

Interactive Guided ImagerySM Therapy with Medical Patients: Predictors of Health Outcomes

LARRY W. SCHERWITZ, Ph.D., REV. PAMELA McHENRY, C.H.T.,
and REBECCA HERRERO, M.S., L.M.F.T.

ABSTRACT

Objectives: To assess whether Interactive Guided ImagerySM (IGI) is helpful to medical patients and to identify factors that contribute to positive outcomes.

Design: A prospective cohort study of 323 medical patients who received 6 IGI sessions on a weekly basis. Patients and practitioners completed questionnaires at the beginning, middle, and end of the 6 IGI sessions. The questionnaires assessed the patients' ability to do IGI, the quality of the practitioner-patient interaction, possible confounding variables, and enabling factors. The hypothesis was that measures of the process of doing IGI and the practitioner-patient relationship would predict outcomes.

Subjects/setting: The subjects were all patients seeking treatment at California Pacific Medical Center in San Francisco, and Marin General Hospital in Greenbrae, CA.

Intervention: Using IGI interactively is a cognitive-behavioral intervention designed to help patients relax by using mental images to discover and cultivate healing intentions, and to reflect on the meaning of these images.

Measures: The individual measures to assess the patients' ability to do IGI and measures of the practitioner-patient relationship were factor-analyzed to use as predictor variables in a multiple regression. Similarly, the questionnaire items measuring cognitive, emotional, behavioral, and spiritual benefits of IGI were factor-analyzed into factors representing "insight" and "all other" benefits.

Results: The multiple regression shows that both process and practitioner-patient interaction factors significantly contributed to a combined 40% of the variance in patients' ratings of insight into the nature of their problem and to becoming aware of an aspect of self, $F(4,56) = 9.4, p < 0.005$. The same process and interaction factors were less strongly related to the other outcomes, $r^2 = 0.14, F(4,56) = 2.3, p = 0.06$. None of the demographic, confounding, or enabling factors was related to the outcome measures.

Conclusions: The process of doing IGI and the relationship with the practitioner were both independently associated with the patients' insight into their health problems.

INTRODUCTION

The expression of healing intentions through imagery has long been a part of many traditional healing rituals (Johnstone, 2000). More recently, guided imagery has been developed and refined into a cognitive therapy that has been

applied to a very broad range of psychologic and physical conditions (Eller, 1999). In laboratory experiments and randomized trials, guided imagery has been shown to reduce stress (Baider et al., 1994; Holden-Lund, 1988; Lewis, 1987; Manyande et al., 1995; Tsai and Crockett, 1993; Wynd, 1992), depression (Burish and Lyles, 1981; Collins and Rice,

1997; Leja, 1989; Turner and Jensen, 1993), anxiety (Burish and Lyles, 1981; Carey and Burish, 1987; Lyles et al., 1982), blood pressure (Crowther, 1983; Henry and Sanacore, 1987; Taylor et al., 1977), postoperative pain, and length of hospital stay (Deisch et al., 2000; Tusek et al., 1997). It is remarkable to find so much supportive evidence for the efficacy of guided imagery given the differences in duration and frequency of sessions, the use of live or taped script, with or without music, and group or individual sessions.

In studying the mechanisms of action, one needs to distinguish between guided imagery following a taped script and interactive guided imagery, in which the imagery process happens with a facilitator. Much of the research cited above used guided imagery with tape- or compact disc-recorded script, which may be reported to a nurse or therapist later. The therapy reported on here is referred to as Interactive Guided ImagerySM (IGI), because the patients interact with their imagery while they interact with the practitioner. The servicemark indicates that the practitioners were trained in the method first developed by Bressler and Rossman (1994). The first published study on IGI was a qualitative analysis of 10 patients treated by 3 nurses trained in IGI and interviewed using semistructured, open-ended questions about their experience of IGI (Heinschel, 2002). Based on a careful qualitative analysis of the interview content, the most common experience was of living the imagery rather than observing or thinking it. Patients lived the experience through feelings that arose as they interacted with an inner guide or by communicating with an image that might represent a symptom. Complementary to this lived experience was the use of a nonordinary state of consciousness that was facilitated by deep relaxation with eyes closed, and the use of an imaginary internal guide that functions to help patients to interact with their images and to facilitate the imagery journey. Factors that enhanced the patient's experience were a competent practitioner who established trust and rapport, and the patient being relaxed and unhurried (Heinschel, 2002).

Because IGI practitioners use a combination of relaxation, breathing, body scanning, meditative techniques, and a variety of imaging techniques, the healing mechanisms are likely to be complex. In terms of the imagery itself, it has been theorized that images are a mind-body bridge translating the verbal and emotional aspects into physical form (Achterberg, 1985). Guided imagery may also elicit powerful emotions. In *Molecules of Emotion*, Candice Pert (1999) states:

"My research has shown me that when emotions are expressed—which is to say that the biochemicals that are the substrate of emotions are flowing freely—all systems are untied and made whole. . . . Hypnosis, yogic breathing, and many of the manipulative and energy-based therapies are all examples of techniques that can be used to effect change at a level beneath

consciousness. Sometimes transformations occur through the emotional catharsis common to the many bodymind therapies that focus on freeing up emotions that have gotten lodged in the psychosomatic network, but not always."

