Cognitive Analytic Therapy for psychosis: A case series

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Objectives. Cognitive Analytic Therapy (CAT) is an effective psychological intervention for several different mental health conditions. However, whether it is acceptable, safe, and beneficial for people with psychosis remains unclear, as is the feasibility of providing and evaluating it within a research context. The aim of this study was to begin to address these questions and to obtain for the first time a rich and detailed understanding of the experience of receiving CAT for psychosis.

Design. A mixed-methods case series design.

Method. Seven individuals who experienced non-affective psychosis received CAT. They completed assessments at the start of CAT, 16 weeks, and 28 weeks post-baseline. Qualitative interviews were completed with four individuals following completion of or withdrawal from therapy.

Results. Six participants attended at least four sessions of therapy and four went on to complete therapy. There were no serious adverse events, and self-reported adverse experiences were minimal. Qualitative interviews suggested CAT is acceptable and provided a way to understand and work therapeutically with psychosis. There was limited evidence of change in psychotic symptoms, but improvement in perceived recovery and personality integration was observed.

Conclusions. The results suggest that CAT is a safe and acceptable intervention for psychosis. Personality integration, perceived recovery, and functioning are relevant outcomes for future evaluations of CAT for psychosis.

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Practitioner points

- It is feasible to conduct research evaluating CAT for people with psychosis.
- Within this case series, CAT appears acceptable and safe to individuals with psychosis.
- Within this case series, clients reported that CAT was a positive and helpful experience.
- There is a mixed picture with regard to secondary outcomes, but the design and aims of this case series limit conclusion that can be drawn from this data.

Experiences of psychosis can be a cause of distress and impaired functioning for many affected individuals (British Psychological Society, 2014; National Institute for Health and Care Excellence, 2014). These experiences may not always be an individual's primary concern, however, which instead may involve difficulties relating to self-esteem, depression, or self-harm (Birchwood, 2003; Palmer, Pankratz, & Bostwick, 2005; Romm *et al.*, 2011; Tarrier, Khan, Cater, & Picken, 2007; Taylor, Hutton, & Wood, 2015). Cognitive behavioural therapy (CBT) currently represents one of the best evidenced psychological interventions for psychosis (National Institute for Health and Care Excellence, 2014). Whilst debate remains on the efficacy of CBT, meta-analyses have largely indicted moderate effect sizes (Sarin, Wallin, & Widerlov, 2011; Turner, van der Gaag, Karyotaki, & Cuijpers, 2014; Wykes, Steel, Everitt, & Tarrier, 2008). However, CBT does not work for everyone with psychosis. For example, response rates are reported at 39% (treatment response defined as 25% improvement in symptoms; Naeem, Kingdon, & Turkington, 2008) and 32% (response as >50% improvement; Morrison *et al.*, 2014). The development of alternative psychological therapies for those seeking help for psychosis may help increase rates of response and recovery, as well as provide service-users with a meaningful choice of effective therapies.

Cognitive Analytic Therapy was developed within the United Kingdom as an integrative, time-limited psychological therapy (Ryle & Kerr, 2002). The model emerged from observations of the specific difficulties and patterns that clients often presented with. It draws upon object relations theory, social development theory, and the work of Bakhtin (Leiman, 1992; Murphy & Llewelyn, 2007). The approach has since been applied in various forms to a wide range of psychological difficulties, and across various locations outside of the United Kingdom (e.g., Europe, Australia; Calvert & Kellett, 2014; Caruso *et al.*, 2013; Gleeson *et al.*, 2012). CAT adopts a fundamentally relational understanding of psychological difficulties, including psychosis. The model centres on *Reciprocal Roles* (RRs), which are dyadic, internalized patterns of relating to oneself and others (e.g., critical in relation to defensive; Kerr, 2005; Ryle, 2001; Ryle & Kerr, 2002). They can be adaptive, guiding how individuals navigate their social world (e.g., supportive to comforted/supported). However, difficult or suboptimal early interpersonal experiences, including interpersonal trauma, are thought to lead to a collection of RRs that contribute to psychological problems (Ryle & Fawkes, 2007; Ryle & Kerr, 2002). For example, an exaggerated reciprocal role of 'hostile/threatening to vulnerable/at-risk' could have arisen from early experiences of interpersonal violence and abuse. This reciprocal role could influence how others are related to, resulting in perceptions that others are threatening or hostile, and feelings of personal threat.

The Multiple Self States Model (MSSM; Pollock, Broadbent, Clarke, Dorrian, & Ryle, 2001; Ryle, 1997) can be used to explain more complex difficulties within CAT, including psychosis. This model outlines how overwhelming or intolerable life experiences lead reciprocal roles to become particularly exaggerated, amplified, or cut-off from other reciprocal roles in that individual's repertoire (Kerr, 2001; Kerr, Birkett, & Chanen, 2003; Kerr, Crowley, & Beard, 2006). In psychosis, these cut-off reciprocal roles may emerge as

distinct 'self-states' that encompass psychotic experiences, for example, a self-state carrying a strong sense of threat from others that become the basis of paranoid delusions.

