Empirical Explorations of Prayer, Distant Healing, and Remote Mental Influence

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Introduction

Two concepts of importance to many spiritual and religious systems are (a) belief in the possibility of spiritual healing or in the efficacy of prayer in healing and (b) belief in a profound interconnectedness among human beings. While the literature discussing these topics is considerable, scientific studies that directly address these issues are extremely rare. The paucity of well-controlled investigations of these topics is understandable. Conventional scientists are reluctant to explore claims of anomalous processes that have strong spiritual or nonmaterialistic implications. There are practical difficulties in conducting projects with the requisite degree of methodological rigor. Other difficulties are engendered by attitudes of the public at large and of sophisticated spiritual teachers that mundane scientific approaches to religion or spiritual issues are, by their very nature, either inappropriate or profane. Nonetheless, a number of relevant studies have been conducted, with provocative results.

Prayer

Perhaps the first objective study of the possible efficacy of prayer was reported by the British anthropologist, Sir Francis Galton. In one of the first applications of statistics to scientific research, Galton (1872, 1883) sought to determine whether life expectancies of prayerful people (e.g., clergy) were greater than those of materialistic people (e.g., doctors and lawyers), and whether persons frequently prayed for (e.g., sovereigns) tended to live longer than others. His results led him to conclude that prayer did not influence longevity. There are, of course, many difficulties with the assumptions, designs, and conclusions of Galton's retrospective studies. However, Galton deserves credit for his view that the efficacy of prayer was amenable to empirical study and for his application of the statistical method to the study of this issue.

It was only after a very long hiatus that other researchers sought to address prayer's efficacy using more sophisticated methods in well-controlled, prospective studies. We now know that various forms of meditation and of contemplative prayer, developed in the contexts of Western and Eastern meditative, mystical, and spiritual traditions, may beneficially influence the health and well-being of those who practice such disciplines (see Benson, 1975; Benson, Greenwood & Klemchuk, 1977). This finding does not cause dismay, since it is becoming increasingly acceptable to expect one's own mental activities, including prayer, to affect one's own bodily condition. Our understanding of these mind-body interactions has been aided by investigations of placebo effects, stress reduction, suggestion, expectancy, hypnosis, biofeedback, self-regulation, and psychoneuroimmunological principles (Achterberg, 1985; Ader, 1981; Frank, 1961; Green & Green, 1977; Justice, 1987; Locke & Colligan, 1986; Ornstein & Sobel, 1987; White, Tursky & Schwartz, 1985; Wickramasekera, 1988).

But what about effects of prayer on other people? Can prayer influence the health of someone other than the person who prays, and can such effects occur even when the person prayed for is unaware of the fact that he or she is being prayed for? It was to answer such questions that Joyce and Welldon (1965) designed a double-blind clinical trial to test the efficacy of prayer in London Hospital out-patients suffering from chronic stationary or progressively deteriorating psychological or rheumatic disease. Matched pairs of patients with serious disorders were randomly assigned to receive or not receive prayers from distant prayer groups. Conventional medical treatments were continued for all 38 patients (19 pairs). Careful double blinds were used to assure that both the patients and their assessing physicians were unaware of which patients were receiving the prayers. Patients were evaluated at the beginning of the study, then again after 8-18 months. Only six of these patients with poor prognoses improved; five of the improved patients were in the prayer group, while only one was in the control group. During the first half of the study, the prayer group improved more than did the control group. Overall results, while encouraging, did not reach statistical significance for these small samples.

Collipp (1969) conducted a similar study with 18 leukemic children patients. Ten children were assigned randomly to a prayer condition and eight to a non-prayer, control condition. This study was triple-blind. The patients, parents, and physicians were unaware that some of the children were being prayed for, and the prayer groups (ten families in another State) were not aware that this was a study of the efficacy of prayer. After 15 months of prayer, results were tabulated and summarized. Of the ten leukemic children in the prayer condition, seven were still alive; of the eight leukemic children in the control condition, only two were alive. The superior survival rate of the prayer patients approached but did not reach statistical significance ($p = .069$, Fisher's exact test). Nonetheless, with such small sample sizes, the results are encouraging.

The most satisfactory study of prayer efficacy was conducted by cardiologist Randolph Byrd, M.D. and was published in 1988 in the well- respected, peer-reviewed Southern Medical Journal. Byrd utilized a prospective, randomized, double-blind protocol to study possible effects of intercessory prayer in a sample of coronary care unit (CCU) patients. Over ten months, 393 patients admitted to the CCU were, with informed consent, randomized to a prayer group (192 patients) or to a control group (201 patients). Prayer was provided by participating Christians outside of the hospital. Neither patients nor their evaluating physicians were aware of which patients were receiving prayer. It was found that, although the patients were well matched at entry, the prayer patients showed significantly superior recovery compared to controls ($p < .0001$). The prayed-for patients were five times less likely than control patients to require antibiotics and three times less likely to develop pulmonary edema. None of the prayed-for patients required endotracheal intubation, whereas 12 controls required such mechanical ventilatory support. Fewer prayed-for than control patients died, but the difference in this area was not statistically significant. The design and the results of the Byrd study are impressive, and even skeptical commentators seem to agree on the significance of the findings.

Distant Healing

In these two different reports of remote healing an interesting contrast appears.

