An evaluation of the effectiveness of individual and group cognitive therapy in the treatment of depressed patients in an inner city health centre

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SUMMARY. Depressed patients were allocated randomly to individual cognitive therapy, group cognitive therapy or a waiting list 'treatment as usual' control group. Blind clinical and psychometric assessment of patients revealed that those who underwent cognitive therapy did significantly better than those on the waiting list. There was no significant difference between patients treated with group or individual cognitive therapy. Threatment gains were maintained at follow-up at 12 months. Prognostic characteristics for the selection of depressed patients for cognitive therapy on the basis of the chronicity and social stresses are identified. It is concluded that cognitive therapy is an effective treatment which can be applied cost-effectively in general practice.

Introduction

COGNITIVE therapy for depression is a psychological treatment designed to train patients to identify and correct the negative depressive thinking, which has been hypothesized to contribute to the pathogenesis of depression. Beck has provided both a theoretical model for depression and a treatment protocol for cognitive therapy.[1] He describes how the various symptoms of depression (for example, sadness, fatigue, loss of interest, lack of goals, sleep disturbance) are usually reciprocally associated with systematic errors of perception. The model predicts that depressed individuals characteristically misinterpret their daily experiences in a self-defeating fashion. Adverse experiences are over selected, over magnified and attributed to personal deficiencies. Standards are often set so high that they are rarely attained. In the event of an individual achieving a success, this is likely to be minimized or discounted. The cognitive therapist helps depressed individuals to identify, evaluate and modify their dysfunctional thought patterns. Tasks are often set for the patients to test the validity of their basic assumptions about themselves, other people and the future.

Williams has reviewed the results of studies on individual cognitive therapy with depressed patients.[2] He concluded, that this therapy is effective with a variety of populations of depressives — both clinical and sub-clinical and from a wide range of social class. A combination of drugs and therapy is sometimes more effective than therapy alone, therapy alone can be more effective than drugs alone; but drugs alone have not so far been found to be superior to therapy alone. In addition, McLean and Hakstian[3] describe a study in which two different psychological techniques are compared with individual cognitive therapy. One technique involves relaxation exercises requiring homework to be carried out by the patients, and the other technique involves conventional psychotherapy. The superiority of individual cognitive therapy over these two techniques in the treatment of depression suggests that the benefits of individual cognitive therapy are more than the non-specific benefits to be expected from the increased attention experienced by the patients.

More recently, Teasdale has compared the outcome of patients receiving individual cognitive therapy in addition to the treatment they would normally receive with the outcome of patients who receive only their normal treatment.[4] On completion of the treatment, the patients receiving cognitive therapy were less depressed than the comparison group, both on blind ratings of symptom severity made by psychiatric assessors and on a self-reported measure of severity of depression. However, at follow-up three months later no distinction could be made mainly owing to a continuing improvement in the patients receiving only their normal treatment. This observation is consistent with the finding of Wing — that the natural course of most of the minor affective disorders is a series of chronic relapses and remissions.[5] Consequently Teasdale has continued to compare individual cognitive therapy with the normal treatment over a longer follow-up period to examine the effectiveness of cognitive therapy in reducing the number and severity of relapses and remissions.[4] Teasdale has concluded that although cognitive therapy can have a substantial effect on the rate of recovery of patients with major depressive disorder, in its present form it may be too complex and time consuming to become widely available in a National Health Service (NHS) short of resources.

Group cognitive therapy has not been evaluated for patients who are severely or chronically symptomatic. If it were to prove as effective as individual cognitive therapy then it could well have a role in NHS general practice. Shaffer[6] and Shapiro[7] have compared group and individual cognitive therapy and traditional group therapy. At the 12-month follow-up, clinically significant treatment effects for anxiety and depression were maintained for both individual and group cognitive therapy but not for the traditional group therapy.

The purposes of our study were:

1. To compare the effectiveness of group cognitive therapy, individual cognitive therapy and the usual treatment for patients who met the research diagnostic criteria for primary major depressive disorder.
2. To investigate the possiblity of predicting non-responders and defaulters from cognitive therapy by an analysis of the social stresses of the patient.
3. To investigate the extent to which treatment gains are maintained at three, six and 12 month follow-ups.

Method

Patients at Princes Park Health Centre, who were thought by their general practitioner to be depressed, were seen by a psychiatrist who conducted the present state examination and patients who met the research diagnostic criteria[8] for primary major depressive disorder (unipolar) were considered for the trial. The psychiatrist also completed the Montgomery–Asberg depression scale, which is a measure of depression and is based on a

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psychiatric interview specifically designed to be sensitive to change.[9] In addition, in order to be admitted to the trial, patients had to score more than 14 on the Beck depression inventory.[10] The Beck depression inventory is a 21-item self-report questionnaire used to measure depression.