Reciprocal roles are embedded in patterns of aim-directed behaviour, called *procedures*, which emerge to help the individual cope with or respond to active reciprocal roles, but which can be counter-productive (Ryle & Kerr, 2002). For example, an individual may continue to try to keep themselves safe from threat through a pattern of avoidance and hyper-vigilance which may ultimately maintain the underlying reciprocal role. Reciprocal roles also inform patterns of relating to oneself and so a reciprocal role of 'powerful/critical to powerless/inferior' might become internalized as self-critical inner dialogue or, in cases where this reciprocal role has become particularly disconnected from the Self, as an external critical voice (Perry, 2012). The MSSM suggests that psychosis may also relate to difficulties linked to personality integration, which could reflect problems in moving fluidly between reciprocal roles, or a limited repertoire of reciprocal roles, which in turn curtail adaptive responding to environmental demands. In such instances, CAT would aim to help a person expand the range of RRs available to them, as well as their flexibility in using them, with the overall aim of building a more coherent and integrated sense of self (Pollock *et al.*, 2001; Ryle, 1997).

Cognitive Analytic Therapy has many potential strengths as an intervention for psychosis (Taylor, Perry, Hutton, Seddon, & Tan, 2015). Its emphasis on early experience as a key factor in the development of psychosis is consistent with research on interpersonal trauma and psychosis (Varese *et al.*, 2012). The CAT model is also consistent with research findings that psychotic experiences such as auditory hallucinations have an inherently interpersonal quality, and may mirror other relationships in an individual's life (Birchwood, Meaden, Trower, Gilbert, & Plaistow, 2000; Chin, Hayward, & Drinnan, 2009). CAT also provides a framework for understanding why a disintegration or loss of self is common in psychosis (Moe & Docherty, 2014; Stanghellini & Lysaker, 2007).

Within CAT, the therapist adopts a proactive and collaborative stance, working with the client to identify and map out the unhelpful relational patterns that underlie their difficulties (Kerr, 2005; Ryle & Kerr, 2002). This process of 'reformulation' typically makes use of written letters and diagrams to help capture a client's experiences and develop a shared narrative. A CAT therapist would then work towards building the client's recognition of these patterns, drawing on instances from the client's day-to-day life but also from the therapy relationship itself. This work then leads to the identification of alternative ways of acting and relating that may be more adaptive, called *exits*. Whilst CAT bears similarities to CBT (use of homework, collaborative stance of the therapist, use of diagrams), it has many distinct features. These include a greater focus on relational patterns (rather than beliefs or schema) as a key means of understanding client's difficulties, including the relationship with the therapist. This aspect is based on the assumption that patterns of relating that occur outside of therapy will also emerge within therapy. As there is evidence that psychological treatments for early psychosis can be beneficial or harmful, depending on the therapeutic alliance (Goldsmith, Lewis, Dunn, & Bentall, 2015) CAT could be a helpful approach in psychosis, as its central tenet is to attend to and work with the therapeutic alliance (Ryle & Kerr, 2002). For example, CAT encourages therapists to avoid colluding with unhelpful RRs (e.g., being overly directive and becoming part of a controlling to controlled RR).

Research has supported the efficacy of CAT for several difficulties, including personality disorder (Clarke, Thomas, & James, 2013), but investigations for psychosis have been few (Taylor, Perry, *et al.*, 2015). A pilot trial found that a multi-component

intervention, that included CAT, was feasible for individuals with comorbid early psychosis and developing personality disorder (Gleeson *et al.*, 2012). Another case series of four participants with psychosis further supported the feasibility of this approach but lacked systematic outcomes (Kerr, 2001). A feasibility trial of CAT for those with bipolar disorder has also recently been completed, demonstrating good session attendance rate and initial indication of efficacy with regards to psychological distress (Evans, Kellett, Heyland, Hall, & Majid, 2017). However, it is unclear whether these findings can be reliably extended to non-affective psychosis. Based on guidelines concerning complex interventions, the aim of this study was to use a case series design to determine feasibility of delivering and evaluating the therapy, and gather preliminary data on the safety, acceptability, and potential benefits of this approach (Craig *et al.*, 2008). A mixed-methods approach combining quantitative and qualitative methods was used to ensure we obtained a rich and detailed understanding of the experience of receiving CAT for psychosis.

Method

Pre-registration

A protocol for this case series was pre-registered in 2015 on the Open Science Framework (https://osf.io/dhptu/). Changes from protocol are listed in the Supporting Information (Appendix S1). This is an important step in preventing selective reporting bias.

Participants

Participants were recruited through secondary care NHS mental health services in England and Scotland, including Early Intervention for Psychosis Services and Community Mental Health Services. Potential participants were initially identified via clinicians at these services. People were eligible to participate if they were deemed capable of providing informed consent, help-seeking, aged 18 years or older, in contact with mental health services and either meeting ICD-10 criteria for schizophrenia-spectrum disorder (e.g., schizophrenia, schizo-affective disorder, delusional disorder), or meeting criteria for support from an Early Intervention Service, operationalized as a Positive And Negative Symptom Scale (PANSS; Kay, Fiszbein, & Opler, 1987) score ≥ 4 on hallucinations or delusions or ≥ 4 on conceptual disorganization, grandiosity, or suspiciousness (criteria adapted from Morrison *et al.*, 2012; PANSS could be at service intake or later). All participants had to have been offered CAT and agreed to engage with this therapy. People were unable to take part if they had an identified comorbid intellectual disability or autistic spectrum disorder, previous receipt of CAT (prior experience of other psychological therapies was allowed) and had received inpatient psychiatric care for psychosis within the past month. Ethical approval was obtained for the project (15/NW/0130).

Primary outcome measures

Acceptability

The acceptability of the therapy was assessed in terms of attendance rates to therapy sessions. An *a priori* criterion of (1) 75% of participants reaching the fourth session of therapy (typically regarded as the end of the reformulation phase), and (2) 40% of the sample completing the full intervention (criteria adapted from Gleeson *et al.*, 2012).

