

## Translating CBT for Voices into a Program for Carers: A Pilot Study

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**Background:** The treatment of persisting psychotic symptoms with cognitive behavioural therapy (CBTp) is now established as an evidence-based treatment; however its availability remains limited. We piloted a novel CBTp skills-based group training program for carers. The aim was to reduce service users' auditory hallucinations severity through carers' use of basic CBTp methods in their regular interactions. **Method:** Eight carer-service user dyads and one carer-carer-service user triad participated. Carers attended the 10-week (25-hour) program, and completed measures of subjective burden and expressed emotion (EE) over a 30-week period that included a baseline phase prior to the training and implementation phase. Service users completed weekly interviews assessing voice symptomatology. Analyses were conducted for each dyad using time-series methods. **Results:** The training program was rated highly. Improvements in symptoms and carer burden ranged from none to clinically significant across different dyads. Carer implementation of strategies was related to reduced symptoms in one dyad; reductions in EE were related to symptom improvements in two dyads. **Conclusions:** There may be benefits in training carers in behavioural and cognitive management of persisting hallucinations. Possible mechanisms for improvements in voice symptomatology include reduction in carers' EE, and carer implementation of strategies taught.

*Keywords:* Cognitive behavioural therapy, psychosis, carers, training, auditory hallucinations.

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## Introduction

Treatment of psychotic symptoms with cognitive behavioural therapy (CBTp) has established efficacy); however, the availability of such treatment remains restricted outside of the United Kingdom. A case study of delivery of informal cognitive therapy to an individual with schizophrenia by a family carer (George, Bandopadhyay and Cowan, 2005) raises the possibility that dissemination of CBTp may be possible through training carers - a method that may be particularly useful for difficult-to-engage service users. The aim of this study was to evaluate a course that aimed to skill carers of individuals who hear voices to better assist their ill relative to cope with, and possibly reduce, persisting voices. The skills were based on CBTp components but were to be implemented through carers' daily interactions with their relative, rather than through formal therapy sessions and "therapeutic" relationship. A valuable by-product of such a course may be an improvement in carer-service user relationships, resulting from more informed and helpful communication about persisting symptoms. The study addressed the following research questions: Can the delivery of skills training in psychological management strategies for voices delivered to carers reduce the severity of service users' voices? Furthermore (while not a target of intervention), does the delivery of such a training program result in changes in carer expressed emotion (EE) and subjective burden? Finally; if changes are observed in service user symptomatology, are these associated with carers' use of psychological management strategies or altered carer expressed emotion?

## Method

Approvals were obtained from the relevant La Trobe University and Melbourne Health Ethics Committees. Both members of each carer-service user dyad gave informed consent.

### *Participants*

Eligibility criteria were: a DSM-IV diagnosis of schizophrenia or schizoaffective disorder and 6 months persistence of hallucinations whilst on stable medication. Eligible carers were family members who had five or more contacts per week with their relative. Nine carers aged between 34 and 65 years, and 8 voice-hearing relatives aged between 19 and 40 years participated in the study (8 carer-service user dyads and one carer-carer-service user triad). Duration of illness ranged from 2 to 7 years, and number of hospitalizations from 2 to 10.

### *Measures*

The Psychotic Symptom Rating Scale (PSYRATS; Haddock, McCarron, Tarrier and Faragher, 1999) was used to measure hallucinations severity. The Family Questionnaire (FQ) was used to assess Carers' Expressed Emotion (Wiedemann, Rayki, Feinstein and Hahlweg, 2002) and the Involvement Evaluation Questionnaire (IEQ; van Wijngaarden et al., 2000) to measure carer subjective burden. The number and frequency of cognitive and behavioural strategies implemented by carers was recorded by a self-report checklist completed on a daily basis during the 10 weeks training. Carer feedback was recorded in the final session via a course evaluation questionnaire.

### *Design and procedure*

A within-subjects, multiple-baseline, repeated-measures design was selected to accommodate small numbers and allow for the assessment of individual differences in efficacy. The study had two phases: a 10-week baseline phase followed by a 20-week training and implementation phase (comprising 10, weekly, 2½ hour interactive sessions, and a further 10 weeks, in which carers were encouraged to continue using strategies learned). Voice phenomenology measures were obtained from service users via brief weekly interviews for the 30 weeks of the study. The IEQ and FQ were completed by carers weekly.

### *Intervention*

The 10-session program combined education and experiential exercises on the experience of voice-hearing, how to communicate effectively about voices, and behavioural and cognitive strategies for coping with voices (including coping strategy enhancement, belief change, generating alternative explanations). A program manual is available upon request.

