Group treatment of auditory hallucinations

Exploratory study of effectiveness

TIL WYKES, ANN-MARIE PARR and SABINE LANDAU

Background Cognitive–behavioural therapy has been shown to be effective in reducing psychotic symptoms, but few patients have access to these services. Group cognitive treatment may provide a less costly service with similar benefits.

Aims To explore the effectiveness of group cognitive–behavioural therapy on insight and symptoms, particularly auditory hallucinations.

Method Twenty-one DSM–IV diagnosed patients with schizophrenia with treatment-resistant, distressing auditory hallucinations were referred to a group programme consisting of six sessions of cognitive treatment following a strict protocol which emphasised individual power and control as well as coping strategies.

Results There were significant changes in all three main outcome measures following treatment; those changes were maintained at follow-up and were greater than changes over the waiting-list period. Specifically, there were changes in perceived power and distress as well as increases in the number and effectiveness of the coping strategies.

Conclusions Group treatment for auditory hallucinations needs further investigation but does look promising and may provide a less costly alternative to individual cognitive treatment.

Declaration of interest None.

Despite high doses of medication a significant number of people with schizophrenia still experience distressing auditory hallucinations. These not only affect the quality of their lives but are probably instrumental in maintaining depression and low self-esteem. The efficacy of psychological treatment in addition to pharmacotherapy has been established in a number of randomised controlled trials (e.g. Kuipers *et al*, 1997; Tarrier *et al*, 1998). However, because of the shortage of trained therapists and the length of treatment, these therapies are unlikely to become widely available in the health services in the near future. An alternative is to present the therapy in a group format, which has already been shown to be feasible (Gledhill *et al*, 1998), and which offers the likelihood of a more general availability of psychological treatment at a lower cost. The present study describes an evaluation of this alternative group presentation.

METHOD

Design

This study adopted a waiting-list control design with repeated measures within subjects. However, a few people were only referred when the groups started; these referrals were also included in the study. The efficacy of treatment was evaluated using seven symptom measures and one measure of coping. Participants were allocated to one of three groups through a rolling programme of referrals based on service contact with three community teams. Each of the groups met weekly, for one hour, over a six-week period, with a follow-up session three months later. Outcome measures were completed on four different occasions: referral (week 0); pre-intervention (week 6); post-intervention (week 12); three-month follow-up (week 24).

Subjects were included in the study if they experienced distressing, medication-resistant auditory hallucinations which were not the result of an organic disorder.

Main outcome measures

Auditory Hallucinations Rating Scale (PSYRATS; Haddock *et al*, 1999). A self-report scale with proven reliability and validity which measures emotional content, physical characteristics and cognitive interpretation.

Expanded Brief Psychiatric Rating Scale (BPRS–E; Ventura *et al*, 1993), completed by an independent clinician who was not blind to treatment status.

Self-Report Insight Scale for Psychosis (IS; Birchwood *et al*, 1994). A self-report questionnaire which provides measures of symptom attribution, awareness of illness and acceptance of the need for treatment.

Specific clinical outcome measures

Beliefs About Voices Questionnaire (BAVC; Chadwick & Birchwood, 1995).

Coping strategies. A simple self-report questionnaire in which the participants listed their coping strategies in response to the voices and rated the effectiveness of these strategies.

Ancillary outcome measures

Beck Depression Inventory (BDI; Beck *et al*, 1961).

Beck Anxiety Inventory (BAI; Beck *et al*, 1988).

Rosenberg's Self-Esteem Scale (Rosenberg, 1965).

Intervention

Sessions were based on a cognitive–behavioural approach, followed a semi-structured format and lasted for an hour. Each session dealt with a particular theme:

Week 7 – sharing of information about the voices

Week 8 – models of psychosis

Week 9 – models of hallucinations

Week 10 – effective coping strategies

Week 11 – improving self-esteem

Week 12 – an overall model of coping with voices

Week 24 – follow-up session.

Each session followed a detailed protocol containing the aims of the session,

examples of interventions and model responses for the therapist.