Acceptability of the therapy was also determined via qualitative interviews conducted with participants upon therapy completion or withdrawal. A semi-structured interview schedule guided this interview and was developed jointly by a CAT therapist and a researcher with experiences of both CAT and psychosis (See Appendix S2). To understand the acceptability of CAT, the interview focused on the perceived challenges and benefits of therapy as well as unique aspects of the process, such as the use of diagrams or visual maps and letters.

Safety

Safety of the therapy was determined via the Adverse Experiences in Psychotherapy (AEP) self-report measure (Hutton, Byrne, & Morrison, 2017; unpublished), and routine monitoring for serious adverse events. The AEP is a 28-item self-report measure that asks respondents to rate their agreement (on a 5-point scale) with statements regarding a variety of potential adverse events from psychotherapy (e.g., 'Taking part has made me feel more anxious'). Following the approach adopted in the FOCUS trial (Pyle *et al.*, 2016), items rated >3 (corresponding to 'a little') were deemed problematic. Following the approach taken by Klingberg *et al.* (2010), serious adverse events were defined as including suicide, attempted suicide, suicidal crisis (i.e., having an explicit plan for serious self-injury), and serious symptomatic exacerbation (clinically significant increases in PANSS score). The eight item of the Calgary Depression Scale for Schizophrenia (Addington, Addington, & Maticka-Tyndale, 1993) was used to assess suicidal thinking and planning.

Secondary outcome measures

Psychotic symptoms

The PANSS was used to assess psychotic symptoms at baseline. This is a widely used structured interview that assesses a range of positive and negative psychotic symptoms alongside general psychopathology. The PANSS has good validity and reliability (Kay *et al.*, 1987). For the follow-up assessments, the brief version of the PANSS (Yamamoto, Inada, Shimodera, Morokuma, & Furukawa, 2010) was used to minimize participant burden. This brief PANSS only covers six subscales (delusions, suspiciousness, social withdrawal, unusual thought content, tension, and emotional withdrawal). Items are scored on a 1–7 scale, with higher scores indicating greater symptom severity. Change in the brief PANSS correlates very highly with change in the full PANSS ($r = .93$; Yamamoto *et al.*, 2010) indicating that using this brief version is associated with minimal information loss. All raters received training in using the PANSS.

Perceived recovery

Perceptions of recovery within both interpersonal and intrapersonal domains were assessed via the 15-item Questionnaire about the Process of Recovery – Version 2 (QPR; Law, Neil, Dunn, & Morrison, 2014). Items are scored on a 1–5 scale, with higher scores indicating greater recovery. This measure has been developed through collaboration with individuals with lived experience of psychosis. A single-factor structure, reliability, and convergent validity has been supported (Law *et al.*, 2014; Williams *et al.*, 2015).

Personality integration

The Personality Structure Questionnaire (PSQ; Pollock *et al.*, 2001) is a brief, eight-item tool, developed within the CAT model, which assesses problems in the integration of distinct states of mind. Improved integration is a hypothesized mechanism of change within CAT (Pollock *et al.*, 2001; Ryle & Fawkes, 2007). Items are scored on a 1–5 scale, with higher scores indicating greater disruption in personality integration. The factor structure, reliability, and validity of this measure has been supported (Bedford, Davies, & Tibbles, 2009; Pollock *et al.*, 2001). A cut-off score of >26 has been supported for the identification of psychological difficulties, based on an Italian translation of the measure (Berrios, Kellett, Fiorani, & Poggioli, 2016). This cut-off was adopted here due to the lack of other established cut-off scores for this measure.

Social and occupational functioning

The Social and Occupational Functioning Assessment Scale (SOFAS; Goldman, Skodol, & Lave, 1992) is a measure of social and occupational functioning that provides a score between 0 and 100, with higher scores indicating greater functioning. This measure is widely used in the context of psychosis, and improved scores are associated with symptom improvement (Cassidy, Norman, Manchanda, Schmitz, & Malla, 2010).

In-session measures

The 12-item Working Alliance Inventory – Short Revised (Hatcher & Gillaspy, 2006) and the nine-item Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001) were completed at every second therapy session, to provide an ongoing tracking of mood, distress, and therapeutic relationship. Both client and therapist versions of the Working Alliance Inventory-Short Revised (WAI-SR) were completed. The WAI-SR assesses client's perceptions of working alliance or therapeutic relationship. The factor structure and internal reliability of this measure has been supported (Hatcher & Gillaspy, 2006; Munder, Wilmers, Leonhart, Linster, & Barth, 2010). The PHQ9 provides a brief assessment of depressive symptoms. The factor structure and internal reliability of this measure has been supported and its convergent validity with other measures of depression demonstrated (Cameron, Crawford, Lawton, & Reid, 2008).

Additional measures

Socio-demographic (age, gender, ethnicity, education, employment, income) and medical/psychiatric (psychiatric history, suicide attempts, substance use, medication) information was recorded as baseline.

Therapy

Cognitive Analytic Therapy was undertaken as part of participants' usual care (see Appendix S3) within the services they were recruited from. As such, the therapy represents real-world CAT for psychosis. However, this meant there was less control over the timing and format of the therapy provided. There is currently no evidence-based guidance on the necessary length of CAT when working with psychosis, although a recent Delphi study emphasizes the need for flexibility (Taylor, Jones, Huntley, & Seddon, 2017). Consequently, therapists were free to contract for however many sessions they felt were

necessary based on their clinical judgement. Therapy adhered to the basic CAT model, involving: (1) an initial focus on reformulation, collaboratively identifying target problem procedures and underlying reciprocal roles that may account for the client's difficulties; (2) development of a narrative reformulation and Sequential Diagrammatic Reformulation (SDR); (3) focus on developing clients' recognition of underlying patterns and procedures that are related to their difficulties; (4) exploration of potential exits or means of revising problematic procedures; (5) a focus on dynamics within the therapeutic relationship, including the enactment of roles within the therapy relationship; (6) an early and ongoing focus on the ending of therapy.

