE OF THE ARMS OF THE TRIAL

Only one study to date has been designed to further explore whether pharmacological or psychological treatments alone or in combination are effective treatments for young people at risk for psychosis [59,60].

The main outcome measure was conversion to psychosis. In addition, changes in symptoms, functioning, and quality of life were measured during the 12 month treatment and 12 month follow-up phases. All participants were between 14–30 years of age and met one or more of three prodromal syndromes based on the CAARMS [3]. One hundred and fifteen participants were randomized to one of three treatment groups which included: (i) cognitive therapy plus antipsychotic (up to 2 mg risperidone) ($n=43$), (ii) cognitive therapy and placebo ($n=44$) and (iii) supportive therapy and placebo ($n=28$). A monitoring group ($n=78$) consisted of individuals who met criteria for CHR but did not agree to be randomized.

The CBT was based on the vulnerability-stress model for psychosis, with an emphasis on coping strategies specific to pre-psychotic symptomatology and life stressors. The CBT also offered an individualized case formulation and intervention strategies specific to positive psychotic symptoms. The CBT treatment is described in more detail in Yung *et al* [61]. Those randomized to supportive therapy were assisted with coping with current problems through psychoeducation and stress management. Cognitive therapy techniques were not incorporated into this treatment. Participants in the non-randomized monitoring group received standard treatment, which included psychologically orientated case management, and in some cases may have included cognitive therapy. No antipsychotics were used in this group. Family education and support was offered to all participants if deemed necessary, regardless of treatment group.

Psychological treatment was provided on a weekly to monthly basis depending on level of symptoms, functioning and risk. Sessions were 50–60 minutes in duration, were weekly for the first 6 months, then every 2 weeks and finally once a month for the final 3 months. This led to a potential total of 35 sessions. For medication the dose commenced at 0.5 mg and increased by 0.5 mg over a 4 week period if no or minimal side-effects were reported. Treatment ended if the person developed psychosis and open-label antipsychotic medication was provided.

A total of 87% of all participants from all groups met diagnostic criteria for at least one DSM disorder at baseline, with major depressive disorder being the most common. Participants in the monitoring group were significantly less likely to have met criteria for any mental illness, and had significantly lower levels of global psychopathology, positive symptoms, global negative symptoms, alogia and affective functioning compared to the randomized participants. There were no differences between randomized participants and the monitoring group participants in levels of alcohol use, either lifetime or in the month

prior to assessment. The monitoring group participants were significantly less likely to have used drugs other than alcohol in the month prior to assessment and there was a trend towards this group being more likely to have reported a lifetime of abstinence from drugs other than alcohol.

To date only the 6 month follow-up data from this trial has been published [60]. At the 6 month follow-up eight of the 115 participants (7%) had developed a psychotic disorder. In total two, of these participants were in the cognitive therapy + risperidone group, four were in the cognitive therapy + placebo group, and two were in the supportive therapy + placebo group. There were no significant differences between the groups in the proportion of participants who converted to psychosis. In addition, four people in the monitoring group transitioned to psychosis. This group did not differ in portion to the randomized groups. In addition, all three randomized groups and the monitoring group showed significant improvement in the Brief Psychiatric Rating Scale total and psychotic subscale (BPRS) [62] and the Hamilton Depression Rating Scale scores (HDRS) [63]. All groups, with the exception of the cognitive therapy + risperidone showed significant improvements in functioning. The supportive therapy + placebo and monitoring groups showed significant improvement in total negative symptoms and anhedonia/asociality. The supportive therapy + placebo group also showed a reduction in affective flattening. Overall, there was a lack of difference between groups regarding the transition to a psychotic disorder.

From this study the mean number of sessions was not reported and it was unclear about the fidelity of the treatment.