The benefits of practicing imagery may also be mediated by cultivating healing intentions alone. There is significant evidence in the literature to support the possibility of a distance healing effect in clinical settings (reviewed in Targ, 1997). Another likely mechanism of action is the practitioner-patient interaction (Johnstone, 2000). The rapport generated, the trust bestowed, the comfort achieved, and the support received are inherent to the therapeutic encounter.

The aims of the present study are to assess whether IGI is perceived by patients as being helpful, and to identify patient, situational, and treatment-related factors that predict treatment-related outcomes. To generate hypotheses about what factors contributed to the outcomes, the first author held a focus group with the interactive guided imagery facilitator and a group of 6 practitioners. The focus group provided a wide range of possible benefits of IGI that were included as questionnaire items, and it provided ideas about what contributes to good outcomes.

The focus group's ideas about what would predict good outcomes have two themes: the process of doing IGI, and practitioner-patient interaction. The process of doing IGI is operationally defined by questionnaire items measuring patients' ability to relax, breathe deeply, follow instructions, concentrate on the image, the sensual richness of the image, and the persistence in following it. The practitioner-patient interaction is operationally defined by questionnaire items to measure the patients' perceptions of the practitioners' experience and competence, the resourcefulness of the techniques, the warmth they feel from the practitioner, the feeling of comfort and security they have in the session, and the degree the patient experiences being seen and understood. The hypothesis is that both the process and interaction factors will predict a broad range of health outcomes as measured by self-report.

METHODS

Design

The design is a longitudinal prospective cohort study of 323 patients as they progressed through 6 treatment sessions over a 2-month period. Inclusion criteria were all adult patients at California Pacific Medical Center (CPMC) or Marin General Hospital (MGH) who could read and write English and agree to undergo 6 imagery sessions. Patients were recruited through referral by health care providers to a central telephone number, by self-referral after having heard of the program, and by the imagery practitioners who invited hos-

pitalized patients to participate. Patients were given 6 free imagery sessions in exchange for completing a questionnaire after their first, third, and sixth imagery sessions. The study was approved by the CPMC institutional review board.

Sample size and attrition

A total of 447 patients were screened for eligibility. Of these, 68 were not eligible primarily because either the practitioner or patient could not be available for 6 sessions. The imagery practitioners recruited patients into the study, provided imagery sessions, and administered a questionnaire at the end of the session. Of the 379 eligible patients, 56 refused primarily because they were not interested or because they expressed the intention of doing imagery later. Of the 323 patients who agreed to be in the study, 63 dropped out after the first or second session, and 36 dropped out after the succeeding sessions. The reasons for dropping out were not consistently recorded by the imagery practitioners, but where recorded they indicated a variety of reasons, such as scheduling problems, feeling too sick, and being discharged early.

IGI therapy

The 23 imagery practitioners in the study were graduates or graduate students doing supervised internships in clinical psychology, marriage and family therapy, and social work. Interns were often working on their supervised hours, and some were experienced licensed therapists who wanted opportunities to work in a hospital setting. The practitioner training was based upon the approach developed by the Academy for Guided Imagery (Bresler and Rossman, 1989) and further informed by the Institute for Health and Healing training program. It was further refined by incorporating specific techniques of relaxation from medical hypnotherapy (Preston, 2001), and awareness of the language and techniques of neurolinguistic programming (Buckheit, 1994). Also, students were encouraged to listen to and glean techniques from the guided imagery recordings of Belleruth Naparstek (1998) and others.

This IGI treatment protocol has 4 qualitative stages. In the first stage, the practitioner interviews the patient to determine the patient's mental and emotional status as well as his or her understanding of the diagnosis and treatment. If this is the first imagery session, the practitioner describes the stages of each session and explains how guided imagery works. The practitioner assesses the patient's fears and concerns about his or her health status and medical care and elicits goals regarding what the patient may hope to achieve with guided imagery.

The second stage is focused on shifting the patient's awareness to an internal focus and helping the patient achieve a state of deep relaxation. The patient is invited to get comfortable, close or defocus their eyes, breathe deeply, and imagine a flow of relaxation slowly descending from

the top of their head to the soles of their feet. It is suggested that they allow any excess tension to release and fall down and away from their body. After the patient reports experiencing a state of relaxation, the patient is encouraged to recall or imagine a peaceful scene. At this time, the patient is given the option of inviting a supportive internal guide to enter into the imagined scene. An internal guide with qualities of wisdom and compassion can be used as an additional source of insight and support for the patient. In the third stage, the practitioner invites the patient to allow an image to form, which represents the patient's symptom or concern. If distractions, flooding emotions, or resistance arise, they become the focus of the session until they are resolved and the patient can focus upon imagery. The patient is encouraged to experience the image in the present tense, observing and reporting the sensory aspects of the image. The patient is invited to interact with or enter into the image to explore its qualities and its emotional components. The patient may want to maintain an observer role as their internal guide to elicit information from the image or the patient may want to directly enter into an interaction with the image. The practitioner encourages the patient to use the experience to gather new insights for future consideration. When the patient feels that the exploration is complete, the practitioner directs the patient to allow all of the images to fade, while remembering any material that seems important. The fourth stage begins with the practitioner suggesting that the patient slowly bring his or her awareness back to the external environment. The patient is then invited to process the experience of the imagery with the practitioner and to share any new insights that resulted. In this safe context, resistance may be explored, irrational beliefs may be uncovered, and other obstacles examined. Hidden strengths and internal resources become apparent, resulting in a new sense of empowerment for the patient. The practitioner asks the patient to practice daily to explore the imagery further for insights and direction.

