

This study seeks to determine whether emotional responses associated with inflammatory bowel disease can be reduced through psychological intervention and whether this will also reduce physical morbidity.

Ten subjects were recruited from two general hospitals and entered into a 20-week programme incorporating:

- 1) General relaxation under hypnosis.
- 2) Cognitive therapy.
- 3) Gut directed therapy within a small N design.

Results are presented as individual data sets which are combined where appropriate. These show that nine-tenths of subjects experienced a reduction in emotional symptoms, between baseline and follow up and 6-7 subjects who showed physical symptoms reported a reduction between baseline and follow-up. Gut directed hypnosis was most effective in reducing physical symptoms and cognitive therapy was more effective in relieving emotional symptoms.

The implications of these findings for the treatment of bowel disease are discussed.

The effects of psychological intervention on patients with Inflammatory Bowel Disease



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INFLAMMATORY bowel disease (IBD) is the term used to encompass ulcerative colitis and Crohn's Disease, particularly when it is difficult to decide which disorder is actually present. The disease, which appears to be associated with changes in the immune system, is most prevalent in North America and Western Europe, thus suggesting that stress may be implicated. Cultural factors may also be relevant, since Rosenthal and Rosenthal (1985)¹ have shown that cultural and subcultural differences play a part in dictating whether emotions are freely expressed or conveyed in somatic form.

Ulcerative colitis affects the large bowel; the rectum is usually involved and the disease may progress to involve the entire colon, from anus to ileo-caecal valve. The lesion can lead to the formation of ulcers and the destruction of the mucosa. Crohn's Disease can involve any section of the gastro-intestinal tract but lesions are most common in the ileum, colon or both, involving discrete areas of inflamed, thickened bowel and adjacent lymphadenopathy. IBD presents a variable pattern of acute exacerbation followed by periods of quiescence. Medical treatment aims to maintain remission using anti-inflammatory drugs, symptomatic drugs and nutritional supplements, with corticosteroids being used mainly during acute attacks.

Ulcerative colitis has been regarded as a psychosomatic disorder. Evidence exists for a relationship between emotional and gastro-intestinal symptoms.

SEVERAL studies have reported patterns of dependency, emotional conflict, repressed aggression, etc. (e.g. Paulley 1956)². However, the earlier literature has been criticised on the grounds of unreliability of both gastro-intestinal and psychiatric diagnosis.

Clouse and Alpers (1986)³ found that psychiatric illness was no more common in ulcerative colitis patients than in other chronically ill, age-matched controls when accurate psychiatric diagnoses were used. On the other hand, a significantly higher rate of psychiatric disorder was found in a group of Crohn's patients which was unrelated to disease severity, with depression being the most common diagnosis. Most studies in this area are retrospective and therefore cannot distinguish between predisposing emotional factors and those resulting from chronic long-term illness. There have been few attempts to monitor the level of emotional feeling over a given period of time.

Hawkins (1983)⁴ suggests that psychological symptoms result from, rather than cause, these diseases and suggests that attention to emotional problems may do much to improve the long term prognosis. Many psychological problems related to IBD have been documented. For example chronic inflammation produces an urgency of bowel action which can lead to anxiety, depression, etc. Diarrhoea is highly sensitive to stress, toilet facilities were not always available and this increases the stress, leading to a vicious circle

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¹ Rosenthal, T.L. and Rosenthal, R.H. (1985). *Clinical Stress Management*. In: *Clinical Handbook of Psychological Disorders*. Barlow, D. (Ed), New York, Guildford Press 145-205.

² Paulley, J.W. (1948). *Regional Ileitis*, *The Lancet*, 923.

³ Clouse, R.E. and Alpers, D.H. (1986). *The Relationship of Psychiatric Disorder to Gastrointestinal Illness*, *Annual Review of Medicine* 37: 283-295

⁴ Hawkins, C. (1983). *Psychological Problems and the Management of Patients with Inflammatory Bowel Disease*, In: Allan R.N. *Inflammatory Bowel Disease*, London, Churchill.

⁵ Almy, T.P. and Tulin, N. (1947). *Alteration in Colonic Function in Man under Stress*, *Gastroenterology*, 8 616-628.

⁶ Karusch, A., Daniels, G.E., O Connor, J.F. and Stern, L.O. (1969). *The Response to Psychotherapy in Chronic Ulcerative Colitis*, 2, *Factors Arising from the Therapeutic Situation*, *Psychosomatic Medicine*, 31: 201-219.