MEDICATION RCTS THAT INCLUDE CBT

The first intervention trial was carried out by McGorry and colleagues [4] in Melbourne, Australia. In this study 59 individuals between the ages of 14–30 years old who met criteria based on the CAARMS [3] were randomized to 6 months of active treatment (risperidone 1–2 mg/day plus modified CBT) or needs-based intervention (NBI) alone [4]. The mean dosage of risperidone for the active treatment group was 1.3mg. The CBT intervention followed a manual which incorporated a number of ‘modules’. Strategies used in the modules were drawn from mainstream CBT techniques for non-psychotic disorders but were adapted where necessary to utilize techniques more useful in psychotic disorders [64]. The modules focused on stress management, depression/negative symptoms, positive symptoms, and other comorbidity issues, such as substance abuse, obsessive-compulsive features, and social anxiety. The NBI was provided to all participants involved in the trial, regardless of which group they were randomized to. The NBI treatment incorporated case management which addressed practical issues such as crisis management and difficulties with housing, education or employment, as well as symptom monitoring. There was a significant difference in the number of psychological sessions attended by clients in the two treatment groups: the active treatment groups attended an average of 11.3 sessions (SD=8.4) and the control group attended an average of 5.9 sessions (SD=4.3).

By the end of the treatment significantly fewer individuals in the active treatment group had progressed to a first episode of psychosis (9.7% versus 36%). Six months after treatment

ended the differences were no longer significant as more of the active treatment group converted to psychosis (19% versus 36%). Adherence to medication suggested a sustained effect as participants in the active treatment group who were compliant with antipsychotic medication were less likely to develop psychosis than those who were less compliant. These results suggest that a combination of antipsychotic medication and CBT may delay but not necessarily prevent the onset of psychosis in symptomatic high-risk participants. Furthermore, it was reported [4] that high-risk individuals who did not progress to psychosis showed improvement in a range of symptoms and functioning when they received the combination of risperidone and CBT. This was a landmark study in considering the possibility of delaying or even preventing psychosis. However, as with many early studies there were some methodological limitations which should be acknowledged. First, there was no blinding of participants or raters to group assignment. Secondly, combining pharmacologic and psychological treatments in the active treatment group does not allow us to determine the relative contribution of medication or CBT. Thirdly, it was difficult to control for adherence to medication.

A follow-up to this study [65] reported on assessments conducted 3–4 years after baseline. Forty-one of the original 59 participants (69.50%) agreed to be interviewed at follow-up. Twenty four (77%) were from the CBT group and 17 (61%) were from the needs-based intervention group. Two people from the NBI group and four people from the medication plus CBT group converted to psychosis between the 12 month follow-up and 3–4 year follow-up. A survival analysis was conducted that included all 59 participants, which indicated there was no significant difference in the probability of developing psychosis between the medication plus CBT and the NBI group over the entire duration of the study. Further analysis involved dividing the active treatment group into those who were adherent to risperidone during the treatment phase versus those who were not. There was no significant difference in the transition rate of conversion when compliance with risperidone was taken into consideration. The range of symptom and functioning measures were compared within treatment groups. Both the medication plus CBT and NBI groups had significantly higher Mania Scale [66] and Quality of Life (QLS) [67] scores at the 3–4 year follow-up compared to baseline. No other significant differences were found between baseline and 3–4 year follow-up scores for either group. In addition, no differences were found between the medication plus CBT and NBI groups on any measures at the follow-up.

SUMMARY

In considering treatments for this young at risk population, it may be that antipsychotics are potentially useful in the later phases of the prodromal period when attenuated psychotic symptoms are clearly evident and the individual is potentially on the edge of a conversion to full threshold psychosis. Although, in recent reports it appears as if participants are often already being prescribed antipsychotics by the time they present to specialized clinics or studies [68]. Psychological interventions might be expected to be most promising at earlier and less symptomatic stages of the prodrome. In fact, in the early stages of the prodromal period the presenting symptoms are not only less severe but also less specific where these individuals present with a wider constellation of concerns. They need and want to understand their perceptual difficulties, to manage the stress, depression, anxiety, sleep

disturbance and decline in functioning, and to be supported through this difficult period of their lives [14,23]. These symptoms and concerns may be more modifiable with a psychological intervention than with medication.

