

USE OF MIND/BODY SELF-HEALING PRACTICE PREDICTS POSITIVE HEALTH TRANSITION IN CHRONIC FATIGUE SYNDROME: A Controlled Study

William Collinge, Ph.D., M.P.H.; Paul R. Yarnold, Ph.D. & Ellen Raskin

ABSTRACT

Seventy subjects diagnosed with chronic fatigue syndrome were randomized to a control group (N = 33) or a treatment group (N = 37). All continued usual medical care. Treatment subjects were assigned to a 9 week, 2-hours-per-week group program teaching mindfulness meditation and medical qigong practices. The outcome variable was 12-month health transition at one-year follow-up, as defined by the SF36 12-month Health Transition score. The data yielded a classification tree with a 90% overall accuracy rate in classifying subjects as “improvers” or non-improvers” (effect strength 80.5, experimentwise $p < .05$), based on SF36 Role Functioning-Physical score at follow-up and frequency of mind/body self-healing practice. Subjects in the highest quartile of Role Functioning-Physical improved regardless of practice. For the remaining 75%, those practicing three or more days per week at follow-up were 2.7 times more likely to report positive 12-month Health Transition than those practicing less.

KEYWORDS: Chronic fatigue syndrome, meditation, mind/body medicine, behavioral medicine, health transition

INTRODUCTION

Chronic Fatigue Syndrome (CFS) is a complex chronic illness characterized by unexplained and debilitating fatigue with minimal exertion, immunologic and neurologic abnormalities and a wide range of other symptoms.^{1,2} The term “fatigue” in the name is misleading as it is only one of many symptoms associated with the syndrome. Even more debilitating for many sufferers are cognitive disturbances in memory and concentration. Involvement of the central nervous system was indicated in a study of 259 patients which found that 78% had lesions in their brain tissue as revealed by magnetic resonance imaging, compared to 21% for controls.¹

Most patients report an acute onset in the form of a flu-like illness that does not resolve with rest. The course of illness varies widely among patients, but usually involves a cyclical pattern of relapses and remissions. Some relapses are triggered by particular stressors, while others may occur for no apparent reason.^{3,4}

Etiology remains a mystery. Theories have included persistent viral infection, yeast or parasites, environmental toxemia, primary muscle disorder, post-infectious chronic immune dysfunction, neuroendocrine disorder, primary sleep disorder, and neuropsychiatric disorder. No single theory has gained consensus approval. There is no published data indicating that CFS is communicable through either casual or intimate contact, and in their review of research Hickie et al. conclude that “it is unlikely that any single infectious agent will be identified as the ‘cause’ of CFS.”^{4(p.317)}

There are currently no defining tests or biological markers for CFS, making it a diagnosis of exclusion.^{4(pp.314-318)} The current CDC case definition includes the criteria described in Table I. These criteria replace an earlier, more exclusive version,⁵ and are intended to be applied only after a thorough medical history, physical examination, mental status examination, and laboratory tests have ruled out other, potentially treatable illnesses.⁶ Treatments are palliative for specific symptoms. While several trials of antiviral and immunoregulatory drugs have been undertaken, no studies have demonstrated efficacy in repeated well-designed trials; hence, there is no definitive treatment for CFS.⁷

Table I

CDC Criteria for a Case Definition of CFS

1. Clinically evaluated, unexplained persistent or relapsing chronic fatigue that is of new or definite onset (i.e., not lifelong), is not the result of ongoing exertion, is not substantially alleviated by rest, and results in substantial reduction in previous levels of occupational, educational, social, or personal activities; AND
2. The concurrent occurrence of four or more of the following symptoms: substantial impairment in short-term memory or concentration; sore throat; tender lymph nodes; muscle pain; multijoint pain without swelling or redness; headaches of a new type, pattern, or severity; unrefreshing sleep; and postexertional malaise lasting more than 24 hours. These symptoms must have persisted or recurred during 6 or more consecutive months of illness and must not have predated the fatigue.