Statistical analysis

For the analysis of the main and ancillary outcomes, unbalanced repeated-measures models assuming an unstructured covariance matrix were employed to impute missing observations (see for example Everitt, 1998). Models were fitted into the software package BMDP, release 7 (Dixon, 1992) using the method of restricted maximum likelihood. The effect of time was tested using the Wald statistic; when this was significant, specific Wald tests were carried out over three periods: waiting, treatment and follow-up. Finally, if there was evidence of a treatment effect we compared it with the changes over the waiting period as a control condition. Even when it could be argued that the comparisons between the treatment phase and the control phase (waiting time) were supported by a specific hypothesis we decided to adopt the most conservative approach, so all tests were two-tailed.

RESULTS

Patient sample

The participants were representative of those who continue to attend mental health services with resistant psychotic symptoms. All 21 had a diagnosis of schizophrenia according to DSM–IV criteria (American Psychiatric Association, 1994). They had high scores on the BPRS–E with both negative and positive symptoms, and moderate levels of depression on the BPRS–E, which were about the same as estimates obtained from the recent cognitive–behavioural therapy (CBT) study reported by Kuipers *et al* (1997). They generally were middle-aged (average age 40 years) and had a long duration of illness (mean duration of hearing voices 14 years), and about half were living in psychiatric residences. Three-quarters experienced voices daily, these voices mostly having a negative content (95%), and 75% also reported that the voices caused at least a moderate amount of disruption to their lives. All subjects were on stable doses of neuroleptic medications: 48% were prescribed one of the novel antipsychotic medications, the average dose (*British National Formulary* guidelines percentage) being 56.5% (s.d. 23.2); the remainder were prescribed standard neuroleptics with an average chlorpromazine dose equivalent of 343.18 (s.d. 205).

Table 1 Available number of observations at the various assessment times for comparisons of major outcomes (out of 21 referrals)

Scale	Cases with any observation	Complete cases	Baseline and pre-treatment	Pre- and post-treatment	Pre-treatment and follow-up	Control comparison
BPRS–E	16	6	8	13	10	8
PSYRATS	20	7	11	12	10	8
IS	20	7	10	12	10	8

BPRS–E, Expanded Brief Psychiatric Rating Scale; PSYRATS, Auditory Hallucinations Rating Scale; IS, Self-Report Insight Scale for Psychosis.

Thirteen of the 21 people referred to the study completed the course of treatment and some post-treatment assessment, although only eight of these entered the trial during the waiting-list period. This led to considerable differences in the number of observations available for the pairwise comparisons, as shown in Table 1 for the main outcomes.

Drop out

The drop-out mechanism was investigated by comparing socio-demographic, clinical or outcome variables at the pre-treatment stage for the group of participants whose PSYRATS totals were missing at post-treatment and/or follow-up stage (n=11) with the remaining participants for whom scores existed (n=10). There were no significant differences between the groups on any of the variables.

Main outcomes

Expanded Brief Psychiatric Rating Scale (BPRS–E)

Figure 1 shows the estimated mean BPRS–E scores; a reduction in score indicates a symptom improvement. The BPRS–E score was affected by the assessment time (Wald test: χ^2=37.7, d.f.=3, P<0.0001). There was no significant difference over the waiting period (estimated mean difference (e.m.d.)=5.8, 95% confidence interval (CI) −1.9 to 13.5) but scores were significantly reduced over the treatment period (Wald test: χ^2=26.02, d.f.=1, P<0.0001, e.m.d.=7.9, 95% CI 4.9 to 10.9). This reduction was not maintained at follow-up (e.m.d.=2, 95% CI −2.8 to 6.8). The control test supported a treatment effect larger than expected from the waiting period