All therapists were accredited CAT practitioners following the training framework set out by the Association for Cognitive Analytic Therapy (ACAT) and received at least fortnightly supervision from an accredited CAT supervisor. Therapist competence in delivering CAT was also assessed with the Competency of Cognitive Analytic Therapy measure (CCAT; Bennett & Parry, 2004). These ratings were completed by an independent, qualified CAT therapist with expertise in using the CCAT. The CCAT rates competence across 10 domains with a total achievable session score of 40 (higher scores indicate greater competence), with scores of 20 and over indicating competent delivery of CAT. For all participants who consented to their sessions being audio-recorded, 10% of sessions were selected at random for rating. Participants were given the option of taking part in the study but not having their sessions audiotaped.

Procedure

A diagrammatic representation of the procedure is displayed in Figure 1. Participants were invited to complete a series of measures in face-to-face meetings with a researcher at baseline (the start of therapy), 16, and 28 weeks after the start of therapy (PANSS, QPR, PSQ, SOFAS). The AEP was only completed at 16- and 28-week assessments as this measure involves reflecting on experiences of the therapy. The PHQ9 and WAI-SR (client and therapist versions) were completed every second therapy session prior to the start of the session. Completed copies of these questionnaires were placed in sealed envelopes and not seen by the other party (therapist or client). Within 3 weeks of therapy completion or withdrawal, a qualitative interview focusing on participants' experience of therapy was arranged. An attempt was made to undertake follow-up assessment with all participants whether they remained in therapy or not.

Analysis

Thematic analysis was conducted on the transcribed qualitative interviews (Braun & Clarke, 2006). All transcripts were repeatedly read line-by-line. Initial coding conducted separately by a CAT therapist (not delivering therapy in this case series) and a researcher with personal experience of CAT for psychosis. Initial codes (meanings, commonalities, and differences across interviews) and potential themes were proposed and then discussed with the research team. Higher order themes and subthemes were proposed, developed, and agreed upon by consensus.

The mean change in secondary outcomes was estimated alongside 95% confidence intervals. Such simple effect sizes can be preferable to standardized effect size metrics (Baguley, 2009). Rates of reliable change were determined via two approaches, the Reliable Change Index (RCI) (Jacobsen & Truax, 1991), as this is widely used, and also the Standardized Individual Difference (SID), as the latter approach has been found to perform
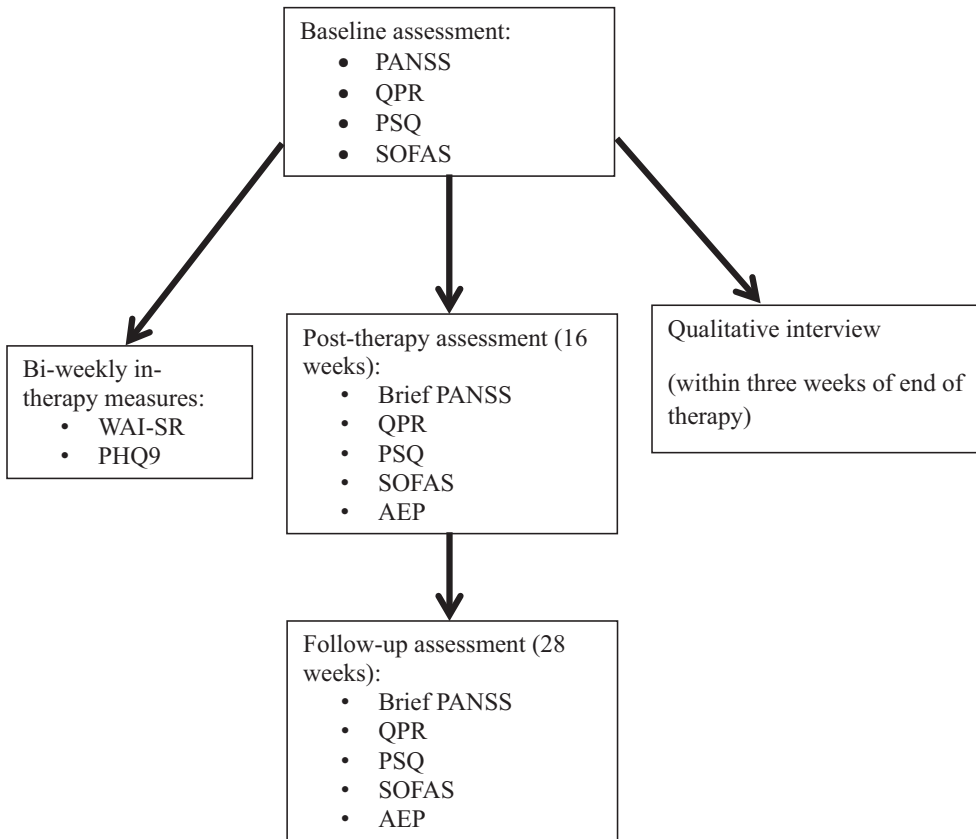
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┌──────────────────────────────┐
│ Baseline assessment:         │
│      •  PANSS                │
│      •  QPR                  │
│      •  PSQ                  │
│      •  SOFAS                │
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┌─────────────────────┐   ┌──────────────────────────┐   ┌──────────────────────────┐
│ Bi-weekly in-       │   │ Post-therapy assessment  │   │ Qualitative interview    │
│ therapy measures:   │   │ (16 weeks):              │   │                          │
│    •  WAI-SR        │   │    •  Brief PANSS        │   │ (within three weeks of   │
│    •  PHQ9          │   │    •  QPR                │   │ end of therapy)          │
│                     │   │    •  PSQ                │   │                          │
│                     │   │    •  SOFAS              │   │                          │
│                     │   │    •  AEP                │   │                          │
└─────────────────────┘   └──────────────────────────┘   └──────────────────────────┘
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┌──────────────────────────┐
│ Follow-up assessment (28 │
│ weeks):                  │
│    •  Brief PANSS        │
│    •  QPR                │
│    •  PSQ                │
│    •  SOFAS              │
│    •  AEP                │
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Figure 1. Overview of proposed assessments for case. AEP = Adverse Experiences in Psychotherapy Scale; PANSS = Positive and Negative Symptom Scale; PHQ-9 = Patient Health Questionnaire; PSQ = Personality Structure Questionnaire; QPR = Questionnaire about the Process of Recovery; SOFAS = Social and Occupational Functioning Assessment Scale; WAI-SR = Working Alliance Inventory Short-Form.