⁷ Beck A. (1976). *Cognitive Therapy and Emotional Disorders*, New York, International Universities Press.

⁸ Whorwell, P.J., Prior, A. and Faragher, E.B. (1984). *Controlled Trial of Hypnotherapy in the Treatment of Severe Refractory Irritable Bowel Syndrome*, *The Lancet*, 1984; 1:1233.

⁹ Whorwell, P.J., Prior, A. and Colgan, S.M. (1987). *Hypnotherapy in Severe Irritable Bowel Syndrome: Further Experience*, *Gut*, 28 423-425.

¹⁰ Stacher, G., Berner, P., Naske, R., Schuster, P., Bauer, P., Starker, H. and Schulze, D. (1975). *Effect of Hypnotic Suggestion of Relaxation on Bowel and Betazole-stimulated Gastric Acid Secretion*, *Gastroenterology* 68: 656-661.

¹¹ Klein, K.B., and Spiegel, D. (1969). *Modulation of Gastric Acid Secretion by Hypnosis*, *Gastroenterology*, 96: 1383-1387.

¹² Bovill, D. (1982) *Tutorial Therapy: Teaching Neurotics to Treat Themselves*, London, M.T.P. Press

¹³ Hartland, J. (1971). *Medical and Dental Hypnosis and its Clinical Applications* (2nd Ed.), New York: Harcourt Brace and Jovanovitch.

Fear of humiliation, of carcinoma, of an ileostomy and of other operations, together with side effects of steroid treatment, all add to the patient's burden. Since an association between emotional and gastrointestinal symptoms is well documented, (e.g. Almy and Tulin 1947⁵) psychological therapies would be expected to be effective. Karush et al (1969),⁶ found patterns of improvement in ulcerative colitis which differed according to both the type of psychotherapy used and the personality of the patient. They also found that the therapist's ability to match the patient's need for dependency greatly affected the outcome.

In the case of Crohn's Disease, Hawkins (1983) emphasises the need for sympathetic listening and the importance of a close relationship between doctor and patient. However, this is usually impractical in a busy clinic and the supportive therapy advocated would seem to increase dependency in a supposedly 'dependent' group. A more realistic approach to the problem may be to teach patients to be less dependent by dealing with their own emotions for example, patients usually suffer from their perceptions of the insensitivity of society towards their disease. Therefore, a cognitive restructuring approach may be useful in this area, (cf Beck 1976)⁷.

There is evidence to suggest that specific hypnotherapy can have long term effects on irritable bowel syndrome (IBS) by 'switching off' the gastro-intestinal symptoms. Whorwell et al (1984, 1987)^{8, 9} compared patients given psychotherapy plus a placebo medication with patients given gut-directed hypnotherapy and daily practice of auto-hypnosis. Patients in the hypnosis group reported a greater improvement than those given psychotherapy. Only two patients suffered symptoms of relapse in the following 18 months and these were overcome by a further hypnosis session.

In contrast, little improvement has been found when non-specific hypnotic relaxation is used and it has been suggested that if emotional and gastro-intestinal symptoms are correlated then physiological changes may be specifically induced through central mechanisms such as the shared neuro-hormonal control of the brain and the gastro-intestinal tract. Stacher¹⁰ et al (1975) have shown that relaxation under hypnosis resulted in a significant reduction of gastric acid secretion and of gastric motility as compared to a conventional form of relaxation. Klein and Spiegel (1989)¹¹ have demonstrated the converse of this effect. Hypnotically induced mental imagery was shown to promote the production of gastric acid, possibly via a cephalic phase

stimulus, involving vagus nerve activity, which leads to stimulation of the parasympathetic nervous system.

The current investigation seeks to assess which emotional states have a detrimental effect on the gut and whether the emotional concomitants of IBD can be reduced by psychological intervention as an adjunct to existing medical treatment. It compares the effects of tutorial therapy, non-specific hypnotic relaxation and Whorwell's gut directed hypnotherapy, on psychological health as measured by the General Health Questionnaire (GHQ) and on bowel activity.

Tutorial therapy (Bovill 1982)¹² incorporates a cognitive behavioural approach to the treatment of neurosis and aims to change inappropriate thought patterns by taking 'faulty training for life' as an explanation and then retraining the individual through the self-application of behaviourist principles.