In reviewing these studies, although CBT seems a logical treatment for those at CHR there are actually very few studies examining its effectiveness. In all the studies reviewed both the CBT and the control treatment groups appeared to demonstrate some improvement in symptoms. The EDIE trial demonstrated that CBT was effective in reducing conversion. The German Network study had a narrow focus on those who were clearly in the very early stage of a CHR period but did report improvement in both groups in terms of social functioning. The ADAPT trial was the first to compare two psychological treatments but the number of conversions were very low. Likewise, in the most recent trial from PACE, the groups did not differ significantly in conversion rates but the rates were relatively low.

There are several reasons why in some studies there is a lack of difference between the groups. First, there may be no difference between the treatments, i.e., both treatments are equally effective, and CBT is not a superior treatment. However, the ADAPT trial which did not demonstrate a difference was clearly underpowered. Secondly, both treatments could be equally ineffective and that the participants may have recovered without any intervention. Thirdly, it is possible that those in the CBT groups did not receive an adequate dose of CBT. In all of the trials individuals in the CBT groups received less than 50% of the potential sessions. In the ADAPT trial it was reported that for many of the CBT cases, the interventions focused primarily on engagement and less on the strategies that are the core of CBT. It may also be hard, therapeutically, to engage young people who are uncertain about acknowledging a potential illness. Fourthly, a further explanation is that CBT was used to address several presenting problems, and the participants had different needs. This issue was reported in an excellent, methodologically sound, large CBT for psychosis relapse trial in the UK where there was no difference in CBT versus ST [69]. The UK study reported general versus specific benefits to patients when there was at times an absence of target symptoms. A similar recommendation may apply here in that CBT at this phase of the illness should be directed at targeting and improving attenuated symptoms.

A fifth reason could be that in the absence of a treatment as usual/standard care control condition, definitive conclusions are limited and the groups may have improved without treatment. The closest there is to “treatment as usual” (TAU) is the monitoring condition offered in the EDIE trial and indeed this was the one study that demonstrated differences. However, even monitoring is offering support to these young people. In these CHR populations who are help-seeking “no treatment” is not considered a reasonable option. It is important that we do not minimize the monitoring condition, which is carried out by staff highly skilled in the administration of these measures which tap directly into the concerns of these clients, performing a normalizing intervention. The assessors are warm, empathic and assertive in their follow up and the sessions frequently take place at times and places convenient for the client. This is probably far more than would usually be offered in TAU and is likely to be an effective intervention in its own right for some individuals.

Finally, the conversion rate is significantly lower than would have been anticipated based on conversion rates being reported when these trials began. Compared to earlier studies the conversion rate in most of the studies reported here is low, a phenomenon that is being reported in other research centers [70]. This is clearly a problem for future treatment studies as sample sizes will have to be considerably larger. Another factor is that for a few participants in each trial the final conversion status is unknown, with relatively small numbers of conversions this data could make a difference.

Although there are only a few studies examining CBT in this population, they raise some stimulating questions in terms of future studies of psychological treatments. How much therapy would be enough to make a difference? Should supportive therapy, which is potentially a less costly therapy, be offered earlier than CBT in a stage model of treatment [71]? Should CBT be used specifically to target attenuated positive symptoms, and other therapies used for different problems e.g. social skills deficits? That is, simple interventions offering support and problem-solving may be helpful for these CHR young people when they first seek help. Structured CBT strategies possibly requiring more experienced therapists should be reserved for targeting specific problems such as severe attenuated positive symptoms. Certainly a staged model of care appears to make sense from the emerging data, which should include monitoring, supportive therapy and CBT.