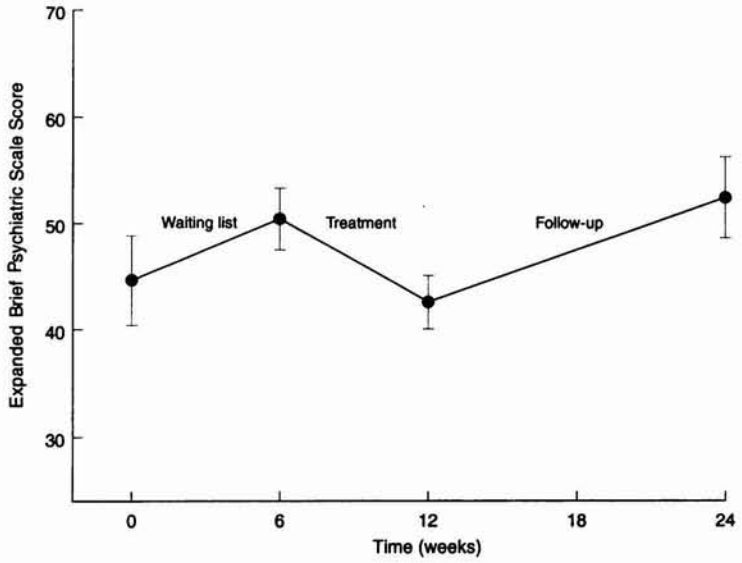

Fig. 1 Estimated mean total symptom Expanded Brief Psychiatric Rating Scale scores (bars represent standard error of the mean).

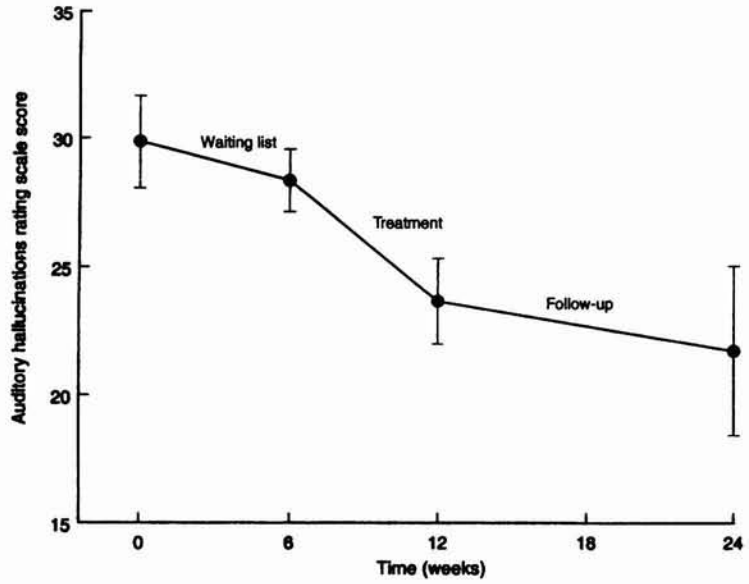

Fig. 2 Estimated mean Auditory Hallucination Rating Scale scores (bars represent standard error of the mean).

(Wald test: χ^2=7.31, d.f.=1, P=0.007, e.m.d.=13.7, 95% CI 3.8 to 23.6).

Auditory Hallucinations Rating Scale (PSYRATS)

Figure 2 shows the estimated mean PSYRATS scores; a reduction in score indicates an improvement in the experience of auditory hallucinations. PSYRATS score was affected by the assessment time (Wald test: χ^2=21.7, d.f.=3, P=0.0001). There was no significant difference over the waiting period (e.m.d.=1.5, 95% CI −1 to 4), but scores were significantly reduced over the treatment period (Wald test: χ^2=15.43, d.f.=1, P=0.0001, e.m.d.=4.7, 95% CI 2.3 to 7), and this reduction was maintained at follow-up (Wald test: χ^2=5.48, d.f.=1, P=0.019, e.m.d.=6.6, 95% CI 1.1 to 12.1). The control test (which was two-tailed) was not statistically significant at the 5% level, but the P value was small and the confidence interval considerably skewed (Wald test: χ^2=3.38, d.f.=1, P=0.066, e.m.d.−3.2, 95% CI −0.2 to 6.5).