Measurement strategy and collection procedure

All the data were collected using questionnaires specifically developed for the study. Table 1 lists the variables and the schedule for measurement and Appendix 1 is the questionnaire given to patients after the sixth guided imagery session. Each of the items under Situational and Interpersonal Factors as well as the Outcome Measures in Table 1 are 5-point scaled questions administered to patients. Alpha scores for item reliability were computed for the questions repeated from one session to the next. To expect a good return rate with a very ill patient population, the questionnaires had to be brief. Prior to the first imagery session, the practitioners interviewed patients and recorded demographic information, primary diagnosis, primary reason for agreeing to practice IGI, and patients' history and current use of contemplative practices such as yoga, meditation, and prayer.

TABLE 1. MEASURES, RELIABILITY, AND SCHEDULE FOR DATA COLLECTION FOR GUIDED IMAGERY

Measures	α^a	Treatment Session		
		1	3	6
Background factors				
Sociodemographic (patient and practitioner) ^b		×		
Primary and secondary diagnosis (practitioner)		×	×	×
Medical objectives for Guided Imagery (patient and practitioner)		×	×	×
Experience and comfort with Guided Imagery (patient)		×	×	×
Contemplative practice				
Situational and interpersonal factors				
Noise and interruptions (patient and practitioner)			×	
Patient concentrates on Guided Imagery (practitioner)	0.68	×		×
Patient resourceful in pursuing image (practitioner)	0.70	×		×
Richness of patient's sensory content (practitioner)	0.66	×		×
Rapport and creativity (two questions, practitioner)				×
Patient relaxes, breathes, and follows (patient)	0.60, 0.64, 0.56	×	×	×
Practitioner seems experienced and competent (patient)	0.65	×	×	×
Practitioner warm and friendly (patient)	0.58	×	×	×
Feel safe to explore inner thoughts	0.55	×	×	×
Practitioner use resourceful techniques (patient)	0.67	×	×	×
Feel understood and seen (patient)	0.50	×	×	×
Assign homework (practitioner)		×		
Do homework (patient and practitioner)			×	×
Outcome measures (all from patients)				
Guided Imagery helps understand nature of problem	0.52	×	×	×
Guided Imagery helps get in touch with part of yourself	0.60	×	×	×
Return for further Guided Imagery	0.83	×		×
Overall satisfied with Guided Imagery	0.69	×		×
Objective for Guided Imagery been achieved	0.89		×	×
Physical symptoms improved	0.78		×	×
Mental or physical improvement	0.85		×	×
Helped make decisions	0.65		×	×
Let go of out of control issues	0.67		×	×
Greater sense of well being			×	
Greater sense of wholeness				×
Decreased depression and anxiety (2 questions)				×
Prioritize what is important				×
Feel more empowered				×
Discovery inner wisdom				×
Be in touch with what you are feeling				×

^aStandardized α for items with repeated measures.

^bIndicates the practitioner or the patient as the source of the measure.

^cThe IGI practitioner recorded homework at session 6, but not at session 3.

After the first IGI session, the practitioners recorded the location of the session, the noise level, and the number of interruptions. Next, the practitioners evaluated the process of doing IGI. They rated the patients on their ability to con-

centrate, the resourcefulness in pursuing an image, and the richness of the sensory process. These items were repeated after the sixth session. In addition to rating items such as their own rapport and creativity in working with the patient.

The patients evaluated their practice of IGI after the first, third, and sixth sessions. They evaluated their experience and comfort level in doing IGI, the degree to which they felt relaxed, whether they breathed deeply and evenly during the imagery session, and the degree to which they were able to follow the practitioners' suggestions. The patients also evaluated the practitioners' experience, friendliness, and resourcefulness in using imagery techniques, the degree to which the session was helpful in understanding the nature of their problem, and whether they were able to get in touch with a part of themselves they had been unaware of.

Qualitative measures

Patients were asked open-ended, qualitative questions to provide insight and descriptive detail, beginning after the first session, with, "What is your primary objective for practicing imagery?" After the sixth session, patients were asked three questions: (1) "If imagery was helpful, in what ways did the sessions help you?"; (2) "What was the most difficult part of doing imagery?"; and (3) "What would have made your imagery experience better?" The text of patients' answers was transcribed and categorized independently, according to content, by 2 raters, and any disagreements were resolved by consensus.

Outcome measures

Patients rated the benefits of IGI based on the degree of their physical (symptom intensity), emotional (depression and anxiety), psychologic (insight into problems, new awareness of self), behavioral (intentions to practice imagery), and spiritual (perceptions of being connected to something greater than themselves, increased wisdom, feeling nurtured) categories. To reduce the outcome measures and to increase their reliability, the individual items were factor-analyzed. The questionnaire items grouped into 2 factors. The first was psychologic insight from doing IGI and the second included all the other various benefits.