In conclusion, help-seeking participants who meet criteria for being at CHR for psychosis do improve when provided with therapy. However to date, only one study demonstrated that CBT was effective in delaying the onset of psychosis with other studies being impacted by low conversion rates. It may be as Yung [70] suggests that the samples of CHR individuals are being diluted and if this is in fact the case then the CBT is effective in helping with presenting problems but to determine effectiveness in terms of conversion CBT should perhaps not be offered except to those who after 6–12 months do not demonstrate improvement in symptoms.

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Table 1

Studies Using Cognitive Behavioral Therapy in the CHR Population

Study	Follow-Up	Groups	Psychosocial Intervention	Antipsychotic Arm	Mean # of Sessions	Rates of Conversion	Diagnostic Measure
PACE Trial 1 McGorry <i>et al.</i> [4]	12 Months	31 SPI (CBT + Risp) 28 NBI	CBT: Manualized format with 4 modules addressing - stress management, depression, negative symptoms, positive symptoms, and other comorbid conditions NBI: A needs-based supportive that focused on pertinent issues, such as social relationships, vocational and family issues.	Risperidone: Up to 2 mg M=1.3 mg/	CBT= 11.3 NBI = 5.9	SPI = 19.4% NBI = 35.7%	CAARMS
	3-4 Years	24 SPI 17 NBI				SPI = 16.7% NBI = 11.8%	
PACE Trial 2 Phillips <i>et al.</i> [59]	6 Months	43 CBT + Risp 44 CBT + Placebo 28 ST + Placebo 78 NBI	CBT: As in PACE trial 1 ST: Provided emotional and social support, basic problem solving, stress management, and psychoeducation. No CBT techniques were used. NBI: Psychologically oriented case management & medical care. May include CBT. No antipsychotic.	Risperidone: Up to 2 mg	Over 12 months 35 sessions offered	CBT + Risp = 4.7% CBT + Placebo = 9.1% ST + Placebo = 7.1% NBI = 5.1%	CAARMS
EDIE-1 Morrison <i>et al.</i> [30]	12 months	37 CBT + Monitor 23 Monitor	CBT: Based on published manual by French & Morrison [15]. Monitoring: Study assessments that took place once a month in the first 6 months	None	CBT=12	CBT + Monitor = 5.4% Monitor = 21.7%	PANSS
	3 years	17 CBT + Monitor 10 Monitor				CBT + Monitor = 29.4% Monitor = 0%	
ADAPT Addington <i>et al.</i> [38]	18 Months	27 CBT 24 ST	CBT: Based on published manual by French & Morrison [15]. ST: Focused on support & crisis management.	None	CBT=12 ST=12	CBT= 0% ST= 12.5%	SIPS
German Network Study: Pilot Bechdolf <i>et al.</i> [42]	12 months	12 CBT	CBT: Consisted of individual therapy focusing on assessment and engagement, psychoeducation and stress, symptom, and crisis management. Group therapy involved focusing on positive mood and enjoyment, training social skills, and mastering difficult situations.	None	Offered over 12 months 30 individual 15 group	CBT=0%	ERRaos
German Network Study: RCT	36 months	54 CBT group 59 SC	CBT: As in pilot study	None	Total over 12 months CBT =23.4	CBT=0% SC=0%	ERRaos

Study	Follow-Up	Groups	Psychosocial Intervention	Antipsychotic Arm	Mean # of Sessions	Rates of Conversion	Diagnostic Measure
Bechdolf <i>et al.</i> [50]			SC: Focused on basic assessment, psychoeducation and counseling in a supportive, warm, genuine, empathic in an unstructured style.		SC=16.3		

Note: SPI=specific preventive intervention; CBT=cognitive behavioural therapy; NBI=needs based intervention; ST=supportive therapy; SC=supportive counseling; CAARMS=comprehensive assessment of at risk mental state; PANSS=positive and negative syndrome scale; SIPs=structured interview for prodromal syndromes; ERIraos=early recognition inventory and the interview for the retrospective assessment of the onset of schizophrenia