better than others in terms of false positives (Ferrer & Pardo, 2014). Reliable change was judged to be clinically significant when moved from the clinical range to the non-clinical range. The clinical range was operationalized as two standard deviations below the mean for a clinical population (These descriptive statistics were derived from past research; González-Blanch *et al.*, 2015; Moncrieff *et al.*, 2016; Williams *et al.*, 2015). This criterion is quite conservative, because of the wide variance in these clinical ranges, but was taken because of a lack of data regarding a comparable non-clinical range. An exception was the PSQ where the cut-off score of >26 was used (Berrios *et al.*, 2016).

Results

Sample characteristics

Eight help-seeking individuals with non-affective psychosis were initially recruited. A further individual expressed an interest but later declined taking part. Of the initial eight participants, one later decided they did not wish to receive CAT and withdrew their

consent to participate. The final sample therefore consisted of seven participants (*M* age = 26.71 years, *SD* = 6.40, range = 19–34 years; 3 female). All seven reported comorbid problems with depression or anxiety, five reported past substance abuse, two reported past legal high use, and five reported prior suicide attempts with one reporting an attempt in the past year. SOFAS scores suggested that social and occupational functioning was still at a moderate to high level at baseline, *M* = 67.29; *SD* = 14.13. Scores ranged from moderate difficulties in social, occupational, and academic functioning (52/100) to little or no difficulty (90/100). The total PANSS score at the start of therapy is suggestive of a sample of individuals that are 'mildly ill' (Leucht *et al.*, 2005). The seven participants were seen by one of four therapists.

Attendance rates and adherence

Overall six (86%) attended at least four sessions of therapy and four (57%) went on to complete therapy. Of the three non-completers, one participant dropped out early due to moving home, but later re-engaged with therapy. The average number of attended sessions for those completing therapy was *M* = 22.5 (*SD* = 5.51; range = 16–28), whilst for the full sample, it was *M* = 14.86 (*SD* = 10.37; range = 3–28; See Table 1). The three non-completers also did not complete the 16- or 28-week assessment (*n* = 1 moved away; *n* = 1 lost to contact with service; *n* = 1 uncontactable; See Table 1). Four participants completed the goodbye letter component of therapy.

In total five sessions, across three clients were independently rated with the CCAT. These numbers are small as many participants did not wish their sessions to be audio-recorded (*n* = 3) and technical problems prevented the rating of sessions from a further client who did consent. CCAT ratings indicated that across the five rated sessions CAT was being competently delivered (total session score *M* = 29; *SD* = 8.54; range = 20–40).

Safety

No adverse events were identified during the study, including hospitalization or any active planning of a suicide attempt or suicidal behaviour. Self-reported adverse experiences were minimally endorsed, with the average item scores (range = 1.00–3.00) falling below three (anchored at 'a little' for how prominent the adverse experience had been) for all but one item ('I felt embarrassed talking about my problems with people I had not met before'). Individual scores above 3 were only apparent in two cases ('Taking part hasn't helped me with my problems'; 'I felt embarrassed talking about my problems with people I had not met before'). Average scores are reported in Appendix S4. In summary, no adverse experience was highly endorsed by any participant at either the 16- or 28-week time-points.

Secondary outcomes

Descriptive statistics concerning average scores on the secondary outcome measures at each time-point, including the full and brief PANSS, QPR, and PSQ, are presented in Table 2, along with estimated effect sizes (mean change). In two instances, it was not possible to arrange a baseline prior to the start of therapy without delaying the therapy. Consequently, in these two instances, the baseline assessment took place after the initial therapy session, but prior to the second. Only one of these two clients then provided follow-up data. Amongst those with available follow-up data, there was a trend towards an

Table 1. Summary of participant demographic, clinical, and attendance information