Data analysis strategy

All analyses were done with a personal computer using SPSS 11.5 (SPSS Inc., Chicago, IL). Simple descriptive statistics and correlation matrices were computed, and changes in both predictive and outcomes measures over time were evaluated by repeated measures of analysis of variance (ANOVA). The demographic, confounding, and enabling factors were analyzed for their relationship to the outcome measures by cross-tabulations of means and one-way ANOVA for the categorical variables. Correlation matrices were computed for the continuous variables. There were 10 questions to measure the process of doing guided imagery and patient-provider rapport and 16 questions to assess possible benefits of IGI. The many measures and the use of single questions to assess constructs such as depression pre-

sented a problem of too many analyses with potentially unreliable measures. Factor analyses were used for both predictor and outcome variables to reduce the number of analyses required and to increase the confidence that the results were reliable. A principal components analysis was used as the extraction method with Varimax rotation and Kaiser normalization. All factors with Eigenvalues ≥ 1.0 were considered for the strength of the item loadings and their independence from the other factors. The factor scores were more normally distributed than individual items and the factor scores were only moderately correlated. Multiple regression analyses were used to determine the independence and the combined effect of the predictor variables. Separate models using factor scores for both the predictor and outcome variables were run for the third and sixth imagery sessions.

RESULTS

Patients backgrounds

Patients' ages ranged from 19 to 81 years, with most patients 40–70. The mean age was 52.9 years; 12% were <40 years, and 26.5% were >60 years. Most (81%) were female, 16% were non-Caucasian (primarily from Asian descent), 34% had completed college, and 41% had completed college and graduate work. Patients' primary and secondary diagnoses and primary objectives in practicing IGI are shown in order of frequency in Table 2.

The primary diagnoses, in order of frequency, were breast cancer; cardiovascular disease; other cancer; cancer of reproductive organs; emotional trauma; physical trauma; and intestinal, urinary, kidney or blood disorders. The patients' primary objectives in practicing IGI were to relax and reduce stress, increase general health and wellness, obtain relief from physical symptoms and limitations, promote spiritual healing, create a positive outlook, receive emotional support, maximize conventional treatments, and curiosity.

Most patients (58%) had never had any kind of imagery session, a small number (10%) had experienced 1 session, and 32% had participated in several sessions or had substantial experiences with guided imagery. At the time of recruitment, 90% were not practicing imagery. More than 77% of patients were comfortable with the idea of practicing imagery, and 9% had some reservations. Of the 323 patients, 177 reported currently using one or more contemplative practices and had a mean practice time of 3.9 hours/week. The practices reported were: prayer (106), meditation (63), Hatha yoga (41), focused relaxation (33), and either *ta'i chi* or *qigong* (18). For those who reported a contemplative practice, practicing prayer had the longest history (an average of 26.4 years), followed by meditation (8.2 years), Tai Chi (8.2 years), yoga (6.5 years), and focused relaxation (5.6 years).

TABLE 2. PRIMARY AND SECONDARY DIAGNOSIS, AND PATIENT'S PRIMARY OBJECTIVE IN PRACTICING INTERACTIVE GUIDED IMAGERY

Primary diagnosis	
Breast cancer	78
Cardiovascular disease	56
Cancer, other	45
Cancer, reproductive organs	28
Other	23
Emotional	21
Physical trauma	20
Intestinal, urinary, kidney, or blood	10
Total	281
Secondary diagnosis	
Other	20
Cardiovascular disease	13
Emotional	9
Physical trauma	7
Cancer, other	5
Cancer, reproductive organs	3
Intestinal, urinary, kidney, or blood	2
Breast cancer	1
Total	60
Primary objective	
Relaxation and stress reduction	130
Increase general health and wellness	45
Relief from physical symptoms and limitations	37
Spiritual healing	30
Positive outlook	20
Coping and emotional support	16
Maximize treatments	13
Curiosity	12
Total	303

Context for doing IGI

Practitioners rated 76% of sessions as "very quiet" or "mostly quiet" and 14% of sessions were rated as "a little noisy" or "noisy." Of all sessions, 71% had no interruptions

and 14% had two or more interruptions at the first session, which improved to 87% and 4%, respectively, for the third session. Of all patients, 25% reported taking medications that could affect their thinking.

Homework

The practitioners assigned 80% of the patients guided imagery homework practice, at an average of 5.7 sessions per week with 15 minutes per session. The practitioners evaluated whether patients practiced their homework in 77% of the patients and they reported that 71% of these patients did the prescribed homework at an average of 15.7 minutes per day.

Process and interpersonal factors

All the process and interaction measures used a 5-point scale, with 5 indicating the most positive response, such as "definitely" or "excellent" (Table 3).

Patients rated themselves as able to relax (mean 4.5), to breathe deeply and evenly (mean 4.2), and to follow the practitioner's instructions (mean 4.6). The relaxed and breath ratings improved with more sessions (Wilks' $\lambda = (2, 204) 0.86, F = 16.2, p < 0.005$; Wilks' $\lambda = (2, 204) 0.90, F = 11.7, p < 0.005$, respectively), but the "follow instructions" did not significantly change with more sessions (Wilks' $\lambda = (2, 204) 0.98, F = 2.2, = p < 0.13$). The highest ratings (4.6–5.0) in the survey were the patients' ratings of the practitioner (mean 4.8), and this level was maintained for the third and sixth sessions. The patients' ratings for "warm and friendly," "feel safe," "used resourceful techniques," and "feels seen and understood" all increased significantly from the initial to the third and sixth sessions.