### *Analysis*

Statistical analyses used SPSS 14 for Windows. For primary outcome variables, scores were converted into a percentage of the maximum score. The time-series data for each participant were studied in baseline and intervention phases, and models (with confidence intervals) fitted for each phase. Outcomes were measured by statistically ( $\alpha < 0.05$ ), and clinically (greater than 10% improvement), significant differences between baseline and intervention phases. Due to the small number of time-series data points, confidence intervals were calculated conservatively, using standard error values multiplied by critical values of the *t*-distribution (based on 0.05 level of significance on a two-tailed test). Linear regressions were run to investigate the relationship between carer strategy use and voice severity.

## **Results**

### *Inter-rater reliability*

A subsample of the PSYRATS data was co-rated by an independent provisional psychologist, experienced in PSYRATS assessment and blind to study phase, yielding an almost perfect correlation (PSYRATS total score  $r = 0.998$ ,  $t = 55.89$ ,  $p = .00$ ).

### *Acceptability of the intervention*

Carers' feedback indicated high levels of acceptability (mean satisfaction rating 9.78/10,  $\pm 0.35$ ), but wide individual variation in rating ease of implementation of strategies (from 5–10/10,  $\mu = 7$ ,  $\pm 1.34$ ). Qualitative feedback suggested that cognitive strategies (e.g. discussing beliefs about voices) were more difficult to implement than behavioural strategies.

### *Carer strategy use*

Carers reported their implementation of strategies on a daily checklist. Behavioural strategies taught were: encouraging use of distraction, sub-vocalization, competing auditory stimuli, self-instruction activity; encouraging changes in level of social contact; minimizing stressors/triggers; and altering the environment. Cognitive strategies were: encouraging distancing from voices; identifying beliefs about voices with relative; exploring evidence for or against beliefs about voices; testing a belief by behavioural experiment; and identifying alternative explanations. All carers reported using at least six of the eight behavioural strategies, and at least two of the five cognitive strategies at some time during the training and implementation phase.

Reduction in voice severity was associated with greater carer strategy use, for 5 out of 7 dyads; however, with the exception of one dyad – Service User 6 ( $t = -3.54, p = .01$ ) whose voice severity changed substantially – these relationships were not statistically significant. A moderate negative correlation approaching statistical significance was identified for Service User 2 ( $t = -2.03, p = .08$ ).

### *Voice severity*

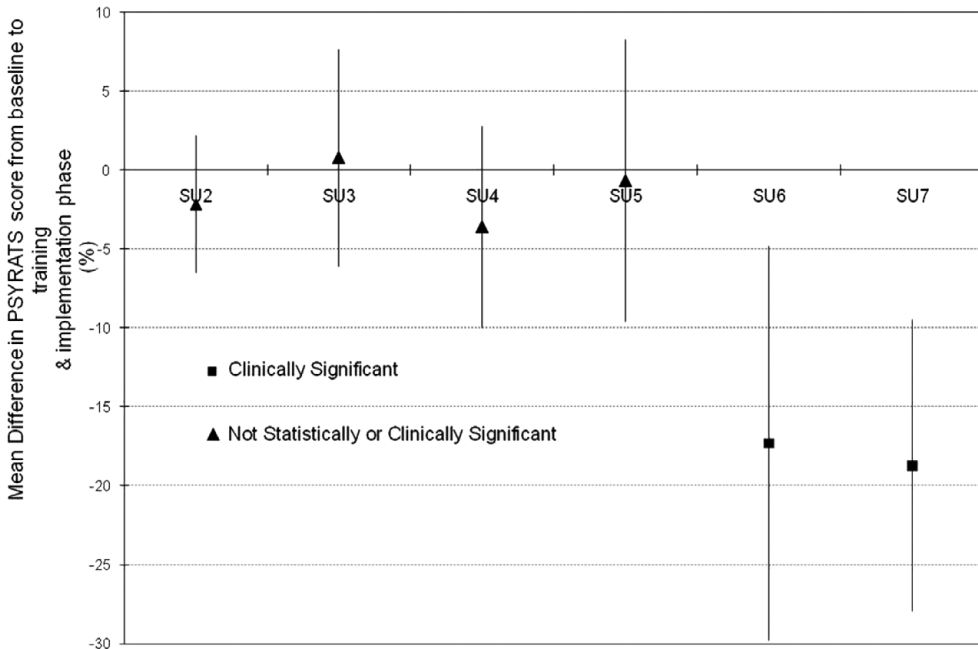
Service User 1 reported voices at too few points for time-series analysis (3/10 weeks of baseline; reducing to 3/20 weeks in training and follow-up phase). The mean differences in voice severity (PSYRATS) between the baseline phase and the training and implementation phase for service users 2–7, based on individual time series analyses, are presented in Figure 1. Clinically significant improvements in voice severity were identified for Service User 7 ( $t = 4.217, p = .00$ ), and Service User 6 ( $t = 2.90, p = .009$ ). Service users 2, 3, 4 and 5 did not show clinically or statistically significant improvements in voice severity in the training and implementation phase.