This approach is highly relevant to IBD sufferers. For example, uncontrollable diarrhoea is often accompanied by fear and guilt, leading to a sense of inferiority. Children are taught that bowel movements should be confined to the toilet and that accidents and odours are socially unacceptable. Thus "I must not" patterns of thought become ingrained. Helping patients to restructure these rules in their own situations should do much to reduce shame and fear and to improve their self-esteem. Patients can also be taught more realistic thinking skills to achieve other relevant aims such as acceptance of themselves and their disease, acceptance of the need to express emotions appropriately, and the achievement of emotional independence. Because the technique can be learned in a very short time it is postulated that the resulting anxiety reduction will in turn reduce colonic motility. If patients can learn how to deal with emotions appropriately a reduction is to be expected both in the number of events seen as stressful and in the strength of the emotional response to them.

Non-specific hypnotic relaxation was expected to produce a reduction in psychological distress and physical symptoms.

The gut directed approach incorporates hypnotically induced relaxation and ego strengthening, in addition to gut targeted hypnotherapy and daily self-hypnosis.

Hartland (1978)¹³ considers ego strengthening to be of vital importance when using hypnosis, to reduce any risk of symptom substitution or untoward release of anxiety. Gut directed therapy uses a similar procedure to that of Whorwell et al (1984, 1987). However, because IBD is an

organic condition, modifications which suggest healing of colonic lesions and reduction of inflammation are included.

In order to examine the relationship between stress caused by problems specific to the patient and symptoms, subjects were requested to record personal problems together with the type and level of emotional response produced. For ethical reasons, administration of medicaments was left entirely under the control of the patient's consultant.

It was anticipated that the above psychological interventions would reduce emotional problems related to IBD, thus reducing physical discomfort and assisting the maintenance of remission. It was also hypothesised that Whorwell's findings regarding gut-directed therapy would be extended to patients suffering from IBD.

METHOD DESIGN

This is a small N (A,B,C,D,A) design using three intervention conditions;

- (1, *Non-specific hypnotic relaxation.*
- (2 *Tutorial therapy.*
- (3, *Gut-directed hypnotherapy.*

The dependent variables are:

- (1 *The scores obtained on the General Health Questionnaire (GHQ).*
- (2) *A daily record of bowel activity.*
- (3) *The number of specific problems reported.*
- (4) *Levels of emotional stress.*

Subjects were allocated at random to either the hypnotic relaxation or the tutorial therapy condition, to counteract order effects. Since gut directed therapy depends on prior experience of hypnosis it was provided last in the sequence.

SUBJECTS

Inclusion Criteria:

- 1) Any patient having either ulcerative colitis or Crohn's Disease and suffering continuous relapse symptoms for the preceding three months or longer.
- 2) Any patient having ulcerative colitis or Crohn's Disease, suffering symptoms of relapse during the preceding three months and having had one or more relapses during the preceding twelve months.

Exclusion Criteria:

Patients were excluded if they were:-

- 1) Over the age of 60,
- 2) Taking psychotropic drugs.
- 3) Depressed for reasons likely to be increased by hypnosis.
- 4) Suffering from additional medical disorders with which the therapist felt unable to deal.

Subjects comprised six with ulcerative colitis, (three male and 3 female) and 4 suffering from Crohn's Disease, (all female). Three subjects, although fitting inclusion criterion 2, proved to be free of physical symptoms through the course of the experiment (asymptomatic subjects).

Subjects were recruited from consecutive referrals, 10 from two general hospital outpatient clinics and two from a general practitioner. Two subjects withdrew from the experiment; one was unable to enter the hypnotic state and the other unable to complete the programme. For one subject the therapist was unable to adhere to the programme described for ethical reasons and this particular subject followed the pattern, non-specific hypnosis, gut directed hypnosis, tutorial therapy.

MEASURES

The measuring instruments used were:

- (1) The GHQ (Goldberg 1978);¹⁴
- (2) a daily diary card to record bowel activity, amended from the Crohn's Disease Activity Index (Best et al 1976)¹⁵; and
- (3) a daily record of specific problem events and of emotional responses to those events. Items on the diary card and stress measures were totalled in respect of each week.

PROCEDURE

After screening for the above criteria subjects were given the daily diary cards and stress records together with instructions for completing them and baseline data was gathered for four weeks prior to the commencement of therapy.