One of us (M.S.) conducted a semi-structured interview with each patient to obtain a social stress profile using the Institute of Psychiatry's social stress and support interview, which had been successfully used by Mann and Jenkins to predict the outcome of neurotic illness in general practice.[11]

Patients were allocated randomly to individual cognitive therapy, group cognitive therapy or a three-month 'treatment as usual' waiting list for cognitive therapy. Clinical and psychometric assessments based on the Montgomery–Asberg scale and the Beck questionnaire were repeated at three-monthly intervals. The psychiatrist was blind to the treatment being received by the patients. Patients undergoing individual cognitive therapy had 12 45-minute sessions over three months while patients undergoing group cognitive therapy has 12 group sessions of one and a half hours. For group members an individual session was scheduled once a week for the first three weeks. One of us (M.S.) provided the cognitive therapy. Costed at £10 an hour, a course of individual cognitive therapy costs £90, whereas group cognitive therapy in the form provided costs £52.50 per patient assuming recruitment of six patients per group. Patients on the waiting list for cognitive therapy received the usual treatment that a depressed patient would receive in general practice.

Results of psychometric and clinical assessment were made available to the general practitioners of all patients in the three groups. Our concern was not to find the optimum pharmacotherapy for these patients but simply to ensure that the three groups received broadly comparable drug treatments and social work help (for example, with housing difficulties), so that any differences between the groups could be attributed to the cognitive therapy.

Results

Descriptive statistics

Of the 78 patients so far referred by general practitioners for consideration for inclusion in the project, 10 patients failed to complete the initial assessment procedures and 17 patients failed to meet the project criteria. The remaining 51 patients who met the criteria for the project are described in Table 1. From Table 1 it can be seen that an average patient is a 33-year-old unmarried female with one to two years education after 16 years of age. She is likely to be unemployed with no previous hospitalizations for depression and to be on antidepressant medication at the start of the trial.

Table 1. Description of patients accepted for the project.

Number of patients	51
Male:female ratio	19:32
Mean age	33
Married:unmarried ratio	18:33
Mean years of education	13.6
Employed:unemployed ratio	16:35
Number of patients previously hospitalized for depression	14
Number of patients on antidepressant medication at start of trial	40

Inferential statistics

Group and individual cognitive therapy versus normal treatment. The trial was based on the 2 × 2 factorial design shown in Table 2. The first factor was therapy with two levels, immediate cognitive therapy and cognitive therapy after three months. The second factor was format with two levels, individual cognitive therapy and group cognitive therapy. The number of patients randomly assigned to the four cells is indicated in Table 2. The data were analysed using two separate analyses of covariance, one for the Beck depression inventory and the other for the Montgomery–Asberg scale. The initial scores of patients on the Beck depression inventory and the Montgomery–Asbert scale served as the covariants and the corresponding scores at the end of cognitive therapy or waiting list served as the dependent variables. Analysis of covariance takes into account any chance initial differences in the scores of patients in each of the four cells of Table 2 and effectively adjusts the mean scores at the end of cognitive therapy or waiting list before the final comparison of the cell means is made.

Table 2. Experimental design of project.

		Therapy: Immediate cognitive therapy	Therapy: Cognitive therapy after 3 months	Total
Format	Individual cognitive therapy	21	9	30
	Group cognitive therapy	9	12	21
	Total	30	21	51

Montgomery–Asberg-therapy $P<0.05$, format $P>0.1$ (not significant), format × therapy $P>0.1$ (not significant). Beck-therapy $P<0.01$, format $P>0.1$ (not significant), format × therapy $P>0.1$ (not significant).

The footnote to Table 2 indicates that cognitive therapy has a statistically significant effect compared with the normal treatment for relieving depression as measured by a psychiatrist blind to treatment, using the Montgomery–Asbert scale ($P<0.05$) and according to the self-report measure of the patients completing the Beck depression inventory ($P<0.01$). Group and individual cognitive therapy were equally effective — the differences in format are not significant ($P>0.1$) as measured by both the Montgomery–Asberg and Beck scales. There were no significant interaction effects, format × therapy ($P>0.1$), on either the Montgomery–Asberg or Beck scales.

The purpose of the study was to develop a clinical perspective in general practice as there is good evidence to suggest that cognitive therapy under rigid hospital conditions is an effective treatment for depression. Thus this trial was analysed by 'intention to treat' rather than by 'treatment received'. Patients who failed to respond or dropped out of treatment were thus included in the above analysis. While this was a more realistic representation of the situation encountered in general practice it necessitated assuming that patients who dropped out of treatment, for statistical purposes, had the same scores at the end of cognitive therapy, or the waiting list, as at the beginning.

