Brief Coping Strategy Enhancement for distressing voices: an evaluation in routine clinical practice

<table>
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<th>Journal:</th>
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Abstract

Background – hearing voices can be a common and distressing experience. Psychological treatment in the form of Cognitive Behaviour Therapy for Psychosis (CBTp) is effective, but is rarely available to patients. The barriers to increasing access include a lack of time for clinicians to deliver therapy. Emerging evidence is suggesting that CBTp delivered in brief forms can be effective and offer one solution to increasing access.

Aims – we adapted an existing form of CBTp, Coping Strategy Enhancement (CSE), to focus specifically on distressing voices in a brief format. This intervention was evaluated within an uncontrolled study conducted in routine clinical practice.

Methods - This was a service evaluation comparing pre-post outcomes in patients who had completed CSE over four sessions within a specialist outpatient service within NHS Mental Health Services. The primary outcome was the Distress scale of the Psychotic Symptoms Rating Scale – Auditory Hallucinations (PSYRATS-AH).

Results – data were available from 101 patients who had completed therapy. A reduction approaching clinical importance was found on the PSYRATS distress scale post-therapy when compared to the baseline.

Conclusions – the findings from this study suggest that CSE, as a focussed and brief form of CBTp can be effective in the treatment of distressing voices within routine clinical practice. Within the context of the limitations of this study, brief CSE may best be viewed as the beginning of a therapeutic conversation and a low-intensity intervention in a stepped approach to the treatment of distressing voices.
Introduction

The experience of hearing voices is reported by 70% of patients with a diagnosis of Schizophrenia Spectrum Disorder (Thomas et al., 2007) and is also common in other psychiatric diagnoses, e.g. Borderline Personality Disorder (Sommer et al., 2012). This experience can have a devastating effect on patients’ lives due to high levels of distress (Birchwood & Chadwick, 1997), depression (Birchwood et al., 2004) and an increased risk of suicide (Kjelby et al., 2015).

Cognitive Behaviour Therapy for Psychosis (CBTp) for the treatment of the ‘positive symptoms’ of schizophrenia, including distressing voices is recommended in international best practice guidelines (Kreyenbuhk et al., 2010; National Collaborating Centre for Mental Health, 2014). CBTp has beneficial effects on voices with a small-medium effect size (Hedges $g=0.44$) (Van der Gaag, Valmaggia, & Smit, 2014). However, there are severe implementation challenges (van der Gaag, 2014) and access in the National Health Service in the UK is extremely limited with only 10% of patients who could benefit getting access to the therapy (Schizophrenia Commission, 2012). The barriers to increasing access include a lack of time for clinicians to deliver therapy (Haddock et al., 2014). Coping Strategy Enhancement (CSE, Tarrier, 1992) is a form of CBTp that has the potential to increase access due to its brevity. Furthermore, as a practical therapy focused upon behaviour change it may be deliverable by a wide range of clinicians including those with limited therapy experience.

The majority of hearers report one or more strategies used to ‘cope’ with voices (Farhall, Greenwood, & Jackson, 2007), suggesting most take actions of their own volition to cope with voices they appraise as a threat or challenge. Descriptively, these coping actions can be grouped (Tsai & Chen, 2006) into domains of: Doing something (Behavioural), e.g. such as a chore; Thinking differently (Cognitive), e.g. telling myself not to worry; and, Changing
sensations (Physiological), e.g. having a shower. Most strategies are not specific to one's culture, although there are some reported cross-cultural differences in emphasis (Loue & Sajatovic, 2008).

Given the range of possible strategies for coping with voices, the hearer's view of what works for them is a key perspective that may facilitate therapeutic engagement. This was the rationale of Tarrier and colleagues when they developed CSE. This approach was premised upon a functional analytic model in which triggers and reactions to psychotic experiences would influence the probability of their re-occurrence. The assumption was that patients had an existing repertoire of helpful coping strategies (i.e. strategies that targeted triggers and reactions), however the effectiveness of them was limited by their inconsistent and non-strategic application.