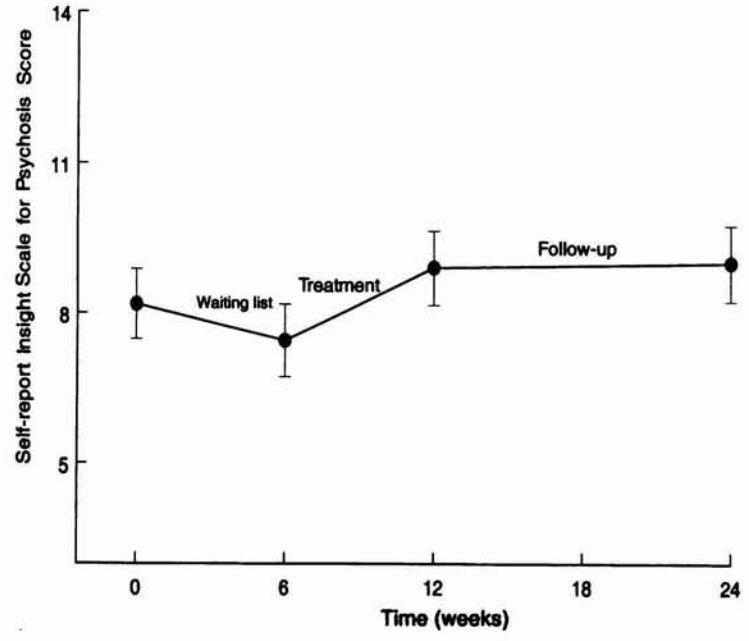

Fig. 3 Estimated mean Insight Scale for Psychosis scores (bars represent standard error of the mean).

Insight Scale for Psychosis (IS)

Figure 3 shows the estimated mean IS scores; an increase in score indicates an improvement in insight. IS score was affected by the assessment time (Wald test: χ^2=15.46, d.f.=3, P=0.0015). Scores were significantly reduced over the waiting period (Wald test: χ^2=4.2, d.f.=1, P=0.04, e.m.d.=0.7, 95% CI 0.03 to 1.4) but were significantly increased over the treatment period (Wald test: χ^2=6.97, d.f.=1, P=0.0083, e.m.d.=1.5, 95% CI 0.4 to 2.5). This increase was maintained at follow-up (Wald test: χ^2=7, d.f.=1, P=0.0082, e.m.d.=1.5, 95% CI 0.4 to 2.7). The control test supported a treatment effect larger than expected from the waiting period (Wald test: χ^2=11.99, d.f.=1, P=0.0005, e.m.d.=2.2, 95% CI 1 to 3.4).

Table 2 summarises the results for our three main outcomes. The table indicates treatment success in terms of all three main scores. For PSYRATS and IS scores there is evidence that this success was maintained at follow-up.

Specific clinical outcomes

The treatment programme was designed to target a number of specific issues relating to voices. These specific targets were measured by individual items or factor scores, except for the coping strategy measure. These data were analysed with paired t-tests over each of the three assessment periods. The means and confidence intervals for the mean differences are given in Table 3.

Table 2 Summary of results from analysis of main outcomes

Scale	Waiting period	Treatment period	Maintenance
BPRS–E	NS	–	NS
PSYRATS	NS	–	–
IS	–	+	+

+, increase over period; –, reduction.
BPRS–E, Expanded Brief Psychiatric Rating Scale; PSYRATS, Auditory Hallucinations Rating Scale; IS, Self-Report Insight Scale for Psychosis.

Table 3 Means and confidence intervals (CIs) for the specific clinical outcomes over the three assessment periods

Clinical measure	Pre-treatment baseline (n=11)			Post-treatment–pre-treatment (n=12)			Follow-up–pre-treatment (n=10)		
	Baseline	Pre-treatment	95% CI difference	Pre-treatment	Post-treatment	95% CI difference	Pre-treatment	Follow-up	95% CI difference
Ownership of voices	2.3	2.4	−0.54 to 0.73	2.4	1.9	−1.0 to 0.006[1]	2.5	1.6	−1.9 to 0.14
Control over voices	3.6	3.5	−0.65 to 0.47	3.6	2.8	−0.22 to 1.52[1]	3.5	2.6	−2.18 to 0.38
Perceived power of the voices	0.8	0.8	−0.30 to 0.30	0.8	0.6	−0.54 to 0.04[1]	0.8	0.6	−0.50 to 0.10
Amount of distress	3.0	2.8	−0.77 to 0.41	2.7	2.3	−1.05 to 0.22	2.6	2.0	−1.37 to 0.17
Severity of distress	2.8	3.0	−0.54 to 0.91	2.8	2.1	−1.08 to −0.25[2]	2.6	2.0	−1.29 to 0.09[1]
Physical characteristics (duration, loudness, frequency, location)	10	8.5	−2.78 to −0.13[2]	9.0	8.0	−2.05 to 0.05[1]	8.6	7.2	−3.79 to 0.99
Disruption caused by the voices	2.1	2.0	−0.45 to 0.27	1.7	1.2	−0.83 to −0.17[2]	1.6	1.3	−0.78 to 0.18
Number of coping strategies reported	1.6	1.6	−0.29 to 0.11	1.5	2.8	0.92 to 1.75[2]	1.6	2.7	0.47 to 1.73[2]