Further evidence for the influence of cognitive therapy — within-subject measures. Analysis of the 21 patients who underwent cognitive therapy after having spent three months on the waiting list provided further evidence for the beneficial influence of

Table 3. Mean patient scores measured on the Montgomery-Asberg and Beck scales ($n = 21$), standard deviations are in parenthesis.

	Beginning of waiting list	End of waiting list	After cognitive therapy
Montgomery-Asberg	22.6 (5.3)	18.7 (9.0)	12.7 (9.0)
Beck	26.2 (6.6)	22.8 (11.1)	16.8 (11.3)

Table 4. The significance of the differences in scores — measured on the Montgomery—Asberg scale (Beck scale in parenthesis) of patients progressing from waiting list to cognitive therapy.

	Beginning of waiting list	After cognitive therapy
End of waiting list	$P<0.05$ ($P>0.05$)	$P<0.01$ ($P<0.05$)
After cognitive therapy	$P\leqslant 0.001$ ($P<0.01$)	

Table 5. Mean patient scores with standard deviations in parenthesis and the number of patients with Beck scores $\leqslant 16$ at the different stages.

	Montgomery–Asberg score ($n = 20$)	Beck score ($n = 20$)	Number of patients with Beck scores $\leqslant 16$ ($n = 20$)
Before cognitive treatment	21.7 (7.9)	25.9 (9.3)	2
After cognitive treatment	7.6 (5.2)	9.4 (5.6)	18
3 month follow-up	10.3 (8.2)	11.2 (8.4)	16
6 month follow-up	12.5 (9.3)	11.0 (8.8)	15
12 month follow-up	6.6 (7.5)	9.7 (8.0)	17

cognitive therapy. The mean scores of these patients at the beginning of waiting list, end of waiting list and after cognitive therapy are shown in Table 3. A comparison of the scores of patients at the beginning of waiting list, end of waiting list and after cognitive therapy, measured on both scales is summarized in a significance table (Table 4).

From Table 4 it can be seen that the depression scores of patients after cognitive therapy as measured by the Montgomery–Asbert or Beck scales are significantly different from the scores of patients at the beginning of therapy and also from the scores of patients at the beginning of treatment. However, comparison of depression scores at the beginning of the waiting list and at the end of the waiting list shows a less clear picture. If the Beck depression inventory is used there would appear to be no significant differences from beginning to end of the waiting list ($P>0.05$). However, using the Montgomery–Asberg scale the change is just statisically significant ($P<0.05$). Overall the within-subjects analysis supports the findings from the analysis of covariance, that cognitive therapy is an effective treatment for depression.

Maintenance of treatment gains. To date 20 patients have been assessed 12 months after completion of cognitive therapy (a further 14 patients have not yet reached the 12 month follow-up but the Montgomery–Asberg and Beck scores at the end of cognitive therapy for these 14 patients are not significantly different [$P>0.1$] from those of the 20 already assessed at 12 months). The mean scores of depressed patients immediately before cognitive therapy, after cognitive therapy and at three, six and 12 month follow-ups, measured on the Montgomery–Asberg and Beck scales, are shown in Table 5.

Beck has defined a patient to have relapsed if the score is greater than 16 on the Beck scale in the year following cognitive therapy.[1] From Table 5 it can be seen that the mean scores of patients on the Beck scale after cognitive therapy and during the follow-up period do not reach this relapse level. The number of patients with Beck scores less than or equal to 16 at the different stages is also shown in Table 5. Before cognitive therapy only two patients had Beck scores less than or equal to 16, whereas after cognitive therapy and during the follow-up period between 15 and 18 patients had scores less than or equal to 16.

That the gains from treatment had been maintained was confirmed by performing paired t-tests on the data; the results are summarized in Table 6. It can be seen that both the Montgomery–Asberg and Beck scales describe a statistically significant maintenance of improvement 12 months after cognitive therapy compared with before treatment. What is less clear is how much mood change there is in the patients during the 12 months after cognitive therapy. The Montgomery–Asberg results suggest some instability of mood while the results on the Beck depression inventory provide a more static picture. However, the slight variations in mood, depicted by the Montgomery–Asberg mean scores in Table 5 for the 12 months after cognitive therapy, would not be regarded as clinically significant.

Discussion

From the foregoing analysis it is clear that cognitive therapy can make a contribution to the treatment of depressed patients in general practice. Although patients undergoing cognitive therapy receive greater attention than those on the waiting list, there is no evidence to suggest that therapeutic attention reduces depressive symptoms. Attempts to deal with depression by utilizing the services of a social worker have shown no clinical benefit.[12] Indeed, in our own work, patients receiving individual cognitive therapy were given nine hours of therapist time whereas those receiving group cognitive therapy were given approximately six hours and there was no difference in the outcome. This lends support to the view that increased attention *per se* does not effect outcome.