Participant ID	Age	Gender	Ethnicity	Employment status	Education	Self-reported medication	Previous suicide attempt	No. of sessions attended/ initially contracted	Completed therapy	Completed 16-week assessment	Completed 28-week assessment
Participant 1[a]	28	Female	White British	Unemployed	GNVQ/BTEC	Aripiprazole	Y	20/24	Y	Y	Y
Participant 2[a]	19	Male	White British	Unemployed	GCSE	Aripiprazole	Y	4/16	N[b]	N	N
Participant 3[a]	34	Female	White British	On sick leave Part-time	GNVQ/BTEC	Aripiprazole	N	28/30	Y	Y	Y
Participant 4	20	Male	White British	Full-time	A-level	Fluoxetine	Y	7/16	N	N	N
Participant 5[a]	30	Male	Black Caribbean	Full-time	Degree	Lithium	Y	26/24+ FU	Y	Y	Y
Participant 6	34	Female	White other	Part-time	None	Venlafaxine	Y	16/16	Y	Y	N
Participant 7	22	Male	Mixed	Student	A-level	None	N	2/5	N	N	N

Notes. Education = highest level attained; FU = follow-up sessions; N = No; Y = Yes.
[a]Took part in interview at end of CAT therapy.
[b]Therapy ended prematurely due to unrelated move, later re-engaged in therapy.

Table 2. Descriptive statistics and mean change for secondary outcome measures at baseline ($n = 6$–7), 16 weeks ($n = 4$), and 28 weeks ($n = 3$)

Variable	Baseline		16 Weeks		28 Weeks		Mean change (95% CI)[a]	
	M	*SD*	*M*	*SD*	*M*	*SD*	Baseline–16 weeks	Baseline–28 weeks
PANSS total	66.14	16.88	–	–	–	–	–	–
PANSS positive	16.86	5.40	–	–	–	–	–	–
PANSS negative	13.14	3.81	–	–	–	–	–	–
PANSS general	36.14	8.78	–	–	–	–	–	–
Brief PANSS	16.57	6.02	12.75	4.57	14.33	6.43	−1.75 (−5.38, 1.78)	2.67 (−8.54, 13.87)
PSQ	26.84	5.44	26.00	3.56	23.00	10.00	−4.71 (−12.94, 3.51)	−7.67 (−22.64, 7.31)
SOFAS	67.29	14.13	71.25	14.36	67.33	14.19	1.00 (−9.56, 11.56)	−6.33 (−15.06, 2.39)
QPR	53.50	10.73	57.00	4.97	57.00	13.12	7.25 (−3.65, 18.15)	6.00 (−4.83, 16.83)

Notes. CI = Confidence Intervals; CI based on the *t*-distribution; PANSS = Positive and Negative Symptom Scale; PSQ = Personality Structure Questionnaire; QPR = Questionnaire about the Process of Recovery; SOFAS = Social and Occupational Functioning Assessment Scale.
[a]Mean change is based on those with available follow-up data only.

improvement in personality integration (PSQ) and perceived recovery (QPR) but no clear pattern to changes in psychotic symptoms (brief PANSS). A decline in functioning (SOFAS) from baseline to 28 weeks was observed. The small number of participants providing data ($N = 3$–4) means these group-level trends should be viewed with caution.

Rates of reliable change are reported in Table 3. Rates calculated via the RCI and SID differed, with the SID generally being a more conservative indicator. Only one participant demonstrated a reliable deterioration for any of the secondary outcome measures, on the SOFAS. This individual had a particularly high baseline score of 90/100 and at 28 weeks retained a high score of 80/100. Reliable improvement was most common for perceived recovery (QPR), especially as determined via RCI, but was not maintained at 28 weeks. One participant demonstrated an improvement in brief PANSS at 16 weeks, but this was not maintained at 28 weeks. Two participants demonstrated reliable and clinically significant improvements in personality integration, one at 16 weeks (not maintained) and one at 28 weeks.

Figures S1 and S2 (see Appendix S5) present the session-by-session rating data for therapeutic alliance and depressive symptoms, available for six participants (a seventh provided no ratings).

Qualitative interviews
Four participants completed qualitative interviews. A summary of qualitative themes derived from these interviews is presented in Table 4. The first theme of *Gaining Insight into Experience of Psychosis* encompasses closely related but distinct subthemes of 'Understanding Psychosis' and 'Sense Making'. 'Understanding Psychosis' describes how CAT provided insight into what triggers psychosis, how paranoia relates to past

Table 3. Rates of reliable change in secondary outcome measures at 16 weeks ($n = 4$) and 28 weeks ($n = 3$)

Variable	RCI		SID	
	Baseline–16 weeks	Baseline–28 weeks	Baseline–16 weeks	Baseline–28 weeks
Brief PANSS				
Improvement	0	0	1	0
Deterioration	0	0	0	0
PSQ				
Improvement	1	1	1	1
Deterioration	0	0	0	0
SOFAS[a]				
Improvement	–	–	0	0
Deterioration	–	–	0	1
QPR				
Improvement	3	0	1	1
Deterioration	0	0	0	0

Notes. PANSS = Positive and Negative Symptom Scale; PSQ = Personality Structure Questionnaire; QPR = Questionnaire about the Process of Recovery; RCI = Reliable Change Index; SID = Standardized Individual Difference; SOFAS = Social and Occupational Functioning Assessment Scale.
[a]As a single-item measure, no estimate of internal reliability exists for the SOFAS and so the RCI could not be calculated.

experiences ('maybe it was just, a coping mechanism of some kind', Participant 2), and how psychosis relates more broadly to thoughts and emotions. Participant 3 notes how 'when I talked to her [therapist] it helped me understand, except like other people, I'd just feel like I was talking riddles to them'. 'Sense Making' includes how seeing the relationship between thoughts, beliefs, emotions, and actions came as a 'kind of a good shock' (Participant 5) that allowed them to 'put all the pieces together'. For Participant 1, it was helpful to see that the voices she heard were directly related to her childhood fear of homelessness and prostitution.