After the first session, the imagery practitioners rated the patients between good (3.0) and very good (4.0) regarding

TABLE 3. PROCESS AND INTERACTION MEASURES OVER TIME, EXPRESSED AS MEAN \pm STANDARD DEVIATION

Measure	n	Session 1	Session 3	Session 6
Process				
Relax	311	4.6 \pm 0.7	4.6 \pm 0.7	4.7 \pm 0.5
Breathe	313	4.4 \pm 0.8	4.5 \pm 0.7	4.7 \pm 0.6
Follow instruction	312	4.6 \pm 0.6	4.6 \pm 0.6	4.7 \pm 0.6
Concentrate	304	3.7 \pm 0.9		3.8 \pm 1.0
Resourceful	211	3.6 \pm 1.0		3.7 \pm 1.0
Richness	210	3.6 \pm 1.0		3.8 \pm 1.1
Interaction				
Experienced	312	4.8 \pm 0.5	4.8 \pm 0.4	4.9 \pm 0.4
Resourceful	311	4.6 \pm 0.6	4.8 \pm 0.5	4.8 \pm 0.5
Friendly	312	4.9 \pm 0.3	5.0 \pm 0.2	5.0 \pm 0.2
Feel safe	312	4.8 \pm 0.4	4.9 \pm 0.3	4.9 \pm 0.3
Feel seen	309	4.7 \pm 0.6	4.8 \pm 0.4	4.9 \pm 0.4
Rapport	207			4.2 \pm 0.8
Creativity	208			3.1 \pm 0.6

their ability to concentrate (mean 3.8), their resourcefulness in pursuing the imagery (mean 3.5), and the richness of the sensory experience (mean 3.8). These ratings were very similar and did not change significantly after the sixth session. At the sixth session, the practitioners rated their rapport with patients as "very good" (mean 4.2) and their creativity in working with patients as "moderate" (mean 3.0).

Outcome measures

The mean outcome measures are presented in Table 4. The results show that imagery sessions were rated as being most effective in helping patients to understand the nature of their problem and providing new awareness about an aspect of themselves about which they had not previously been aware. The ratings for these two measures increased significantly with more IGI sessions. After the first session, the patients' mean rating of whether the IGI was helpful in understanding the nature of their problem was between "somewhat" and "definitely," at 3.9. This rating increased toward "definitely" with a mean of 4.4 for both the third and sixth sessions (Wilks' lambda = (2, 204) 0.81, $F = 22.8$, $p < 0.005$). Likewise, the patients' ratings of the degree that the imagery session helped them be able to "get in touch with a part of yourself that you were not aware of" rose from 3.8 to 4.2 and 4.4 over the three sessions (Wilks' lambda = (2, 195) 0.82, $F = 21.8$, $p < 0.005$). Patients reported being satisfied

overall and that they would recommend imagery to others. However, the ratings for the various improvements in health were clearly in the middle of the scale. The frequency distributions show them to be well distributed with most measuring in the middle range; however, some rated definite improvement and an equal number rated no improvement.

After the sixth IGI session, 71 patients answered the open-ended question on how imagery had been helpful. The results revealed a wide variety of benefits that represent every stage of the therapy and for every aspect of health. Most patients listed multiple benefits. In order of frequency, the benefits reported were: relaxation and stress reduction (45), spiritual connectedness (28), increased positive outlook (24), learning new techniques (13), and helped physical symptoms (9). Examples from patients with a diagnosis of cancer included:

- "Being able to create images of health, healing, and seeing this in my body. Seeing this in my body. Seeing the usefulness of these images. That the mind does not know the difference between the 'image' and the 'reality.'"
- "I felt I was really listened to and heard. I gained a fuller perspective on my concerns. I was better able to consider all my choices and draw on all sources of support—to ask for help from the appropriate people."
- "Learning to trust and explore emotions, thoughts, and all feelings, whether positive or negative. That we learn more about ourselves when we allow this exploration."

TABLE 4. PATIENT-REPORTED OUTCOME MEASURES ACROSS THREE SESSIONS

Measure	n ^a	Session 1	Session 3	Session 6
Understand the nature of their problems	298	3.9 ± 1.0	4.4 ± 0.8	4.4 ± 1.0*
New awareness of part of self	305	3.8 ± 1.1	4.2 ± 0.9	4.4 ± 0.8*
Overall satisfaction with guided imagery	306			4.6 ± 0.8
Condition improved	228		2.8 ± 1.2	2.7 ± 1.4
Symptoms improved	185		2.9 ± 1.1	2.7 ± 1.3
Improve mentally or physically	242		2.9 ± 1.3	2.8 ± 1.4
Guided imagery helped make decisions	209		2.9 ± 1.2	2.9 ± 1.1
Let go of need for control	223		2.9 ± 1.1	2.8 ± 1.2
Greater well-being	252			2.9 ± 1.4
Greater sense of wholeness	209			2.7 ± 1.5
Manage anxiety	201			2.7 ± 1.3
Diminish any depression	179			2.9 ± 1.2
Prioritize what is important in life	197			2.7 ± 1.3
Feel more empowered	204			2.7 ± 1.4
Discover an inner wisdom	213			2.7 ± 1.5
Feeling in touch	216			2.8 ± 1.5
Develop ways to nurture yourself	218			2.7 ± 1.5
Connect to others	207			2.9 ± 1.1
Return for session in the future	307	3.3 ± 1.9		2.8 ± 1.6
Recommend guided imagery to others	217			4.6 ± 1.0
Continue session on their own	197			1.1 ± 0.3

^aThe n represents the first test. Because of missing data, n drops by as much as 95 from session 1 to session 6, and by as much as 35 from session 3 to session 6.