Table 6. Paired t-tests on patients followed-up for 12 months after cognitive therapy.

	Montgomery–Asberg scale ($n = 20$)				Beck scale ($n = 20$)			
	Immediately after cognitive therapy	3 month follow-up	6 month follow-up	12 month follow-up	Immediately after cognitive therapy	3 month follow-up	6 month follow-up	12 month follow-up
Before cognitive therapy	$P<0.001$	$P<0.001$	$P<0.01$	$P<0.001$	$P<0.001$	$P<0.001$	$P<0.001$	$P<0.001$
After cognitive therapy		$P>0.1$	$P<0.05$	$P>0.1$		$P>0.1$	$P>0.1$	$P>0.1$
3 month follow-up			$P>0.1$	$P<0.01$			$P>0.1$	$P>0.1$
6 month follow-up				$P<0.01$				$P>0.1$

The usefulness of cognitive therapy is underlined by the traditionally poor compliance with antidepressant medication. A study by Johnson involving a single evaluation of non-compliance with antidepressants after two weeks revealed that eight per cent of patients had failed to collect their prescriptions and a total of 44 per cent admitted non-compliance with their drug treatment.[13]

The epidemiological importance of depression is in part a manifestation of the chronicity of the untreated condition. Two studies[5,14] by Wing in south-east London showed that 50 per cent and 69 per cent, respectively, present at interviews had lasted for more than a year. It would have been useful for comparative purposes to have included in the trial an absolute control group, who received no cognitive therapy. However, in our pilot trial, a comparison of the first 10 patients completing cognitive therapy with the first 10 completing the waiting list control showed that while all the patients who underwent cognitive therapy were no longer depressed at the end of treatment (all had achieved Beck scores less than or equal to 16) only four patients from the control group were no longer depressed. Both sets of patients were severely depressed initially (mean Beck scores of 27).

Confronted with the dramatic impact of cognitive therapy and descriptions of its therapeutic effectiveness in hospital studies, we felt ethically unable to withhold cognitive therapy for more than three months. Of the 30 patients offered immediate cognitive therapy 11 dropped out and a further three patients could be regarded as non-responders with a Beck score greater than 16 at the end of cognitive therapy. With limited resources it is important to maximize cost-effectiveness by identifying those who will drop out and non-responders and to select patients who are more likely to benefit from cognitive therapy.

The social stress and support interview can predict the outcome of neurotic illness in general practice.[11] This short interview was conducted with each patient at the beginning of treatment. The interview covers six areas: occupation/daily routine, housing, social life, finance, marriage/living alone, and family. In each area the patients are rated in terms of whether, on balance, they experience it as a source of support (+1), stress (−1), or a mixture of stress and support (0). The interview takes 10–15 minutes to complete and is fairly comprehensive. Simple inspection of 28 interview scores for patients offered immediate cognitive therapy (interview scores not available for two patients) revealed no significant differences between those who completed cognitive therapy and those who dropped out or did not respond. However combining those who had consulted the general practitioner prior to the last month and within the last 12 months for anxiety/depression with those scoring −1 in two or more areas of the interview was highly sensitive in identifying those who would drop out or not respond to cognitive therapy. Had this criterion been applied in our study 12 of the 14 defaulters/non-responders would have been correctly identified although four patients who did benefit from cognitive therapy would not have been offered it. The effectiveness of reducing social stress by intervention of social work in order to facilitate treatment by cognitive therapy is of considerable importance and must be addressed in future studies. It should be noted however that this selection criterion was arrived at afterwards and it would be necessary to confirm its effectiveness.

We have shown that it is possible to keep the cost of cognitive therapy in general practice down by treating patients in groups and that costs may be reduced even further by the use of a selection criterion. What remains to be examined is the extent to which the provision of cognitive therapy can be liberalized and even deprofessionalized in order to reduce costs still further. There is thus a clear need to develop and evaluate cognitive therapy training programmes for para-medical professionals, social and community workers and non-professional volunteers.

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Bubble blowing toys

In recent months a number of bubble blowing kits have been examined by the Laboratory of the Government Chemist. The toys were all of the type in which a plastic loop is used to extract a meniscus of liquid from a soapy solution; the film may then be blown to yield a stream of bubbles.

Two imported samples yielded a profuse growth of Gram negative bacteria (colony counts ranging from 15–45 x 10^6 per ml of solution) including klebsiellas, citrobacters, enterobacters and pseudomonads. A UK-produced sample, heat-treated and containing preservative, was free of microorganisms.

While it is unrealistic to expect toys of this nature to be sterile, aerosols from bursting bubbles containing such opportunist organisms might possibly cause problems for young babies and immunocompromised children.

Source: PHLS Communicable Disease Surveillance Centre. *Communicable Disease Report* 1984; Weekly edition 84/34.