HEALTH TRANSITION IN CFS

Symptoms may last for years, and reports vary as to prognosis. Wilson et al. followed 103 patients for 2.4-4.2 years after treatment and found that 63% reported improvement.⁸ Bonner et al. reported 66% of 46 patients recovered in four years.⁹ In a retrospective study of 234 clinic patients, Hinds and McCluskey found 34.7% improving but an overall recovery rate of less than 20% over 6 years.¹⁰ Other studies have suggested improvement in only 31%.¹¹ The National Institute of Allergy and Infectious Diseases has summarized the prognosis as follows: most patients partially recover, some fully recover, and others recover and relapse.¹² Hence, there is currently very little basis on which to offer a prognosis to the individual sufferer.

Despite the mysteries surrounding CFS, a substantial proportion of patients do improve with time and many report themselves recovered. Based on clinical observation, a three-phase model of the course of CFS (onset, chronic phase, recovery phase) is proposed in Figure 1, reflecting its impact on functioning

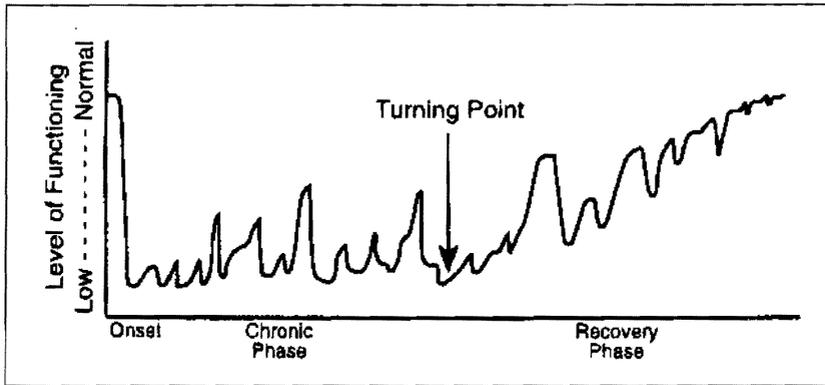


Figure 1. An example of the course of CRS from onset to recovery.

in daily living in each phase.¹³ The figure has no time scale as this varies widely across patents.

The notion of a “turning point” in the course of illness is central to the present paper because it signals the initiation of a process of *positive health transition*; i.e., shifting out of a recurrent pattern of chronic functional impairment, and beginning a gradual ascent toward recovery of normal functioning. The recovery process is still punctuated by relapses and remissions, but the relapses become briefer and less severe, and the intervening periods of remission gradually lengthen. We emphasize that positive health transition is a dynamic process that builds momentum over time.

Former patients have retrospectively attributed their turning points to various factors including medical treatments, alternative therapies, behavioral or lifestyle changes, moving, relationship transitions (beginnings and endings), self-healing practices, and spiritual or psychological breakthroughs.

SELF-HEALING AND CFS

CFS is clearly multi-systemic and does not fit neatly into any conventional illness categories. It appears to be multi-causal and is best understood in terms

of the biopsychosocial perspective—the result of complex interactions among host resistance, genetic vulnerabilities, environmental pathogens, stress and coping, nutrition and other lifestyle variables.^{14,15}

Given the often intractable chronicity of this illness, the two major challenges of treatment are (1) symptom management, and (2) helping patients initiate a process of positive health transition that is sustained over the long term. Behavioral medicine, which is grounded in the biopsychosocial perspective, has been found to successfully address both of these challenges in other serious illnesses. Clinically significant impact has been found in metastatic breast cancer,¹⁶ malignant melanoma,¹⁷ AIDS,¹⁸ hypertension,¹⁹ heart disease,²⁰ and many other diseases. Though Paul Cheney, MD, has observed that lifestyle change is “easily the most important and often the least emphasized” part of treatment in CFS,²¹ there has been little research in behaviorally-based interventions with this syndrome.