The intervention was carried out on a one-to-one basis over a period of 12 weeks. Tutorial therapy focused on attentive listening, cognitive restructuring, problem solving and appropriate emotional expression. Subjects were asked to

¹⁴ Goldberg, D. (1-78). *Manual for the General Health Questionnaire*, London NFER.

¹⁵ Best, W.R, Becketl, J.M., Singleton, J.W. and Kem, F. (1976). *Development of a Crohn's Disease Activity Index*, *Gastroenterology* 70: 439-444.

Baseline scores were obtained for four weeks prior to commencement of intervention on all measures. Each subject then went through the three treatment phases consecutively, each phase lasting for four weeks. On completion of intervention, subjects continued to record data for a follow-up period of four weeks.

practice the routines thus learned on a regular basis.

Non-specific hypnosis followed, emphasising 'calmness, relaxation and confidence' (CRC) and auto-hypnosis. The gut-directed condition was preceded by a simple explanation of smooth muscle physiology. Hypnosis was induced, followed by Hartland's ego strengthening technique.

During gut directed therapy, which was based on Whorwell's procedure, the subjects were instructed to place the hands on the abdomen. Feelings of warmth and comfort were generated in this area followed by a sequence of suggestion which was subsequently related to symptom reduction, physical healing and personal control of gut function. Additionally, self-hypnosis was taught to reinforce the procedure. Once the subject was able to enter and terminate the hypnotic state satisfactorily, he or she was required to practise this method every day for the remainder of the intervention.

Subjects were assigned randomly to the starting treatment (either tutorial therapy or non-specific hypnosis), went next to the other treatment and then finished with the gut-directed intervention.

On completion of the 12-week period of therapy, subjects were given tapes containing both hypnotic procedures, together with instructions for use and 'reminder information' regarding tutorial therapy. Measuring materials for the four week follow up period were provided and no further contact was made during this period.

RESULTS

The pattern of change in each individual subject is presented in figures 1 to 10. All subjects show a reduction in GHQ scores from baseline and six out of seven symptomatic subjects show a reduction in physical symptoms from baseline measures.

A variable pattern of improvement, alternating with some reversals, is revealed from condition to condition highlighting individual differences and the effect of extraneous variables. Data from subject 1 shows a continuous, dramatic improvement, in physical morbidity, whereas subject 3 reveals a worsening of physical symptoms during gut directed hypnosis and follow up. Subject 10 reveals a marked continual improvement particularly psychologically.

With the exception of subject 1, the data suggests an association between GHQ scores and physical morbidity for symptomatic subjects. There is also a trend in the same direction between physical morbidity and emotional reactions and

between physical morbidity and reported problems for four symptomatic subjects. It is not logical to examine the relationship between these measures for asymptomatic subjects. However, trends in the same direction are observed between GHQ scores and emotional reactions and between GHQ scores and the number of problems reported for two asymptomatic subjects, suggesting a possible relationship between stress and the "feeling" (psychological discomfort) component of the disease.

There was sufficient agreement between the individual records for the individual data to be aggregated into group data. However, all four measures were found to have a highly skewed, non-normal distribution. A suitable normalising transformation for each measure was obtained using the BOX-COX approach. A square-root transformation of the GHQ scores and a natural log e transformation of the three remaining measures provided good approximations to the normal distribution.

For each of the measures in turn, the following statistical analyses were carried out on the transformed data from nine of the subjects combined, with data from the subject who was unable to adhere to the programme (subject 1), excluded from the analyses.

A) A two factor repeated measures analysis of variance (with order as one factor and time as a repeated measures factor) was used to determine the effect of the order in which treatment was received and to investigate changes in the measures over the 20 sessions.

As no significant order effect or, order-time interaction was found for any of the four measures, the order of treatment was discounted in any of the statistical analyses of the data to simplify the interpretation of the results.

B) A one factor repeated measures analysis of variance (with time as the repeated measures factor) was carried out on data from all nine subjects combined to examine the changes in the scores over the 20 sessions. Specific differences between sessions were assessed using Tukey's critical range test. Detransformed means (i.e., means expressed in the original units) are presented for each session, in Figures 11 to 14. For those measures having a log e transformation prior to statistical analysis, the detransformed means are referred to as geometric means.

Figure 11 shows GHQ scores across the treatment sessions and a clear trend towards a decrease in the scores over time. Statistically significant differences were found between the sessions, $F(19,151) = 3.15$. $p < 0.001$.