CSE was developed as a 10-session therapy for the broad range of psychotic symptoms and participants reported reductions in symptom severity within case studies (e.g. Tarrier, Harwood, Yusopoff, Beckett & Baker, 1990). Findings from a Randomised Controlled Trial (RCT) also showed improvements on measures of the number and severity of psychotic symptoms, but a more detailed analysis of separate symptoms suggested that this improvement was more evident for delusions than for voices (Tarrier et al, 1993). The authors suggest that this differential symptom response may have been attributable to issues of measurement, and they reported no evidence that voices responded less well when CSE was included as part of an integrated CBT package in a subsequent RCT (Tarrier et al, 2001). CSE has not subsequently been robustly evaluated as a stand-alone intervention for psychotic symptoms, leaving these issues unexplored. In the light of recent evidence suggesting that the effects of CBTp can be enhanced when focused upon a single symptom (Mehl, Werner & Lincoln, 2015), what might be the effects of CSE targeted exclusively upon voices?
We adapted CSE into a brief (4 session) intervention targeted specifically at distressing voices that could be delivered by a range of mental health practitioners as part of routine clinical practice. Voice-related distress was chosen as the primary outcome as it is the focus of the cognitive model of voices (Chadwick, Birchwood & Trower, 1996), is recommended as a therapeutic target by NICE (National Collaborating Centre for Mental Health, 2014), and is important to patients (Greenwood et al, 2010; Meddings & Perkins, 2002). This was an initial uncontrolled evaluation investigating the hypothesis that brief CSE would lead to a post-treatment reduction in voice-related distress.

**Method**

**Study design**

This was a service evaluation comparing pre-post outcomes in patients who had completed all four CSE sessions. Routine clinical data was collected at the baseline assessment (pre-CSE) and at the post-CSE assessment by Research Assistants not involved in therapy delivery. As this was a service evaluation analysing data from routine clinical practice, no ethics approval was required (Department of Health, 2005).

Patients were receiving a secondary care service within a single NHS Mental Health Trust in Sussex, UK. They were referred to the Voices Clinic, a specialist outpatient service for people distressed by hearing voices, irrespective of diagnosis. Eligibility criteria for the Voices Clinic required that patients scored at least 4 on the P3 item (‘hallucinatory behaviour - hallucinations occur frequently but not continuously, and the patient's thinking and behaviour are affected only to a minor extent’) of the Positive & Negative Symptom Scale (PANSS; Kay, Fiszbein & Opler, 1987) and at least 3 on one of the distress items (‘intensity of distress’ and ‘amount of distress’) of the Psychotic Symptoms Rating Scale – Auditory Hallucinations Scale (PSYRATS – AH; Haddock et al, 1999). Diagnosis was not an inclusion criterion. Between May 2014 and February 2017, 158
patients were offered CSE therapy and at the time of this report: 3 (2%) were waiting for therapy to begin, 5 (3%) were currently receiving therapy and 37 (23%) had dropped out. A total of 113 (72%) patients completed therapy, of whom 101 (64%) had also completed the post-therapy assessment.

**Intervention**

The CSE treatment consisted of a maximum of four hours (of up to one hour, offered approximately weekly) of individual therapy, guided by a therapy protocol and patient workbook (copies available from the first author on request).

**Session 1:**

A semi-structured interview (adapted from the Antecedent & Coping Interview, Tarrier et al, 1990) was used to identify the antecedents to voice activity, and the patient’s emotional and behavioural responses to the voices. This stimulated a process of identifying coping strategies and evaluating their effectiveness.

**Session 2:**

An existing coping strategy was collaboratively selected and considered in detail. Discussions focussed upon how the strategy could be modified and used differently (more or less often). A plan was agreed to implement the strategy between sessions.