Two studies of group intervention with CFS patients using Cognitive Behavior Therapy (CBT), which focuses on changing behavior patterns and cognitive assumptions, have been conducted, with ambiguous results. A British study of 32 patients who combined CBT with antidepressant drug therapy reported improvement in 69%, which was sustained at 3-month follow-up.²² However, in this study there was no control group and no way of distinguishing the effects of the medication from the CBT. A controlled trial in Australia compared CBT with routine clinic attendance, and found no significant difference in outcomes of the two groups.²³

For patients with fibromyalgia—which many researchers consider to be a variant of or related to CFS—a group program combining stress reduction therapy and CBT found significant improvement over a control group, which was maintained 3 to 6 months later.²⁴

The purpose of the present study was to examine the extent to which regular use of mind/body self-healing practices, as well as other behavioral and functional variables, may predict positive health transition over a 12-month period in CFS. We designed a controlled study in which intervention subjects were taught a regime of mind/body self-healing practices for home use.

METHODS

SUBJECT RECRUITMENT

A call for subjects was sent by mail to physicians in the San Francisco Bay area recognized as having expertise in diagnosing and treating CFS, who announced the study through postings in their waiting rooms and their individual contacts with patients. It was also publicized by mail to other clinicians, support groups and leaders in the local CFS network. The study was presented as an opportunity for patients to contribute to knowledge about the course of CFS for the benefit of others.

Those interested in participating contacted researchers (WC or HR) for a screening interview by phone. Those who met the following criteria were invited to participate:

1. A current diagnosis of CFS by a physician according to the CDC criteria;
2. An interval of at least 12 months since the diagnosis;
3. No other major medical conditions, such as cancer, AIDS, MS, etc.;
4. An estimated global functioning level of 75% or less;
5. No current or recent participation in behavioral or mind/body medicine treatment programs, individually or group;
6. No current regular use of behavioral or mind/body self-healing practices;
7. Willingness to be randomly assigned to either the control group (continue usual care) or the experimental group (usual care plus intervention program);
8. Willingness to comply with a regime of self-help practices if assigned to the intervention group.

Criteria 1-3 were independently confirmed by the subject's physician, and the other items were resolved during the interview. Subjects accepted into the study signed a standard consent form acknowledging that participation is not

a substitute for appropriate medical care, that they would be randomly assigned to a control or intervention group, that it is unknown whether any benefits would accrue from participating in the intervention group, that they would be free to withdraw at any time, and that their data would be kept confidential.

70 subjects were accepted into the study and were randomized to a control group (N = 33) or a training group (N = 37) by use of a table of random numbers.

DATA COLLECTION

A self-report instrument package was administered by mail, and each subject was paid a total of \$50 over the 12 months for returning the completed questionnaire packets. The present paper is based on data from the following instruments at baseline (pre-intervention), ten weeks (immediately post-intervention), and twelve months.

INSTRUMENTS

SF36. The Medical Outcomes Short-Form General Health Survey (SF-36) is a 36-item instrument that measures functional status in eight domains: Physical Functioning (extent to which health limits physical activities), Role Functioning—Physical (extent to which physical health interferes with work or other daily activity), Bodily Pain (intensity and effect on activity), General Health (evaluation of current health, outlook and resistance to illness), Vitality (energy versus tiredness), Social Functioning (extent to which health interferes with normal social activity), Role Functioning—Emotional (extent to which emotional problems interfere with normal activity), and Mental Health (depression, anxiety, behavioral-emotional control, affect). It also contains a summary measure of Health Transition, comparing overall current health status with one year ago.^{25,26}

The specific outcome variable used for this study was the 12-month Health Transition summary measure at one-year follow-up. This is a single Likert-scaled item as follows: “*Compared to one year ago, how would you rate your*

health in general *now*?" Possible responses are "much better now than one year ago," "somewhat better now than one year ago," "about the same as one year ago," "somewhat worse now than one year ago," or "much worse now than one year ago." The validity of this self-reported change measure was established by Ware et al. in studies of analysis of variance with one-year measured change scores in the eight SF36 functional subscales. MANOVA F for the health transition measure was $F = 12.91$, $p < .00001$, and of the eight subscales, its strongest concurrent validity was with change in the General Health subscale over the same time interval ($F = 55.3$).²⁷

The *Multidimensional Health Locus of Control Scale* measures the degree to which subjects attribute their health status to factors outside their control as opposed to factors within their control. It yields three distinct subscale scores: Internal, Powerful Others, and Chance.²⁸

Symptom Index Survey is an exploratory, non-standardized, 97-item Likert-scaled survey of symptom areas relevant to CFS. Symptom categories include allergy, cognitive, digestive, ears, emotions, energy/activity, eyes, head, heart, immune, joints/muscles, lungs, metabolism/endocrine, mouth/throat, neurologic, nose/sinus, pelvic/urinary, skin, and weight/diet.²⁹ For experimental purposes we used the raw total score to represent an approximation of cumulative symptom severity.