1. CI which is skewed, indicating a trend in the hypothesised direction.
2. CI which does not include zero.

There is only one significant change over the waiting period – a decrease in the physical attributes of the voices. There were statistically significant differences in the predicted direction over the treatment period for three measures, and for a further four the confidence intervals were extremely skewed. These data, therefore, indicate a targeted treatment effect. At follow-up, however, the size of the improvements was reduced and only one (increased coping strategies) achieved significance, although there was a trend for reduced distress severity. The data for these individual items are not as robust as for the total scores, suggesting that treatment effects may be different for each individual.

Ancillary outcomes

The Wald tests did not indicate an effect of assessment time for anxiety (BAI: χ^2=6.1, d.f.=3, P=0.11) or depression (BDI: χ^2=4.04, d.f.=3, P=0.26). The Rosenberg Self-Esteem Scale was not significantly affected by the assessment time (χ^2=7.34, d.f.=3, P=0.062), but since this P value was small, pairwise time point comparisons were carried out. There was no significant difference in scores over the waiting period (e.m.d.=0.6, 95% CI −0.8 to 2), but self-esteem improved over the treatment period (Wald test: χ^2=5.12, d.f.=1, P=0.024, e.m.d.=2.2, 95% CI 0.3 to 4.1), and this improvement was maintained to follow-up (Wald test: χ^2=5.73, d.f.=1, P=0.017, e.m.d.=1.4, 95% CI 0.3 to 2.5).

Table 4 Coping strategies used by patients

Coping strategy	Number of patients using strategy			
	Baseline (n=12)[1]	Pre-treatment (n=17)[1]	Post-treatment (n=12)[1]	Follow-up (n=10)[1]
Humming or whistling	0	0	4	3
Take medication	0	1	1	1
Talking to others	1	1	3	3
Talk inwardly to yourself	1	1	1	0
Watch TV	4	6	3	3
Go out	0	0	4	2
Listen to the radio/music	7	9	4	5
Read the Bible or pray	0	0	2	1
Reason with the voices	0	0	3	4
Tell the voices to go away	1	0	5	3
Ask the voices to come back later	0	0	4	2
Passive strategies, e.g. ignoring the voices	2	2	0	2

1. Number of patients completing the coping strategies questionnaire.

Coping strategies

A list of coping strategies is shown in Table 4. The most frequently used strategies before treatment were watching television or listening to music, although less than half reported receiving any benefit. After the therapy the participants reported a wider range of strategies (see above analyses) and increased effectiveness (percentage effective: baseline (n=11) 73%, pre-treatment (n=15) 54%, post-treatment (n=12) 92%, follow-up (n=9) 78%; sign test pre–post-treatment P<0.016, two-tailed). There were no differences during the waiting period and the change in effectiveness disappeared at follow-up.

Associations with improvement

Multiple stepwise (forward) regression analyses were carried out, with change in each outcome measure over the treatment period as the dependent variable and demographic, clinical and other pre-treatment outcome measures as independent variables. No significant predictors emerged for any of the main outcomes.

Birchwood & Chadwick (1997) suggest that there is a relationship between the perceived power of the voices and the effect generated by the voices. Reductions in power should, therefore, have a beneficial effect on distress. There was a significant partial correlation in the predicted direction between the change in perceived power and the post-treatment levels of distress after controlling for pre-treatment levels (partial $r=0.63$, $P=0.04$).