### *Expressed emotion*

Carers 6 and 7 showed clinically significant reductions in EE in the training and implementation phase of the study ( $t = 4.53, p = .00; t = 12.52, p = .00$ , respectively), with Carers 4 a and 4b showing statistically significant reductions ( $t = 9.11, p = .00; t = 8.29, p = .00$  respectively). Carers 2 and 5 showed a statistically, but not clinically significant reduction in expressed emotion in the training and implementation phase of the study ( $t = 2.43, p = .02; t = 3.11, p = .00$  respectively), with Carer 1 and Carer 8 showing no statistically significant change. Model fitting was not possible for Carer 3 due to fluctuating scores.

### *Burden*

Five of the eight carers showed a statistically significant reduction in burden between the baseline phase and the training and implementation phase. Carer 7 showed a clinically significant reduction in Subjective burden with a mean reduction of 25.6% in the training and implementation phase ( $t = 12.94, p = .00$ ). Carers 4 a and 4b and carers 1 and 6 all showed statistically significant reductions ( $t = 10.22, p = .00; t = 10.11, p = .00; t = 3.07, p = .005; t = 2.90, p = .008$ , respectively), but only the latter two approached clinical significance.



**Figure 1.** Service user voice severity: mean differences from baseline to training and implementation phase (with confidence intervals)

## Discussion

This study evaluated the feasibility and impact of a course that taught CBT skills to carers of voice hearers. The program was clearly acceptable: carers reported high levels of satisfaction, an ability to understand the concepts and strategies, and an intention to continue using these after the program. The feasibility of carers implementing naturalistic behavioural and cognitive intervention strategies was also supported: all carers implemented at least 9 of the 13 strategies taught.

The statistically and clinically significant improvements for two of the six service users with time series data support our hypothesis that voice severity can be impacted by an intervention that works through carers, rather than directly with the service users. The proportion improving, if replicated in larger studies, is within the range of outcomes for therapist-implemented CBTp (Gaudiano, 2005). Rather than the training adding to the burden of carers, a majority experienced reduced subjective burden. Given that reductions in burden have been rarely reported in the family intervention for psychosis literature, this raises the possibility that the explanatory models and specific skills of the intervention gave carers confidence to interact more effectively with service users about voices.

The results support more than one model of change in voice severity. The primary model of the study, that service user coping would improve, received some support: there was an association between an increase in carers' encouragement of psychological management strategies and reduced voice severity, particularly for one dyad. It is possible that the analysis undertaken (correlations between weekly ratings of voice severity and extent of carer strategy

use that week) may have been insensitive by not allowing for any time lag between the carers' suggestion of a strategy and the service users' application(s) of it.

An alternative explanation for reductions in service user voice severity is via reduction in carers' EE. Despite not being a direct target of the intervention, clinically significant improvements in EE were identified for two carers, and in each case their voice hearing relative showed clinically significant improvements in voice severity. Reductions in EE may have occurred through increased carer confidence from skills acquisition or via a shift in illness attributions (Barrowclough, Johnston and Tarrier, 1994) resulting from improved understanding about the nature of psychotic experiences. If supported by future studies, these results would strengthen the case for the importance of symptom-specific psycho-education in family interventions. These results also raise a question regarding the specific effects of behavioural and cognitive strategies over and above any contribution from improved relationships and symptom-specific education.

### *Limitations*

Recruitment of a small, self-selected sample limits the generalizability of the results; however, the difficulty in recruiting consenting pairs of service users and carers, and the evaluation demands on participants precluded a larger scale pilot. Nonetheless, the study took an important and realistic first step in establishing a treatment effect when carers are trained to informally use behavioural and cognitive change interventions with voice hearers. Inclusion in future studies of specific measures of carer confidence, relationships and attributions, and the tracking of service user implementation of strategies would enable further assessment of these possible mechanisms of action.

### **Conclusions**

The present pilot study provides promising results indicating that training family carers in basic principles and strategies of CBT for psychosis is possible, highly acceptable, and can result in clinically significant improvements in service user voice symptomatology, and reduction in carer burden. The course thus has the potential to redress, in a naturalistic way, two of the practical challenges to dissemination of clinician-delivered CBTp - difficulties with service user engagement, and access to therapy.

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