In addition the self-report instrument package contained a series of questions addressing help-seeking behavior including (1) number of current medications prescribed by a physician, (2) past and current use of mind/body self-healing practices (meditation, imagery, prayer, breathing exercises, biofeedback, yoga, qigong, tai chi, relaxation exercises, autogenic training, self-hypnosis, other), (3) number of office visits to physicians in the past three months, and (4) number of office visits to non-physician health care providers in the past three months.

INTERVENTION PROGRAM

Treatment subjects participated in a 9-week, 2-hours-per-week group behavioral medicine program, with a choice of morning or afternoon sections. Each meeting included the following components:

Mindfulness meditation. Subjects were led through about 30 minutes of instruction and guided practice of mindfulness meditation. This is a traditional Buddhist practice involving sitting still with eyes closed and focusing one's attention on the breath. Mindfulness meditation is the basis of stress reduction programs developed in recent years by Kabat-Zinn and others, which have shown promise in pain control and health promotion.^{30,31}

Medical qigong. Subjects were led through about 30 minutes of instruction and guided practice of a set of medical qigong exercises (sitting or standing). This is a traditional Chinese system of self-healing exercises that involve breathing, self-massage, movement, imagery, and circulation of vital energy.^{32,33} The methods used in this program were developed by Master Sun Da-jin, former director of the Hang Zou Qigong Medical Science Research Institute, Hang Zou, China, and currently the master at the Genesee Valley Daoist Hermitage, Moscow, Idaho.

Group discussion. Participants were encouraged to share their experience of the past week, including compliance with home practice recommendations. There was discussion of lifestyle issues associated with CFS; however, rather than being a conventional support group or therapy group, the emphasis was on integrating the prescribed self-healing practices into daily life and reinforcing regular practice.

In addition to the group sessions the subjects were asked to practice their choice of one or both of the techniques for at least 30 minutes per day at home. To support home practice a "buddy system" was used in which each subject had a partner who they would phone on alternate days of the week to offer encouragement and reinforcement. Also, subjects used daily log sheets to record the length of time practiced, which methods were used, and observations about the experience. Log sheets for the week were collected at each meeting and used as feedback by the researchers.

DATA ANALYSIS

The outcome measure was self-rated (non)improvement, assessed using the SF36 Health Transition score. Specifically, improvement was defined as a

response to this item of either “much better” or “somewhat better” (Likert scores of 1 and 2, respectively) now versus one year ago. Non-improvement was defined by responses of “about the same,” “somewhat worse,” or “much worse” (Likert scores of 3, 4, and 5 respectively) now versus one year ago. This dichotomous outcome measure was predicted using classification tree analysis (CTA), a nonparametric nonlinear discriminant analysis that explicitly maximizes classification accuracy. All reported effects met the Bonferroni criterion for statistical significance (experimentwise $p < .05$).³⁴⁻³⁶

RESULTS

DESCRIPTION OF THE SAMPLE

Of the 70 subjects initially accepted into the study, 8 who were assigned to the treatment group dropped out shortly after beginning due to logistical issues such as transportation or time conflicts, 1 was removed for disruptive behavior, and 1 control declined to complete data collection.

Table II describes demographics, help-seeking behavior, and SF36 functional status and reported health transition over the prior year at baseline for the 60 subjects who completed the studies. The final sample of 28 treatment subjects and 32 controls included 50 females and 10 males with a mean age of 44 and a mean of 56 months since diagnosis. Two-thirds had at least an undergraduate degree, and slightly over a third were living with a spouse or partner. In terms of SF36 functional levels, Role Functioning-Physical was by far the lowest with a mean of 6.3 on a 100 point scale, followed Vitality (20.5). Mean 12-month Health Transition was 2.77 (predominantly “about the same as one year ago”).