**Session 3:**

Implementation of the modified coping strategy was reviewed. Discussions focussed upon the enablers and barriers to implementation, and the effectiveness of the strategy. This strategy could be further modified to enhance effectiveness, or another strategy could be selected and modified. A plan was agreed to implement the strategy between sessions.

**Session 4:**
Implementation of the modified coping strategy was reviewed, and any required modifications were agreed. Plans were discussed for continued implementation post-therapy. Discussions explored any learning from therapy in relation to both self and voices, and the implications of this learning for living well with voices. Any needs for further therapy were discussed.

Therapy was provided by clinicians with varying experience of delivering therapy to people distressed by hearing voices. There were 26 therapists in total: 34 (34%) patients were seen by a clinical psychologist; 36 (36%) by a clinical/counselling psychology trainee; 28 (28%) by a mental health nurse or occupational therapist; and 3 (3%) by a CBT therapist. Therapists were taught to deliver CSE during a 90-minute training session facilitated the by the first author who also provided monthly supervision.

All patients were receiving treatment-as-usual from their mental health teams during the course of the study. Treatment-as-usual consisted of regular outpatient appointments with a consultant psychiatrist, psychotropic medication and regular contact with clinical care team members.

Assessment and measures

Patients were assessed by a Research Assistant not involved in delivering therapy (in order to reduce risk of bias) at two time points: 1) Baseline - within four weeks before starting CSE; and 2) Post-therapy - within four weeks of finishing CSE. Baseline assessments included the collection of demographic information. Diagnostic information was verified by the treating psychiatrist. The study used the following clinical outcomes:

**Primary clinical outcome**

Psychotic Symptoms Rating Scale – Auditory Hallucinations (PSYRATS-AH) - an 11-item rating scale designed to measure the severity of different dimensions of voice hearing. Each item is rated 0-4, with higher scores indicating more difficulty. The four factor version of the
scale groups the items together as: distress (negative content, distress, and control; subscore range 0-20), frequency (frequency, duration, and disruption; subscore range 0-12), attribution (location and origin of voices; subscore range 0-8), and loudness (loudness item only; range 0-4) (Woodward et al., 2014). The 5-item distress scale was the primary outcome measure and is reported to be reliable (intraclass correlation coefficient = 0·93).

The minimally clinically important difference (MCID) can be used as a reference point to help establish whether or not any pre-post treatment change is meaningful or not. A reduction of 3 points on the PSYRATS distress scale can be used as a primary indicator of change for patients. When interpreting the 95% confidence intervals around the pre-post treatment effect size, we are interested in seeing to what extent the true effect could be smaller or larger than the MCID threshold as well as whether it is non zero.

Secondary clinical outcomes

PSYRATS – AH Frequency subscale (described above).

Choice of Outcome in CBT for Psychoses (CHOICE) – short-form – a 12-item form of the 34-item self-report questionnaire developed with patients to assess goals for CBT for psychosis that are relevant to subjective recovery (Greenwood et al., 2010). Eleven items are related to the therapy to create a severity score and 1 item is a free text item where respondents can insert their personal goal. All items are rated by patients on a 0-10 scale (0 = worst, 10 = best). The short version was developed specifically for the IAPT-SMI initiative (Jolley et al, 2015), based on the highest loading items from the 34-item measure. Inter-rater, internal, and test-retest reliability for the new measure are all good, as is criterion validity (Greenwood et al., 2012).

DASS-21 – a 21 item self-report questionnaire measuring depression (7 items), anxiety (7 items) and stress (7 items). Patients rate on a 0-3 scale how much a statement applies to them over the past week (0 = do not apply to me at all, 3 = applies to me very much/most of
DASS-21 has excellent internal consistency and concurrent validity (Antony, Bieling, Cox, Enns, & Swinson, 1998) and adequate construct validity (Henry & Crawford, 2005).

**Short Warwick Edinburgh Mental Well-being Scale (SWEMWS)** – a 7 item self-report questionnaire measuring mental well-being. Patients rate on a 1-5 scale how much a statement (e.g. I've been feeling useful) applied to them over the past two weeks (1 = none of the time, 5 = all of the time). SWEMWS has adequate reliability (Stewart-brown, 2008) and external construct validity (Bartram, Sinclair, & Baldwin, 2013).