CLINICAL IMPLICATIONS

- Group psychological treatment for distressing auditory hallucinations may reduce symptoms and increase insight.
- Patients who experience distressing voices express high levels of satisfaction with the treatment.
- The effect of treatment was similar to that obtained by individual therapy but was considerably less expensive.

LIMITATIONS

- The study used a waiting-list control design, which is not as powerful as a randomised control design.
- Several people dropped out of the assessments and/or treatment.
- Although symptom assessments were independent of the treatment they could not be blind, as everyone received treatment.

DISCUSSION

The study described in this paper explored the usefulness of a less expensive version of cognitively oriented treatment for auditory hallucinations. The treatment was similar to that used in other, more intensive individual treatments. However, it was also hypothesised that presenting this treatment in a group format would add value because the group processes themselves are particularly powerful. The participants were representative of those who attend most psychiatric services regularly. They had medication-resistant symptoms at the levels described in a similar study of individual CBT (Kuipers *et al*, 1997). Although people did drop out of the study it was possible to use the data from all 21 people recruited.

Does treatment produce significant effects?

The analyses suggest that the main outcome measures of global symptoms do change over time in the direction predicted. Symptoms changed little over the waiting period, and improved over the treatment phase; this improvement was maintained at follow-up. Clearly, the study may have benefited from a comparison with a control group that did not receive treatment. However, the waiting-time control is a conservative measure of 'no treatment' as it includes the effects of treatment expectancy. Significant treatment effects relative to control were found for both BPRS and IS, and there was a strong trend in the required direction for PSYRATS. Improvements in the main outcomes could not be explained by changes in specific measures, which leads us to assume that individuals make different adjustments following treatment which are only reflected in the total scores. There were some relationships between the changes over therapy and the changes in key outcome measures. For example, changes in voice powerfulness did reduce distress, and half the group who completed treatment improved their perceived control over the voices. This is an important result, as people with schizophrenia who feel less control over their voices are more likely to be violent (Cheung *et al*, 1997). Although it has been suggested that increasing coping strategies might be beneficial (Lee *et al*, 1993; Carter *et al*, 1996), it was not directly related to the outcome measures in the present study. Rather, it seems that the ability to engage in coping strategies might influence the person's perception of control over their experience and the distress associated with the voices. Unfortunately, many of these interesting possibilities cannot be tested with the current data. Larger subject numbers would allow covariance modelling, which might elucidate them.

Is treatment clinically useful?

Participants had experienced treatment-resistant distressing hallucinations for an average of 14 years. Although many reported that medication had helped, most said that they had never been free of these experiences even when taking adequate doses. All the participants for whom we have complete data expressed a high degree of satisfaction with the group. Talking about the voices with others who had similar experiences was reported as being particularly beneficial, and many patients commented on how easily they were able to communicate within the group. Many patients said they were 'comforted' by the fact that they were not alone in their experiences. Among the most frequently reported benefits were the educational aspects of the therapy, particularly with regard to medication, and the learning of new coping

TIL WYKES, PhD, ANN-MARIE PARR, SABINE LANDAU, PhD, Department of Psychology, Institute of Psychiatry, London

Correspondence: T.Wykes, Department of Psychology, Institute of Psychiatry, De Crespigny Park, London SE5 8AF. e-mail: t.wykes@iop.bpmf.ac.uk

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skills (such as "confronting the voices and asking them to come back later").

How does group treatment compare with individual CBT?

Group treatment produces reductions in the total BPRS–E score (7.9 points) similar to those achieved in individual treatment studies (e.g. Kuipers *et al*, 1997). However, the cost ratio when compared with individual care is 1:14. That is, one person completing individual treatment for 14 completing group treatment. It is, of course, possible that this form of therapy has fewer long-term benefits than individual CBT. The follow-up in this study was very short, and even then there was a fall-off in the treatment effects. Alternatively, group treatment could be considered as a supplement to individual CBT, introducing the participants to the processes involved in individual work. It may then help to reduce the duration of individual treatments or even increase the effectiveness of individual CBT.

The current exploratory study does, of course, require replicating in a more standard randomised controlled trial, especially as results are promising. Group treatment for hallucinations may be a practical alternative psychological treatment which has less dependence on expert therapist time and which could improve the prognosis of many people with treatment-resistant psychotic symptoms.

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