PREDICTING HEALTH TRANSITION

32 of the 60 subjects reported positive 12-month Health Transition at follow-up (19 controls and 13 treatment subjects). A classification tree (Figure 2) was developed from the data which correctly classified improvement status of 54 of the 60 subjects (90% overall accuracy). The overall effect strength of 80.5

Table II
Description of the Sample at Baseline (N = 60)

Sex	50 Females, 10 Males
Age	mean 44.2 years, S.D. 70, Range 27-61
Ethnicity	Caucasian—55, Hispanic—3, Native American—1, Asian American—1
Marital status	Single—35, Living with spouse or partner—21, Separated from spouse or partner—4
Highest educational level	High school—2 Some college = 18, BA—26, MA—10, Doctorate—4
Months since diagnosis of CFS	mean 57, S.D. 28.1, Range 12-143
Estimated global activity level (%)	mean 41, S.D. 16.5, Range 0-100
Occupation prior to onset of CFS	Homemaker—2, Student—1, Paid employee—57
Estimated current involvement in occupation (%)	mean 17.9, S.D. 26.8, Range 0-100
Number of physicians seen for help with CFS	mean 8.7, S.D. 6.5, Range 1-30
Number of prescription medications currently used	mean 3.8, S.D. 3.3, Range 0-15
Health care visits to physicians in last 3 months	mean 3.1, S.D. 2.9, Range 0-14
Health care visits to non-physicians in last 3 months	mean 5.8, S.D. 8.6, Range 0-49
SF36 Physical Functioning scale	mean 42.5, S.D. 19.5, Range 0-80
SF36 Role Functioning—Physical scale	mean 6.3, S.D. 13.5, Range 0-50
SF36 Bodily Pain scale	mean 39, S.D. 21.4, Range 0-84
SF36 General Health scale	mean 24.5, S.D. 11.9, Range 0-55
SF36 Vitality scale	mean 20.5, S.D. 15.9, Range 0-55
SF36 Social Functioning scale	mean 29.5, S.D. 21.9, Range 0-100
SF36 Role Functioning—Emotional scale	mean 50, S.D. 41, Range 0-100
SF36 Mental Health scale	mean 55.1, S.D. 19.1, Range 0-84
SF36 Health Transition (over the year prior to study)	mean 2.77, S.D. 1.13, Range 1-5
Health Locus of Control—Internal	mean 20.4, S.D. 5.2, Range 9-32
Health Locus of Control—Powerful Others	mean 11.8, S.D. 4.1, Range 6-23
Health Locus of Control—Chance	mean 17.0, S.D. 5.5, Range 6-31