Specifically, the significant differences were:
 Gut directed hypnosis 3 = Follow up 4 < Baseline 1,2,4
 Gut directed hypnosis 2 < Baseline 1,2
 Figure 12 shows physical morbidity across sessions and again indicates a decrease in symptoms over time. However, no significant differences were found across sessions, $F(19,151) = 1.39$ $p = 0.14$. However, there was wide variability between the subjects and those who were asymptomatic showed extremely low scores. Of the seven symptomatic subjects, four did show a decrease over the gut-directed sessions. Additionally, data from subject 1, whose scores reveal dramatic physical improvement have necessarily been excluded from the analysis.

Figure 13 shows the emotional responses across sessions and a clear trend towards a reduction in emotional reactivity over time. Statistical analysis revealed a significant effect across sessions, $F(19,151) = 3.93$ $p < 0.0001$.

Specifically, the significant differences were:

Gut-directed hypnosis 3 = Follow up 4 < baseline 1,3, tutorial therapy 1

Gut directed hypnosis 1,2,4 = Follow up 2,3 < baseline 1

Figure 14 shows reported problems across sessions with a decrease in problems being reported over time. Statistically significant differences were found between sessions: $F(19,151) = 2.97$. $p < 0.0001$.

Specifically, the significant differences were:

Gut directed hypnosis 3 < Baseline 1,2,3, tutorial therapy 1

Follow up 4 < Baseline 1,2

Gut directed hypnosis 1,2,3 = Follow up 3 < Baseline 1

Table 1 presents a summary of mean scores to give some indication of the variation between treatment regimes. A substantial decrease is observed from baseline to follow up on all measures, suggesting that each individual

Table 1 Detransformed mean scores on all measures

	GHQ Scores	Physical Morbidity	Emotional Reactions	Reported Problems
Baseline	26.5	9.5	3.2	1.6
Non-specific hypnosis	14.3	6.4	1.6	0.9
Tutorial therapy	12.6	6.3	1.5	0.9
Gut directed hypnosis	10.8	4.9	0.3	0.3
Follow up	13.3	5.3	0.6	0.5

treatment is beneficial both psychologically and physically. However, as all the significant differences (noted above in figs 4 to 7) were

observed during gut-directed hypnosis and follow up, it can be concluded that gut directed hypnosis has the more beneficial effect overall.

The reported emotional reactions to stressors were collated for all 12 subjects including the two who withdrew from the experiment with each specific feeling expressed as a percentage of those reported (Table 2).

This data indicates that it is the active responses,

Table 2
Percentage of all Reported Emotional Reactions to Stressors (N = 12)

anger	tension	anxiety	guilt	sadness	resentment	other
24	31	24	2	8	6	5

previously associated with physiological reactions in the gut, which are reported predominantly.

Subjects were also asked which parts of the programme they felt to be most beneficial (Table 3).

Table 3. Preferences expressed for treatment

(n = 10)

Non-specific hypnosis	Tutorial therapy	Gut directed hypnosis	Package
1	2	5	2

DISCUSSION

The results offer strong support for the efficacy of psychological treatments for IBD. Graphical presentation of the data reveal that all of the treatments have a beneficial effect. Highly significant differences were found between baseline and the gut-directed intervention and between the baseline and follow up data for all psychological measures. Moderate changes are evident for the physical morbidity scores during the gut directed intervention, (9.5 down to 4.9), which suggests that Whorwell's (1984, 1987) findings from research on IBS can be successfully extended to patients suffering from IBD.

The inclusion of symptomatic subjects naturally caused a wide variation in scores and had it been possible to include the data from subject 1, even more favourable results might have been forthcoming. Although the individual data from this subject show the fewest symptoms to be during tutorial therapy and at follow-up, she reported continued use of the gut-directed therapy and auto-hypnosis during the tutorial therapy phase, which would have confounded her scores.

By contrast, non-specific hypnotic relaxation was less successful, (9.5 down to 6.4) confirming previous reports. However, hypnosis is a learned skill and several sessions of general hypnotic relaxation are usually necessary to establish the required approach. Similarly, tutorial therapy was less effective than gut-directed therapy (9.5 down to 6.3). Nevertheless, nine out of the 10 subjects reported considerable benefit from the strategies learned during tutorial therapy, which stringently emphasises a realistic independence. Subjects reported feelings of liberation after changing their thought patterns regarding the disease and some initiated positive changes in life style as a result. This highlights the individual differences in emotional problems associated with uncontrollable diarrhoea, points to the need for a holistic approach to management and supports previous findings in this area, (Karusch et al 1969).