**Statistical analysis**

Patient characteristics and clinical outcomes were summarised using descriptive statistics: count (n), percentage (%), mean (m), standard deviation (sd) and range. For each clinical outcome measure with <75% missing items, the assumption of Missing at Random (MAR) was applied and multiple imputation using chained equations (MICE) was used (Eekhout et al, 2013). The imputation model consisted of all pre and post items for the measure and patient characteristics (diagnosis, age, gender, employment status, marital status, ethnic group and education) were included as auxiliary variables. Items were treated as continuous variables. Ten imputations were used for each model. For each model, total pre and post scores were calculated and then compared using paired sample t-tests on n-1 degrees of freedom as the primary analysis where the pre-post difference (m_diff) is the unstandardised effect size. The standardized effect size was calculated as Cohen’s \( d = t_c [2(1-r)/n]^{1/2} \) where \( t_c \) is the test statistic for correlated observations and \( r \) is the pre vs post score correlation (Dunlap et al., 1996). As a secondary analysis, a complete case analysis was carried out using paired sample t-tests after first being satisfied that the distribution of m_diff met the Normal criteria (Altman, 1991). If this was violated, bootstrapping was used to estimate the bias corrected accelerated (BCa) 95% confidence intervals. Results from the complete analysis were then compared to the multiple imputation model results as a sensitivity
analysis. No attempts were made to correct for multiple testing because a primary outcome had been selected a priori and analyses of all other secondary outcomes were considered exploratory. All tests were significant at the 5% level. All analyses were carried out using STATA version 13.

Results

Data from a total of 101 patients who had attended 4 sessions of CSE and so received the full course of therapy were eligible for inclusion in this service evaluation. By individual outcome, the CHOICE goal rating had the highest level of missing paired data (n=37; 37%); this was due to the assessor not having the baseline goal information at the post-therapy assessment and the client not being able to recall their goal. Levels of missingness of pairs on the other total scores were as follows: SWEMWBS (n=21; 21%), CHOICE Severity (n=17; 17%), Distress (n=21; 21%), Stress (n=17; 17%), Anxiety (n=16; 16%), Depression (n=16; 16%) and Frequency (n=17; 17%). Across all 48 items and 101 patients, there were 4,848 data points of which 5.4% were missing at baseline and 16.3% missing at post treatment.

The demographic and clinical characteristics of the study sample can be found in Table 1. The sample was atypical as a significant majority (59%) of the patients had a non-psychotic disorder and the majority (52%) were female. With respect to other patient characteristics, the sample was similar to other studies of CBTp: mean age of 39 years ranging from 18 to 67 years; 69% unemployed; 60% single; and 97% currently prescribed psychotropic medication. With regard to ethnicity, 87% were White British or White Other which is representative of the geographical region.
Data was imputed for 33 (12.5%) and 52 (6.6%) missing item responses at baseline and post therapy, respectively. Our primary analysis demonstrated improvement on the PSYRATS distress scale post-therapy when compared to the baseline (see Table 2). The mean change post-therapy was -1.7 (95% CI -2.80, -0.65) points on the subscale with the MCID of -3 points sitting on the margin of the lower boundary of the 95% confidence interval. This was a small-medium effect size of d=0.39. The results also indicate promising levels of improvement on a number of the secondary outcomes with a large effect for CHOICE goal rating of 2.4 points (95% CI 1.62,3.22; d=0.74), and small effects sizes for CHOICE severity mean of 0.7 points (95% CI 0.36,0.94; d=0.34), depression of -1.3 (95% CI -2.24,-0.28; d=0.21), anxiety of -1.1 (95% CI -1.87,-0.42; d=0.22) and PSYRATS frequency of -0.8 points (95% CI -1.35,-0.23; d=0.31). These effects were all also statistically significant. The complete case analysis yielded very similar results to the primary analysis (see Table 2 for Cohen’s d, full results omitted). The two sets of results were compared as a sensitivity analysis and it was noted that: any differences were marginal, effect sizes and corresponding confidence intervals were of the same magnitude and all conclusions were consistent.