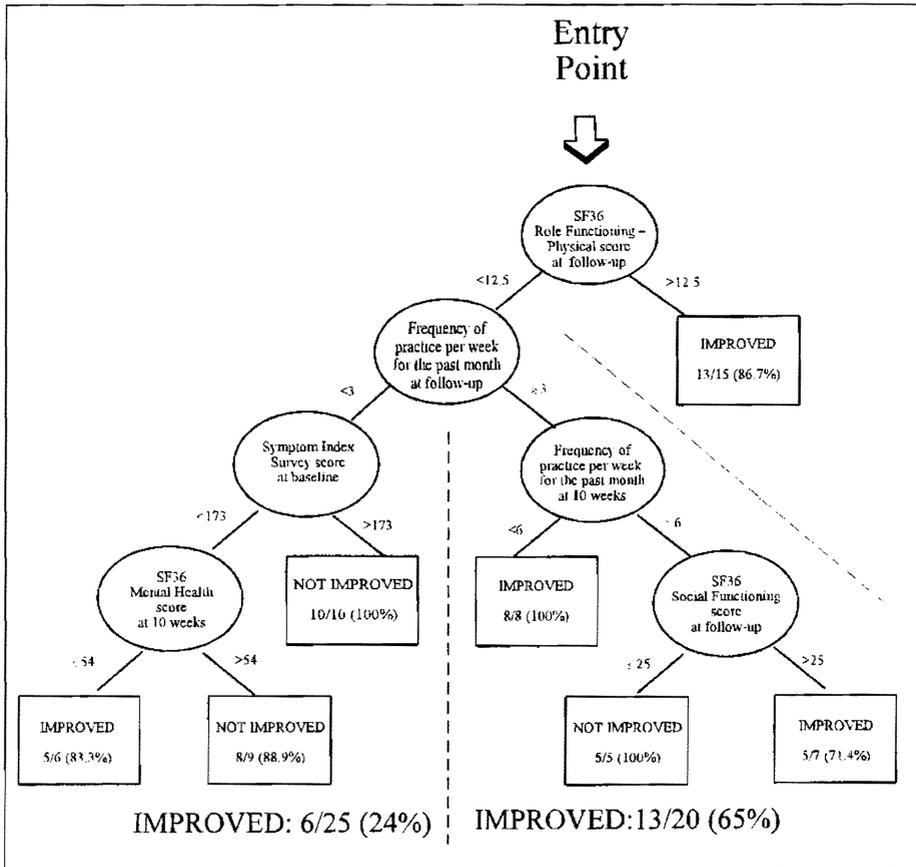


Figure 2. Results of Classification Tree Analysis (experimentwise $p < .05$). Note. "Improved" is defined by an SF36 12-Month Health Transition score of either *somewhat better* or *much better* than a year ago, reported at one year follow-up.

(0 = chance, 100 = perfect classification accuracy) indicates that this is a strong effect. A summary model is presented in Figure 3.

Four common pathways through the measured attributes described the patients who reported improvement:

Path 1 scored > 12.5 on the SF36 Role Functioning-Physical (RF-P) scale at 12 months (13 of 15 improved, 86.7%).

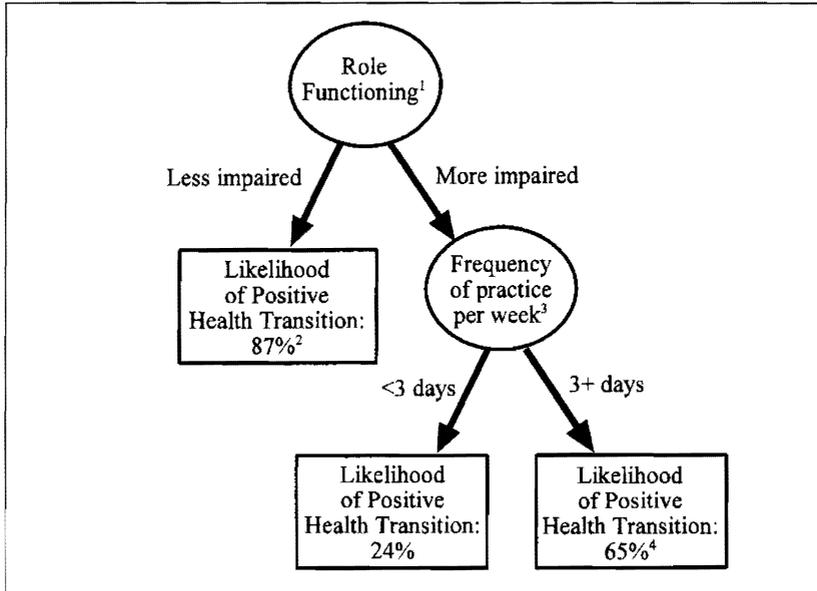


Figure 3. Summary Model: Predicting Positive 12-Month Health Transition in CFS. Notes. (1) "Role Functioning" is based on the SF36 Role Functioning-Physical scale. Cut-point for degree of impairment is 12.5. (2) "Positive Health Transition," indicating progress toward recovery, is determined by a score of "somewhat better" or "much better" than a year ago on the SF36 12-Month Health Transition Scale. (3) "Frequency of practice per week" is indicated by the average number of days per week over the past month the patient used a self-healing practice of at least 15 minutes. (4) In patients practicing 3+ days per week, likelihood of reporting Positive Health Transition increases from 65% to 87% with better social involvement, as indicated by the SF36 Social Functioning scale (cut-point is 25).