This data suggests that psychological therapies are a way forward for IBD sufferers and may do much towards reducing the need for corticosteroid treatment together with its many, well-documented side effects. Gut directed therapy seems to have been successful regardless of the site, duration and severity of the disease.

The diary data revealed that seven out of 10 subjects felt that emotional stress exacerbated their symptoms and six reported that traumatic incidents had precipitated the initial attack.

Although the data does not lend itself to statistical analysis of the relationship between stress and physical reactions, the trends observed in the data does go some way towards supporting the documented association between emotion and gut disorders. However, it tells us nothing of aetiology, only that stress appears to exacerbate the disease in some subjects and reduction of stress subsequently leads to physical improvement.

From subjects' reports it appears to be the emotions that trigger the "fight or flight" responses which are implicated in IBD. Most subjects felt inhibited regarding the expression of anger and operated defence mechanisms against anxiety. It is possible that breaking down these responses through tutorial therapy, allowing

insight and appropriate emotional expression, went some way towards alleviating physical discomfort. These findings may also explain why non-specific hypnotic relaxation, being an incompatible response to the fight or flight mechanism, can be beneficial in gut disorders. A number of the studies cited above refer to the role of repressed anger. Those and the present findings suggest that a future study which specifically addressed the role of anger in influencing physical morbidity would provide useful information.

The relapse and remission pattern of the disease makes it difficult to evaluate these psychological therapies with confidence, especially as necessary changes in medication can also obviously confound the issue. In serious diseases such as these, the physician will always be changing medication in the patient's best interests. However, four of the symptomatic subjects had no such changes in medication across the period of the study and these subjects showed marked physical improvement, particularly in the gut-directed condition, suggesting success of the intervention. Two of the asymptomatic subjects showed an absence of physical morbidity in this condition despite gradual reduction of steroids throughout.

The disease can, of course, go into spontaneous remission but the inclusion criteria, the improvement from baseline, the substantial physical improvement of subjects whose disease

has formerly proved difficult to control and the fact that none of the subjects was referred specifically for help with emotional problems again support the success of psychological intervention. Nevertheless there is no place for this type of intervention without medical supervision. IBD is a serious physical disorder and psychological therapy can only support the physician's current approaches.

The fact that the subjects were given much social and sympathetic attention should not be overlooked. While the study has suggested an association between psychological comfort and the relief of physical symptoms, the relationship between the subject and the therapist may have influenced the outcome. However, the fact that

If patients are able to control the disease themselves, by the use of psychological techniques, there are exciting implications for the future