Insights were made possible through what is described in the theme of 'Building a Therapeutic Relationship'. This theme captures the active role of both participants and therapists. The subtheme 'Being heard without Judgment' describes how participants valued how they were listened to. The way in which Participant 5 was listened to created 'a safe place to talk without being judged about stuff that I wouldn't necessarily talk about otherwise'. For Participant 2, there was value in being able to say what was inside and 'let my thoughts loose a bit'. 'The building of trust' in the relationship involved participants letting their guard down and overcoming feelings of embarrassment. Sharing history was described as tough but helpful ('he would bring it back and like make me understand why all these things are going on in my head', Participant 5). For Participant 2, there was 'some stuff' that they could not talk about despite feeling that it would have been 'helpful to the therapy'. The trust built allowed therapist and clients to explore 'The possibility of different perspectives' on problems. Not all new perspectives were accepted and some were negotiated with humour such as not being microchipped, but they were seen as useful if not reflecting their truth.

'The usefulness of CAT tools' brings together examples of how different tools (e.g., maps or diagrams and letters) can be 'Validating tangible objects' (an object that can be

Table 4. Summary of theme and subthemes emerging form qualitative interview

Theme	Subtheme	Illustrative quotes
Insight into experiences	Understanding Psychosis	'It helped me understand like the psychosis and that a bit more, understand my mind . . . because I didn't have a clue what was going on . . . Or why' (Participant 3)
	Sense making	'I used to be like afraid of homelessness and prostitution and that [. . .] so [. . .] we said that is all that combined which is why I get the voices' (Participant 1)
		'it was kind of a balance between what's happening in the past week or now and if that's relevant with the past' (Participant 5)
Building a therapeutic relationship	Being heard without judgement	'I could just speak my mind' (Participant 3)
		'It made sense, it was good to have someone not family, not friends, that was neutral, impartial, didn't judge' (Participant 5)
		'it was good just to be able to talk to someone and, and let my thoughts loose a bit' (Participant 2)
	The building of trust	'initially it was tough to let my guard down, but then I found it was useful to get insight into myself' (Participant 5)
	The possibility of different perspectives	'a different perspective of how to deal with past problems'(Participant 5)
The usefulness of CAT tools	Validating tangible objects	'it was nice to have the summary in paper rather than just being told it' (Participant 2)
		'Yeah, then other times I had, I'd read through it just so I'd know how much progress I'd made since then' (Participant 3)
		'It helped me coz it was like when I come home and I sat down I'd read through it and then all of a sudden it would just click, sometimes I'd be able to do it dead easy, like what was in my mind' (Participant 3)
	Evidence of being listened to	'not closure but a marked state of your progress that someone else has recognized . . . I've done a bit better' (Participant 5)
Making positive changes	Empowered to talk	'I think I'd probably be more inclined to talk to others like, a bit more empowered to talk to them about it maybe' (Participant 5)
	A better relationship with self and others	'Yeah, erm, I mean before I started I was, I was alone, erm, whereas I'm more, more confident socially, maintain social circles a lot better' (Participant 2)
	Control and confidence	'I wanted to voices to stop completely [. . .] but I don't think that's possible [. . .] talking about something [. . .] and understanding aspects of why it is happening then I can start to feel better [. . .] more in control [. . .] and to get more confident [. . .] and to address the problem' (Participant 1)

held that evidences the therapeutic work undertaken) and provided 'Evidence of Being Listened to'. Participants all described being involved in the development of the map (or SDR). Participant 5's map was still used and pinned up on the living room wall, the map 'took a while' and developing the maps collaboratively showed patterns that 'beforehand I wouldn't have thought [it] would've been laid out in that same way'. Reading a letter describing what had been discussed in therapy was powerful and allowed Participant 5 to see that what they had experienced 'was not right' in a way that validated their experience. The second subtheme of 'Evidence of being listened to' describes the value of seeing the work of therapy written down. For example, it was 'very helpful' to 'have the summary on paper rather than just being told' (Participant 2). The ability to re-read what was talked about in the sessions also helped Participant 2 to 'keep on top of whatever negativity' they were dealing with at the time. Receiving a letter was emotional and personal. For example, one letter from the therapist said 'I was a nice person' (Participant 1) and was re-read because it 'gives you that push on and stuff [. . .] and not feel depressed or whatever' (Participant 1).

The fourth theme, 'Making positive changes', focuses on the changes participants associated with CAT. Each of the subthemes of 'Being Empowered to Talk', 'Better Relationships with Self and Others', and 'Control and Confidence', were closely related for Participant 5 ('I've learnt to talk to other people more but more admit to myself that something's not right instead of just pushing it down'), whereas, for Participant 1, the changes were supported re-reading their map to help ('make you think of things that might be going on inside of your head [. . .] recognise how I was feeling'). Overall Participant 1 described having greater control and confidence when hearing voices (PT1). Participant 3, despite being more anxious now, said they were 'a bit better' and that CAT helped them to understand the psychosis and their 'mind'.

Discussion

Cognitive Analytic Therapy holds promise as a psychological intervention for psychosis (Taylor *et al.*, 2017; Taylor, Perry, *et al.*, 2015) but so far research evaluating this approach for individuals struggling with psychosis is very limited. This case series aimed to examine the acceptability and safety of CAT for psychosis. Attendance rates met our pre-specified targets for determining acceptability and were comparable against CAT-informed (e.g., Evans *et al.*, 2017; Gleeson *et al.*, 2012) and other interventions within similar contexts (Samson & Mallindine, 2014). These data indicated that the majority of individuals struggling with psychosis may be able to engage with CAT and at least reach the end of the important reformulation phase of therapy ($n = 6/7$), with a smaller majority ($n = 4/7$) completing a full course of therapy. A notable proportion of the sample did not complete CAT though (one due to an unrelated move), and so further investigation of what determines whether individuals stay in CAT for psychosis would be helpful. No serious adverse events were noted and adverse experiences were minimal, supporting the safety of this approach. The qualitative interviews supported the acceptability of CAT, with participants perceiving the therapy to be overall helpful.