Path 2 scored < 12.5 on RF-P at 12 months, reported ≥ 3 days per week of mind/body self-healing practice for 15+ minutes over the past month at 12 months, but < 6 days per week of practice at 10 weeks (8/8, 100%).

Path 3 scored < 12.5 on RF-P at 12 months, reported ≥ 3 days of practice at 12 months, ≥ 6 days of practice at 10 weeks, and scored > 25 on the SF36 Social Functioning scale at 12 months (5/7, 71.4%).

Path 4 scored < 12.5 on RF-P at 12 months, reported < 3 days of practice at 12 months, scored ≤ 173 on the Symptom Index Survey at baseline, and scored ≤ 54 on SF36 Mental Health at 10 weeks (5/6, 83.3%).

Three common pathways predicted *non*-improvement:

Path 1 scored < 12.5 on RF-P at 12 months, ≥ 3 days of practice at 12 months, ≥ 6 days of practice at 10 weeks, and ≤ 25 on Social Functioning at 12 months (5/5, 100%).

Path 2 scored < 12.5 on RF-P at 12 months, < 3 days of practice at 12 months, and > 173 on the Symptom Impact Survey at baseline (10/10, 100%).

Path 3 scored < 12.5 on RF-P at 12 months, < 3 days of practice at 12 months, ≤ 173 on the Symptom Impact Survey at baseline, and > 54 on the SF36 Mental Health scale at 10 weeks (8/9, 88.9%).

DISCUSSION

The method of recruiting subjects for this study has the inherent biases of any study relying on volunteer participation. In this case, the self-selection criteria explicitly addressed ability to travel to a weekly program, and willingness to follow through with a self-help regime if assigned to the treatment program.

Potential subjects who were either physically too ill to attend or otherwise not motivated to volunteer were not represented. However, the baseline levels of functioning and debilitation as presented in Table II suggest that this was a significantly debilitated sample—particularly in terms of the degree to which their role functioning was limited by physical illness.

In terms of prior self-help orientation, through our screening criteria we rejected subjects already involved in regular use of such practices, yet we did need subjects who were open to such an approach. We found that the sample tended to favor an Internal health locus of control over Chance or Powerful Others, but we know of no norms for this patient population regarding this variable.

Another salient characteristic of the sample was educational level, in that two-thirds of the subjects had at least an undergraduate degree. It is unknown whether—or in what direction—this could influence the results, though more highly educated medical patients are generally assumed to be more receptive to self-help regimes.

The variables which did *not* predict Health Transition are as important as those that did. Most notably, participation in the treatment program (discussed further below), and time since diagnosis—often considered a prognostic indicator in CFS—did *not* prove to be significant predictors in this sample.

At the top of the hierarchy of predictors was the SF36 Role Functioning-Physical scale at follow-up: nearly 87% of those scoring above the cut-point of 12.5 reported improvement, regardless of any other variables. This finding suggests that the less a patient's role functioning is compromised by CFS, the more likely they are to be in a process of positive health transition—that is, already have momentum building toward recovery. The close association of this variable with health transition is consistent with patients' reports that the inability to fulfill one's valued roles at home or work is one of the greatest causes of suffering in this illness.

Our study design does not address causality between role functioning and health transition. Rather, the practical value of discriminant analysis is its power in the classification of individual subjects. In this case, clinicians can predict that patients with better role functioning are likely to be *currently progressing* toward recovery.

For the subjects who had poorer role functioning (the three-quarters of the sample who were below the cut-point), the leading predictor of health transition was frequency of self-healing practice of 15+ minutes per day for the past month at follow-up. Odds of reporting positive health transition were 2.7 times greater for those practicing 3+ days per week than for those practicing less.

The analysis revealed an important risk factor which compromises the benefits of regular practice. Subjects demonstrating extreme enthusiasm for frequent practice early in the study (6+ days per week at the 10-week point) were at serious risk for *non-improvement* if they had lower levels of social support at follow-up. *None* of these enthusiasts who also had lower scores in SF36 Social Functioning (< 26) improved at follow-up.