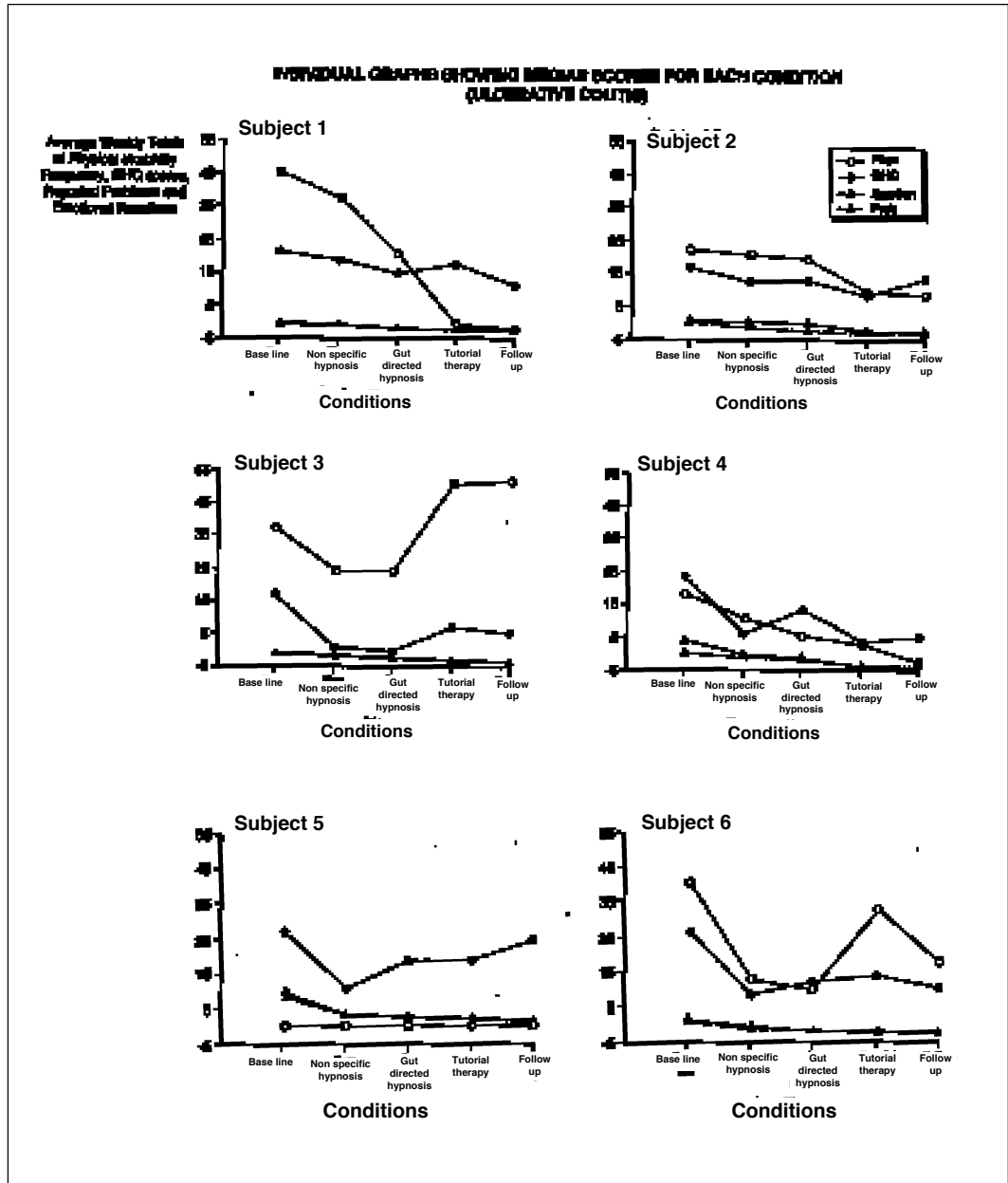
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follow up data, taken when the subjects used the treatment independently of the therapist, revealed no substantial increases in the various measures, and many continued to improve, suggests that it is the psychological therapy itself that is effective.

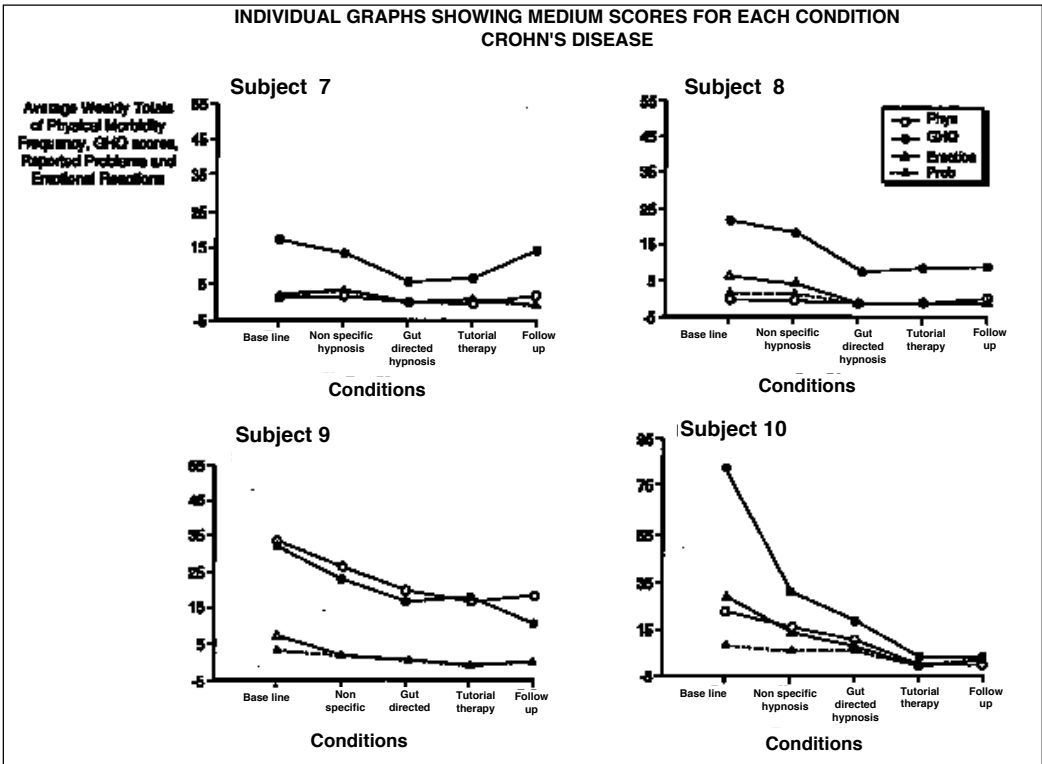
It may also be noted that to the extent that tutorial therapy alters people's perceptions of events so that fewer are perceived as stressful, the role of stress as an independent variable becomes affected. There are also individual differences in susceptibility to hypnosis. The sample used here