**TABLE 2 ABOUT HERE**

**Discussion**

This study aimed to evaluate the impact of a single-symptom and brief form of CBTp upon the distress related to hearing voices. Most patients completed the full course of therapy, suggesting that it was acceptable to them and engaging. Statistically significant changes were found for the primary outcome of voice-related distress, albeit with a small-medium effect size, and the lower 95% confidence interval was inline with the minimum clinically important difference. These changes were accompanied by small effect sizes for reductions in secondary measures of emotional distress (anxiety and depression) and voice frequency. Other benefits were noted on a measure of subjective recovery (small effect size), with the
greatest benefit reported in relation to the patients’ personal goals (a large effect). These findings are encouraging in the context of the real-world clinical environment within which the therapy was delivered by a range of mental health practitioners.

These findings add to the evolving literature suggesting that CBTp can delivered in a single symptom and mechanism-focused format (Van Der Gaag, Van Oosterhout, Daalman, Sommer, & Korrelboom, 2012) (Freeman et al., 2015). Whilst brief CSE seeks to adapt coping strategies, any increase in the effectiveness of these strategies may influence the client’s appraisals of self and voices, mechanisms that have been shown to be associated with emotional distress (Fannon et al, 2009). Given the key importance of distress reduction to patients (Greenwood et al., 2010; Meddings & Perkins, 2002) and commentators (Kuipers, Onwumere, & Peters, 2016), and evidence that it has not consistently been reduced by CBTp (Mawson, Cohen & Berry, 2010), the changes on the primary outcome were encouraging and suggest that researchers should seek to foreground the measurement of voice-related distress in future trials. This study also corroborated the suggestions from a recent review (Naeem et al., 2016) and meta-analysis (Hazell et al, 2016) that CBTp can be effective when offered over timeframes that are shorter than the 16 sessions recommended by NICE.

Limitations

Several words of caution are required in relation to the current study. Firstly, the evaluation was uncontrolled and the benefits may have occurred naturally over time. A future study of this adapted form of CSE would benefit from having a randomised controlled design to allow hypotheses of effectiveness to be tested directly. Secondly, the absence of follow-up data provides no indication of the extent to which benefits might have been sustained after therapy. This is another question for future research.

Clinical implications
CSE could be evaluated in a future randomised controlled trial as a standalone brief intervention with the intention of increasing access to CBTp for patients distressed by hearing voices. This would facilitate further evaluation of the relative merits of an intervention that could be made widely available (due to its brevity) but may only have modest effects. Alternatively, the modest and uncontrolled effect sizes within the current study can be interpreted as indicating that sustainable recovery may be more likely to occur if brief CSE were offered as an accessible and engaging ‘low intensity’ intervention offered by a range of mental health practitioners within a stepped care model (Waller et al, 2013). Following brief CSE, if patients remain distressed, the next step could be informed by patient preference, and potentially include longer and more complex (‘high intensity’) therapies such as Mindfulness-based group therapy (Chadwick et al., 2016), Relating Therapy (Hayward, Overton, Dorey, & Denney, 2009), Avatar Therapy or Cognitive Therapy for Command Hallucinations (Birchwood et al, 2014), delivered by highly trained therapists.

A final noteworthy finding concerns the large effect for the personal goal within the CHOICE measure. Many of the patients took this opportunity to articulate a change that had particular meaning to them, and for many patients (32%) the goal was not explicitly related to voices (e.g. to be more creative, to go out more, to feel better in myself). At a time when there continues to be debate about what should be measured to capture change in relation to distressing voices (e.g. distress, quality of life, impact on daily activities) (Thomas et al., 2014), in addition to measuring distress as a primary outcome, we should ask each patient to express their views and ensure that this goal is foregrounded and regularly evaluated within therapy.