This finding suggests that an over-reliance on self-help practices to the exclusion of adequate social support should be discouraged.³⁷⁻³⁹ Since social support

serves as a buffer against the negative health effects of stress,³⁹⁻⁴¹ and CFS is an extremely stress-sensitive disease, the importance of social support in CFS cannot be overstated.⁴² Indeed, when the extreme at-risk subjects are removed from the analysis, the odds of improvement with regular practice increase to 13/15 (87%, or 3.6 times greater). Thus clinicians should be alert to this risk factor in highly motivated patients and emphasize the importance of balance between self-help and social support.

We were initially disappointed that treatment versus control status did not emerge as a significant variable in the classification tree. Yet, since self-healing practice was a significant predictor independently, the results support rather more important conclusions regarding compliance and autonomy.

Over the course of the year several control subjects spontaneously adopted regular use of such practices (perhaps inspired by their knowledge of the study) and reported improvement at follow-up. Conversely, several treatment subjects did not maintain compliance with the recommendations of the program, and reported no improvement. Hence, individual motivation for self-healing appears to be more consequential than any specific structured program. This should be an encouraging finding for sufferers of CFS who are unable to avail themselves of such programs, or who believe they need formal instruction in order to benefit.

We also note that it did not matter what particular practices were used. While the intervention program taught mindfulness meditation and qigong, and subjects were also surveyed as to use of other popular approaches, no single approach won favor in the analysis. What mattered was simply the frequency of any self-healing practice. This is also good news for patients in that it affirms the notion that there is no “one best way,” and that intention and follow-through with a practice of one’s choice are the keys to promoting positive health transition.

Regarding the longevity of practice needed to effect positive health transition, the 3+ days-per-week figure that emerged in the analysis was for the last month of the study only, not the entire year. This suggests that practicing 3+ days per week for only 1 month will yield a report of positive health transition relative to the past 12 months. However, we would assume that the subjects

reporting such practice for the 12th month of the study had probably been doing so for longer than that last month alone. We are still led to conclude that if such practice were maintained over the course of a year the patient would, theoretically, sustain positive health transition month to month in a progressive, step-wise fashion, thereby steadily raising functional levels and building momentum toward recovery.

In subjects practicing < 3 days per week at follow-up, high baseline symptomatology (Symptom Index Survey) predicted no improvement. While the instrument used is not standardized, this finding is consistent with the notion that severity of illness is a prognostic indicator in CFS. We emphasize, however, that the predictive value of this variable was superseded by frequency of practice.

In low-practicing subjects with lower baseline symptomatology, a counter-intuitive finding occurred with regard to the SF36 Mental Health scale. Those with better mental health scores at the 10 week point did *not* improve at follow-up, while those with lower mental health scores were likely to improve.

This finding might be explained in two ways. One is that subjects who experience more mental distress—or for whom the illness is more ego-dystonic—are more likely to take actions that support their improvement over the long term. Subjects who are less emotionally distressed by the illness, or for whom it less ego-dystonic, are less likely to take such actions. Another possible explanation is statistical regression, in that those who had more severe mental distress at 10 weeks had more room to improve over the next 42 weeks, and were thus more likely to perceive positive health transition at follow-up.

In conclusion, lacking any definitive medical treatment for CFS, the most troubling questions for clinicians and patients alike concern the unpredictable course of illness and what actions the patient can take to initiate positive health transition. The data presented here suggest that clinicians can address both of these questions through consideration of role functioning and self-help behavior in the individual patient. Specifically, (1) those whose role functioning is less severely impaired by physical symptoms are predicted to be currently in a process of positive health transition, though it may not be readily apparent to them; and (2) those whose role functioning is more severely impaired will substantially increase the likelihood of initiating positive health transition with

regular use of a mind/body self-healing practice. Studies with larger samples are needed to verify these findings.

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CORRESPONDENCE: William Collinge, Ph.D., M.P.H. • 255 Whipple Road • Kittery, ME 03904 • **Email:** collinge@healthy.net

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