is small and the follow up period obviously inadequate to assess any long term improvement. However, the study does suggest that the principle of psychological intervention warrants further investigation.

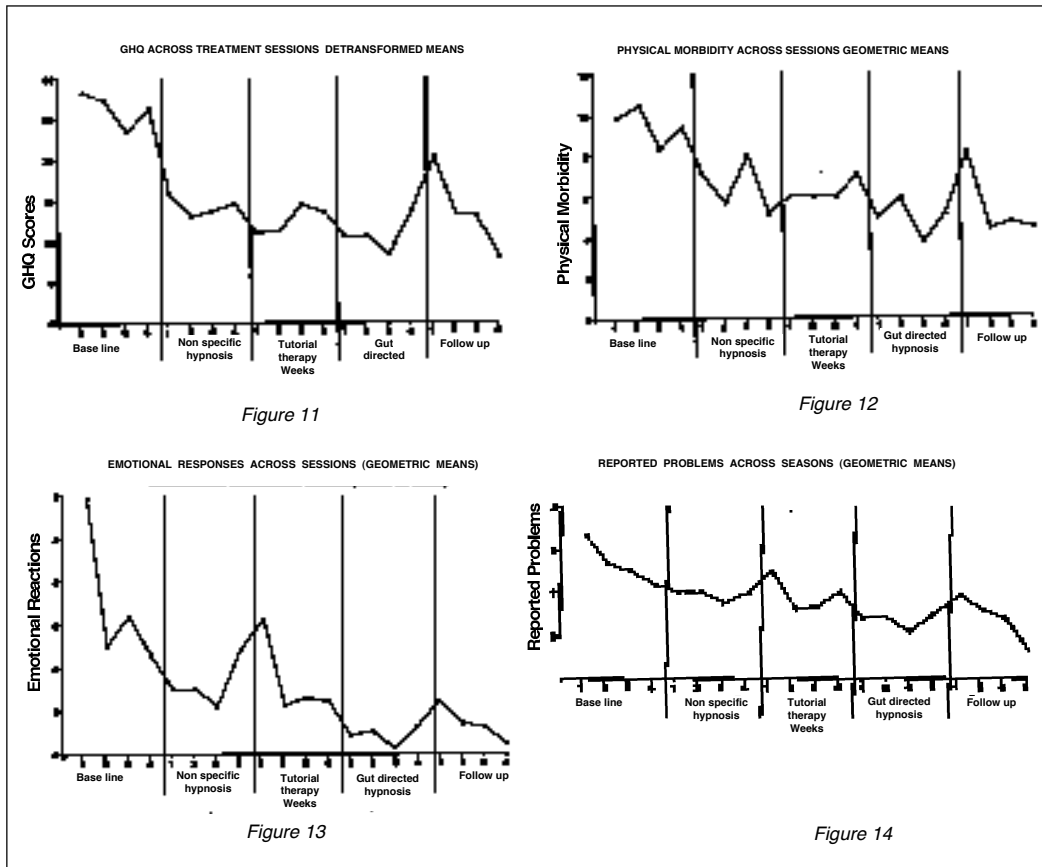
If patients are able to control the disease themselves, by the use of psychological techniques, there are exciting implications for the future. Used in conjunction with medical management, such techniques may do much to improve the quality of life for the patient.



Figures 1 - 6



Figures 11 to 14 show a clear reduction in symptoms at follow up for all 4 measures. Highly significant differences are revealed for psychological measures. Therefore, it can be concluded that psychological intervention is able to reduce the emotional problems and physical discomfort related to IBD.



Figures 11-14

Acknowledgement

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