The themes identified from the qualitative interviews are offered cautiously as they only reflect the experiences of four participants. However, they illustrate positive changes including reduced social isolation and that using CAT tools such as maps and letters increased capacity to talk with friends and family about their experiences of psychosis. The developed insight into what had happened and having tangible objects that continue

to be read allowed those interviewed to continue the work of therapy. The themes reflecting the emergence of a good therapeutic alliance are reflected in the quantitative data as the therapeutic alliance remained good for most participants over the course of therapy (See Appendix S4).

Caution is needed in interpreting change secondary outcomes due to the small numbers and lack of a control group. There was little evidence of change in psychotic symptoms. However, trends of improvement in terms of perceived recovery and personality integration were more apparent. It may have been that as psychotic symptoms were only mildly present at baseline these had not become the main focus of therapy, but it may also be that CAT is better suited to more holistic outcomes like recovery or personality integration. These results mirror the qualitative themes, where positive changes regarding relationships or confidence rather than specific psychotic symptoms. Personality integration represents a putative mechanism of change for CAT (Pollock *et al.*, 2001; Ryle & Fawkes, 2007). Qualitative data further suggested that the insight into symptoms and experiences that might be achieved through CAT could be another benefit of the therapy.

A deterioration was apparent for occupational and social functioning for those providing follow-up data (reliable deterioration apparent for one individual). Ultimately, these data do not present a clear picture with regard to the value of CAT in improving difficulties for individuals struggling with psychosis. They do indicate that perceived recovery and personality integration may be important outcomes for any future efficacy trials. The data also suggest that further attention to the effect of CAT upon functioning is warranted.

Several limitations of this study require note. The sample size was similar to other case series (e.g., Kerr, 2001; Morrison, 2001; Searson, Mansell, Lowens, & Tai, 2012) and consistent with the aims of the study, which was not statistical inference, but providing preliminary information regarding acceptability and safety. However, the sample size does limit generalizability, and it may be that with a larger sample, issues such as rare adverse events, arise, which were not picked up with this study. The sample experienced only mild psychotic symptoms at baseline and had generally good levels of functioning, although clinical complexity in terms of comorbid difficulties around mood, substance use, and suicidal behaviour history were common. As such, the acceptability of CAT with individuals with more marked difficulties is not known. It is unclear why symptoms were at this level, but it may reflect the judgements made within services regarding who would be most suitable for CAT. It is possible that CAT tends to be offered to clients whose psychotic symptoms are less prominent, but who are struggling with wider difficulties relating to mood, relationships, and well-being. Our judgement regarding acceptability was based in part on thresholds for attendance adapted from prior research. However, alternative, more conservative thresholds could be adopted and this would affect the conclusion being drawn. Drop out from the study meant there was a loss of data for a number of outcomes (e.g., adverse experiences, secondary outcomes). Lastly, whilst all therapists adopted a CAT approach, a uniform or standardized therapy model was not implemented, and thus, therapy varied from client to client.

Whilst the qualitative data include reflections on the value of specific CAT tools, many themes also refer to broader or common aspects of therapy, such as feeling heard or understood and being in a positive relationship with the therapist. It may therefore be that many of the benefits experienced by participants reflect common or non-specific factors rather than specific, technical aspects of CAT. However, it should be noted that separating out the non-specific and technical aspects of therapy may not be possible (Norcross &

Lambert, 2011) and that specific elements of CAT may still help support the broader benefits reported by clients (e.g., feeling understood). More detailed analysis of the process of change in CAT for psychosis would be valuable in exploring this issue further.

This case series is an early step in determining the feasibility of CAT for psychosis. Overall the results indicate that it is feasible to evaluate CAT for psychosis in a research context and that the therapy appears acceptable and safe to participants. Secondary findings present a complex picture, and interpretation is limited by the research design. A pilot randomized controlled trial (RCT) would help to establish the feasibility of applying an RCT methodology to this therapy. However, prior to this it would be beneficial to standardize the length of CAT for psychosis. Based on the typical treatment length within this case series and the results from Taylor *et al.* (2017), a standard length of 24 sessions appears appropriate. Careful monitoring of functioning is required in future trials in the light of the inconsistent results concerning this outcome in the present study. More extensive audio recording of sessions to ensure quality of the therapy would also be important. This was largely limited in the present study by participant choice. This might have been improved by not allowing participants to opt-out of this aspect of the study, although this may have adversely affected recruitment. Greater engagement and discussion with potential participants about the reasons for audio recording sessions may also help in future studies. An implementation study using a mixed-methods design examining the factors determining the use and usefulness of CAT for psychosis would also be valuable in further modifying CAT for psychosis to enhance acceptability and benefit to clients.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Departures from protocol.
Appendix S2. Interview schedule.
Appendix S3. Statement on usual care.
Appendix S4. Item-by-item descriptive statistics for the Adverse Experiences in Psychotherapy (AEP) Scale at 16 weeks and 7 months follow-up.
Appendix S5. Session-by-session rating data for therapeutic alliance and depressive symptoms.