* $p < 0.005$.

The means in this table are based on a 5-point scale and they represent all possible subjects; the means in the accompanying text with the analysis of variance results are based on the subset of subjects with complete data over time.

Examples from cardiovascular patients include:

- "Helped me to recognize when I am getting stressed and how to stop stressing. Helped me to realize environmental irritations, which cause stress. I learned to mentally and emotionally relax."
- "Find inner resources during times of distress, and I paid more attention to exploring my feelings."

Factor analyses

Separate factor analyses were conducted on questionnaire items measuring the process of doing IGI (see Table 5), the practitioner-patient interaction (see Table 6), and health related outcomes (see Table 7). These analyses were done separately on the questionnaire items completed after the first, third, and sixth guided imagery sessions, but the results were similar across sessions. Fortunately, for all three time points, there is a strong clustering among the process items as well as a strong clustering among the interaction items, thus justifying their use as factors to represent these constructs. The factor analysis for the outcome variables clustered around two themes, with insight (into the nature of their problem or some aspect of self they were unaware of) and overall satisfaction as one factor, and the other health benefits (symptom intensity, anxiety, depression) as the second factor.

Predictors of patient-reported outcomes

The demographic, confounding, and enabling factors were analyzed to evaluate their relationship with the outcome measures using cross tabulations and correlation matrices. The analyses showed no significant relationship of the demographic (age, gender, education, and ethnicity) and confounding measures (taking medication that would affect thinking, noise level and number of interruptions) with either of the outcomes. The only enabling factor that was significantly related to an outcome measure was whether the

practitioner gave guided imagery homework. Those patients given homework had a higher rating (mean 0.3 points) for being able to get in touch with a part of themselves they were unaware of than those not given homework. None of the three other outcomes were close to being significantly related to homework assigned. The amount of homework reported done by the practitioner or patient ratings was also not related to any outcome measure.

In contrast, the correlations of the process of doing IGI and the practitioner-patient interaction ratings with patient-rated outcomes were consistently positive after the first IGI session and became stronger after the third and sixth sessions. Patients' ratings of being able to relax, breathe, and follow the practitioner's suggestions correlated with their subjective ratings of positive emotional, physical, behavioral, and mental measures ($r = 0.25-0.45$). These correlations were without exception in the "beneficial" direction.

Linear multiple regression analyses were computed to evaluate how well the process and interaction measures predicted patient self-reported outcomes for each of the three sessions separately. The process and interaction factors were used as predictor variables to predict the "insight" outcome factor in one model and to predict the "other benefits" factor in a second model (see Table 8).

Both the process and interaction factors are significantly related to the factor representing awareness, understanding, and satisfaction, accounting for 25%, 39%, and 38% of the variance for the three sessions, respectively. The process measure is more strongly related to the insight factor than the relationship measure for all three sessions. Neither process nor interaction factors were related to the "all other benefits" outcome factor in any of the three sessions. The results indicate that both the process and interaction factors were independently predictive of the patients' ratings about IGI helping them to understand their problem, becoming aware of aspects of self, and overall satisfaction.

TABLE 5. FACTOR LOADINGS FROM PRINCIPAL COMPONENTS ANALYSIS: COMMUNALITIES, EIGENVALUES, AND PERCENTAGE OF VARIANCE DOING GUIDED IMAGERY

Item	1	2	Communality
Patients ability to concentrate ^a	0.889	0.133	0.809
Patients resourcefulness	0.913	0.155	0.857
Richness of imagery	0.935	0.052	0.877
Effort in persisting with line of guided imagery	0.920	0.061	0.850
Able to relax	0.087	0.855	0.739
Breathe deeply and evenly	-0.022	0.860	0.740
Follow suggestions	0.222	0.765	0.635
Eigenvalues	3.6	1.9	
Percentage of variance	51.9	26.8	

^aThe practitioner rated the first 4 items and the patient rated the remaining 3, after Interactive Guided ImagerySM session 6. Extraction method, principal component analysis; rotation method, Varimax with Kaiser normalization.