References


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Sommer, I. E. C., Slotema, C. W., Daskalakis, Z. J., Derks, E. M., Blom, J. D., and Van...


Table 1: Demographic and clinical characteristics of patients

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<thead>
<tr>
<th>Characteristics</th>
<th>Total n = 101</th>
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<tr>
<td>Mean age in years (SD, range)</td>
<td>39 (11, 18-67)</td>
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<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>48 (48%)</td>
</tr>
<tr>
<td>Females</td>
<td>52 (52%)</td>
</tr>
<tr>
<td>Ethnicity</td>
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<tr>
<td>White British or white other</td>
<td>88 (87%)</td>
</tr>
<tr>
<td>Black and Minority Ethnic</td>
<td>13 (13%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>61 (60%)</td>
</tr>
<tr>
<td>Married/cohabiting/long term</td>
<td>26 (26%)</td>
</tr>
<tr>
<td>relationship</td>
<td>4 (4%)</td>
</tr>
<tr>
<td>Widowed</td>
<td>10 (10%)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>70 (69%)</td>
</tr>
<tr>
<td>Full time/part time paid employment</td>
<td>16 (16%)</td>
</tr>
<tr>
<td>Student</td>
<td>6 (6%)</td>
</tr>
<tr>
<td>Home maker</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (6%)</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
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<tr>
<td>Non-psychotic disorder</td>
<td>60 (59%)</td>
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<tr>
<td>Psychotic disorder</td>
<td>41 (41%)</td>
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<tr>
<td>Medication$</td>
<td></td>
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<tr>
<td>Yes</td>
<td>94 (97%)</td>
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Note: Percentages are based on all available data for the variable; $=Data missing for characteristic: Gender (n=1); Medication (n=4).
Table 2: Pre and post treatment descriptive statistics and paired sample t-test results with standardised effect sizes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Pre CSE</th>
<th>Post CSE</th>
<th>Paired sample t-test results</th>
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<tr>
<td></td>
<td>n</td>
<td>m</td>
<td>sd</td>
<td>n</td>
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<tr>
<td>PSYRATS-AH</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Distress total</td>
<td>93</td>
<td>16.1</td>
<td>3.7</td>
<td>85</td>
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<tr>
<td>Frequency total</td>
<td>97</td>
<td>9</td>
<td>2.4</td>
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<td>DASS-21</td>
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<tr>
<td>Depression total</td>
<td>95</td>
<td>13.2</td>
<td>5.8</td>
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<tr>
<td>Anxiety total</td>
<td>95</td>
<td>11.1</td>
<td>5.2</td>
<td>85</td>
</tr>
<tr>
<td>Stress total</td>
<td>94</td>
<td>13.1</td>
<td>5</td>
<td>84</td>
</tr>
<tr>
<td>CHOICE-SF</td>
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<tr>
<td>Severity mean</td>
<td>98</td>
<td>3.9</td>
<td>1.9</td>
<td>84</td>
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<tr>
<td>Goal rating</td>
<td>90</td>
<td>2.9</td>
<td>2.3</td>
<td>68</td>
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<tr>
<td>SWEMWBS</td>
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<tr>
<td>Total</td>
<td>91</td>
<td>18</td>
<td>4.7</td>
<td>83</td>
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Note: Full sample N = 76. PSYRATS-AH = Psychotic Symptoms Rating Scale – Auditory Hallucinations, DASS-21 = Depression, Anxiety and Stress Scale-21, CHOICE-SF = Choice of Outcome in Cognitive Therapy for Psychosis Scale (short form), SWEMWBS = Short Warwick-Edinburgh Mental Well-Being Scale. Unstd = Unstandardised, Std = Standardised. Paired sample t-test results and corresponding standardised effect sizes based on multiple imputed data to account for missing data. Complete case analysis based only on non-missing data.