TABLE 6. FACTOR LOADINGS FROM PRINCIPAL COMPONENTS ANALYSIS:
COMMUNALITIES, EIGENVALUES, AND PERCENTAGES OF VARIANCE FOR PATIENT-PRACTITIONER INTERACTION

Item	1	2	Communality
Rapport with patient ^a	0.015	0.840	0.705
Creativity of guided imagery practice with patient	0.051	0.839	0.707
Practitioner seem experienced	0.763	-0.023	0.582
Was the practitioner friendly	0.688	-0.140	0.492
Feel safe to explore	0.659	0.277	0.511
Practitioner use resourceful techniques	0.768	0.141	0.609
Feel seen and understood	0.657	0.015	0.431
Eigenvalues	2.6	1.5	
Percentage of variance	36.7	21.0	

^aThe practitioner rated the first 2 items and the patient rated the remaining 5, after Interactive Guided ImagerySM session 6. Extraction method, principal component analysis; rotation method, Varimax with Kaiser normalization.

DISCUSSION

The results provide qualified evidence that practicing IGI provided a broad range of benefits to medical patients with a variety of diagnoses. Patients gave consistently high ratings for the practitioners' experience, resourcefulness, and friendliness, as well as their own feeling of safety, and experience of being seen and understood. Patients also reported being able to relax, breathe deeply, and follow instructions over all sessions. Patients reported definite improvements in

understanding the nature of their health problem and becoming more aware of some aspect of self. In addition, at least half the sample reported moderate to definite benefits in reducing symptoms, anxiety, depression, and increased wisdom. Patients' written text on how IGI helped them indicated benefits for every stage of the therapy that included relaxation, release of stress, self-insight, feeling supported, and techniques to practice in the future. These results are consistent with Heinschel (2002) who found that patients treated by IGI professional nurses reported major transfor-

TABLE 7. OUTCOME MEASURES: FACTOR LOADINGS FROM PRINCIPAL COMPONENTS ANALYSIS:
COMMUNALITIES, EIGENVALUES, AND PERCENTAGES OF VARIANCE FOR GUIDED IMAGERY

Item	1	2	Communality
Has guided imagery helped you understand nature of problem	-0.039	0.753	0.568
Has guided imagery helped with your awareness	-0.010	0.755	0.570
Has your concern that brought you to guided imagery improved	0.857	0.003	0.734
Have symptoms you sought help with improved	0.829	-0.114	0.700
Mental or physical improvements due to guided imagery	0.860	-0.009	0.739
Help with decision making	0.655	0.102	0.439
Has guided imagery helped diminish depression	0.788	0.032	0.623
Has this imagery helped you manage anxiety	0.864	0.005	0.746
Has guided imagery helped you let go of issues you cannot control	0.819	0.047	0.672
Has this imagery given you a sense of wholeness	0.913	0.003	0.833
Has this imagery helped you feel empowered	0.906	0.010	0.820
Has this imagery helped you prioritize	0.823	0.073	0.682
Has this imagery helped you discover an inner wisdom	0.881	-0.033	0.778
Has guided imagery helped you be in touch with your feelings	0.920	-0.060	0.851
Has guided imagery helped you develop ways to nurture yourself	0.896	-0.010	0.802
Has this imagery helped you connect with others	0.737	-0.118	0.557
Overall how satisfied are you with the guided imagery you received	0.006	0.670	0.449
Would you return for guided imagery in the future	0.848	0.006	0.719
How much would you be willing to pay	0.042	0.297	0.090
Would you recommend guided imagery to others	-0.013	0.517	0.268
Continue sessions on your own	0.022	-0.319	0.102
Eigenvalues	10.7	21	
Percent of variance	50.7	10.0	

Extraction method, principal component analysis; rotation method, Varimax with Kaiser normalization. All outcomes from session 6 of guided imagery.

TABLE 8. MULTIPLE REGRESSION ANALYSIS PREDICTING REPORTED BENEFITS FROM INTERACTIVE GUIDED IMAGERY

Predictor variables ^a	Dependent variables					
	Understand, aware, satisfy			Well-being, symptoms, feelings		
	β	t	p	β	t	p
Session 1 measures						
Practitioner resourceful (patient)	0.357	5.99	0.0001	These outcomes not measured after session 1		
Richness of imagery (practitioner)	0.163	2.93	0.004			
Patient able to relax (patient)	0.174	2.95	0.003			
Variance accounted for	$R^2=0.24$					
Strength of relationship	$F(3,249) = 27.1, p < 0.001$					
Session 3 measures						
Practitioner is experienced (patient)	0.252	3.56	0.001	0.076	0.845	0.399
Patient able to relax (patient)	0.497	7.03	0.0001	-0.024	-0.270	0.788
Variance accounted for	$R^2=0.39$			$R^2=0.005$		
Strength of relationship	$F(2,135) = 42.3, p < 0.0001$			$F(2,135) = 0.36, p = 0.7$		
Session 6 measures						
Practitioner resourceful (patient)	0.189	1.96	0.05	-0.001	-0.012	0.99
Rapport with patient (practitioner)	0.167	1.41	0.16	0.186	1.297	0.20
Patient resourceful (practitioner)	0.193	1.62	0.11	-0.383	-2.661	0.009
Patient breath deeply (patient)	0.410	4.28	0.0001	-0.105	-0.911	0.36
Variance accounted for	$R^2=0.038$			$R^2=0.10$		
Strength of relationship	$F(4,80) = 12.2, p < 0.0001$			$F(4,80) = 2.2, p < 0.08$		

Each factor is named using the question item with the highest loading. Practitioner resourceful = the patients' ratings of the practitioner's ability to lead the patient to a useful place; Patient resourceful = the practitioner's rating of the patients' resourcefulness in following an image.

mations in outlook and feeling, symptom relief, an experience of wholeness, and healing. The IGI therapy appears to be a powerful complementary therapy, applicable to a wide range of problems, with no reported adverse effects.

The factor analyses were successful in identifying coherent and independent factors for the two constructs derived from the focus group. Both the process of doing IGI and the practitioner-patient relationship questionnaire items cohered for both the practitioner and patients' ratings. This coherence was consistent for first, third, and sixth imagery sessions, showing its reliability over time. The high degree of coherence and the variance accounted for by these factors raise the perennial question of whether these represent an underlying psychologic or therapeutic process. It makes sense that they do, for they represent the aspects of "doing the therapy" and "being with the therapist" that are integral to many therapeutic encounters. Both process and interaction factors independently predicted the patient-reported insight into their health problems and an aspect of self at both the third and the sixth imagery sessions. It makes sense that doing the therapy and trusting the practitioner can provide insights because they can lead the patient into a lived experience unlike anything they have experienced before. With a deep state of relaxation, an altered state of consciousness, the use of an inner guide, and a trusted practitioner, the patient can uncover the emotional bases of their health problem and they may connect with and among all parts of self. It may be that the greatest long-term benefit of this form of

IGI is a cognitive reframing of illness and a transformation of self-identity.

CONCLUSIONS

It appears that IGI can be beneficial regardless of the patients' background. The results show no effect of age, education, or gender on the reported benefits of imagery. The results also provide no evidence that noise, interruptions, or taking drugs that could affect thinking were related to the reported outcomes. In addition, neither the high level of ongoing contemplative practice (e.g., prayer and meditation), the extensive experience with guided imagery in a quarter of the sample, nor the varying amount of guided imagery homework, were related to outcome measures. This is a surprising result given the expectation of a relationship between spiritual practice and well-being. The lack of a confounding effect from background, confounding, and enabling factors makes for a clearer interpretation that doing the IGI well and engaging with the practitioner clarifies the nature of patients' health problems, develops self-insight, and results in patient satisfaction.

There are limitations to the inferences we can draw from the study. First, in the absence of a control group, we cannot attribute reported positive outcomes solely to IGI therapy. Many patients agreed to participate in the acute phase of their illness and they might have improved without IGI

therapy. Second, the self-report measures are dependent on the raters' awareness and openness to their experience, and so these measures are subject to bias. Patients may have been influenced by a halo effect that could similarly affect predictor and outcome measures. For example, patients may have felt gratitude that someone showed concern for them and provided a therapy free of charge. However, this would not explain the fact that the practitioners' measures also predicted patient outcomes. A limitation to the prediction of outcome analyses is that one cannot infer causality from correlation in this study. It is possible that having experienced a good outcome could enhance perceptions of the process and interaction. It is reasonable to expect a bidirectional causality in a therapeutic encounter. A fourth limitation is that there was considerable missing data. Many patients were not able to complete 6 imagery sessions for a variety of reasons and most of these reasons do not suggest a systematic selection bias. However, it cannot be ruled out that a subset of the patients who dropped out was getting less benefit from the IGI than those who remained in the study. If so, results on the benefits of IGI may be overstated when applied to a general hospital population. The fifth limitation is that patients were predominantly highly educated Caucasian women with life threatening illnesses. While neither education nor gender was related to the outcome measures, the sample may have been more able and motivated to do IGI than other samples of medical patients.

Despite these limitations, the contribution of this exploratory study is that it identifies and provides measures of two fundamental aspects of therapeutic encounters. The findings support training IGI practitioners and therapists to bring a mindful focus to the techniques of the therapy while expressing a heartfelt regard for the patient. How could mindful focus and heartfelt regard confer benefits? According to Schwartz and Russek (1997) healing is a meta-system encompassing multiple levels (e.g., cellular, psychological, social, and spiritual). Healing may result from organizing factors such as expectation, intention, and visualization of the healing process. It may also result from energizing factors such as will, compassion, and loving regard. IGI provides both organizing and energetic properties that can be tailored to a wide range of medical conditions.

Further exploration of the role that depth of interactivity among guide, patient, images, and the practitioner has in creating a wholeness of self and physical healing is justified. Controlled research using objective clinical outcomes is indicated.

ACKNOWLEDGMENTS

We are most grateful for the cooperation of the 23 IGI practitioners who recruited patients, administered the questionnaires, and provided the therapy. Thanks to Marcie Pullman, who helped to develop the protocol, and to William

Stewart, M.D., Leslie Davenport, M.S., L.M.F.T., and Mariefrance Cote, M.S., M.F.T.I, for their comments on the paper.

AUTHORS' NOTE

The Institute for Health and Healing provides a 1-year, hospital-based internship program in guided imagery, massage/bodywork, expressive arts, holistic nursing, and pastoral care. This Integrative Medicine and Spirituality Internship Program curriculum provides didactic, clinical, and preceptorial components for each therapeutic modality.

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Address reprint requests to:

Larry Scherwitz, Ph.D.

Institute for Health and Healing

California Pacific Medical Center

2395 Sacramento Street, 3rd Floor

San Francisco, CA 94115

E-mail: Larryws@pacball.net