> The apparent success of healing methods based on all sorts of ideologies and methods compels the conclusion that the healing power of faith resides in the patient's state of mind, not in the validity of its object. At the risk of laboring this point, an experimental demonstration of it with three severely ill, bedridden women may be reported. One had chronic inflammation of the gall bladder with stones, the second had failed to recuperate from a major abdominal operation and was practically a skeleton, and the third was dying of widespread cancer. The physician first permitted a prominent local faith healer to try to cure them by absent treatment without the patients' knowledge. Nothing happened. Then he told the patients about the faith healer, built up their expectations over several days, and finally assured them that he would be treating them from a distance at a certain time the next day. This was a time in which he was sure that the healer did not work. At the suggested time all three patients improved quickly and dramatically. The second was permanently cured. The other two were not, but showed striking temporary responses. The cancer patient, who was severely anemic and whose tissues had become waterlogged, promptly excreted all the accumulated fluid, recovered from her anemia, and regained sufficient strength to go home and resume her household duties. She remained virtually symptom free until her death. The gall bladder patient lost her symptoms, went home, and had no recurrence for several years. These three patients were greatly helped by a belief that was false--that the faith healer was treating them from a distance--suggesting that "expectant trust" in itself can be a powerful healing force. (Frank, 1961, pp. 60-61)
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> However, all results must be evaluated cautiously. The most dramatic single result I had occurred when a man I knew asked me to do a distant healing for an extremely painful condition requiring immediate and intensive surgery. I promised to do the healing that night, and the next morning when he awoke a "miraculous cure" had occurred. The medical specialist was astounded, and offered to send me pre and post healing X-rays and to sponsor publication in a scientific journal. It would have been the psychic healing case of the century except for one small detail. In the press of overwork, I had forgotten to do the healing! If I had only remembered, it would have been a famous demonstration of what can be accomplished by this method. (LeShan, 1974, p. 125)

These two anecdotes illustrate the difficulties of studying distant healing in everyday life settings and also indicate the powerful somatic influences of such psychological factors as suggestion and expectancy. If one wishes to eliminate such factors completely, and study distant healing in its pure or uncontaminated form, it is essential that the person being healed (the "healee") be unaware of the healing attempt (i.e., "blind" to the healing manipulation). The easiest way to assure blindness on the part of the healee is to station the healer and the healee at separate, distant locations and to schedule the healing attempts at randomly selected times that are unknown to the healee. The distant isolation eliminates the possibility of subtle, unintentional cues from the healer (e.g., subtle changes in voice, breathing, or body language) that might allow the healee to know when healing attempts are in progress. The random scheduling eliminates the possibility of the healee using rational inference to determine the likely times of healing attempts. In addition, an

adequate experimental design presupposes that the healee's somatic condition can be objectively and reliably measured so that changes can be properly assessed.

Therapeutic Touch

"Therapeutic touch" is a modern variation on the ancient healing procedure of laying-on of hands. It has been been elaborated and used within a non-religious context by a New York University professor of nursing, Dolores Krieger, R.N., Ph.D. Since its development in the early 1970's, the therapeutic touch technique has been taught to thousands of nurses and other health care professionals who use the procedure in their practices.

In doing therapeutic touch, the practitioner first "centers" herself by shifting her awareness from an external to an internal focus, becoming relaxed and calm. She makes a mental intention to assist the healee therapeutically, i.e., to help and heal the patient. She then moves her hands over the healee's body in a prescribed manner in order to detect and correct areas of imbalance and dis-ease. Early studies demonstrated the effectiveness of the technique in increasing patients' blood hemoglobin values, decreasing pain and anxiety, lowering blood pressure, decreasing edema, easing abdominal cramps and nausea, resolving fevers, stimulating growth in premature infants, accelerating the healing process in cases of fractures, wounds, the common cold and other infections, and increasing relaxation and well-being (Boguslawski, 1979; Borelli & Heidt, 1981; Heidt, 1981; Keller, 1984; Krieger, 1975, 1976, 1979; Krieger, Peper & Ancoli, 1979; Kunz, 1985; Macrae, 1979). Less formal studies of healing and pain-reducing effects of similar hand manipulations and mental intention had been reported previously by Knowles (1954, 1956) and by Hubacher, Gray, Moss & Saba (1975). Most of these early studies did not control adequately for possible suggestion and expectancy effects and have been criticised on other grounds as well (Clark & Clark, 1984).

More recent therapeutic touch studies have been conducted with improved methodologies that obviate criticism. For example, Quinn (1984) obtained significant results while using "noncontact therapeutic touch" (in which the hands are moved near but not touching the patient) and employing an excellent treatment similation procedure to control for artifactual psychological effects. Even more impressively, Wirth (1989) was able to observe dramatic effects of noncontact therapeutic touch upon objectively measured full-thickness dermal wound healing in a carefully designed double-blind study in which the healer and healee were stationed in separate adjoining rooms. The healees extended their arms and shoulders (on which precise biopsy wounds had been made) through a special opening in the wall, designed so that they were unaware of whether or not a treatment was in progress. The healees and the assessing physician were even unaware of the nature of the treatment. Healing rate for treated subjects was compared statistically with that of untreated control subjects; highly significant differences were observed.

Remote Healing

Wirth's (1989) study of noncontact therapeutic touch by a healer in another room seems to have adequately eliminated possible confounding effects of suggestion and expectation. However, the proximity of the healer's hand passes (a few inches from the healee's skin) may still allow the concomitant influence of subtle conventional energies such as heat, electrostatic fields, and

electromagnetic fields. Such conventional influences were eliminated in other studies in which great distances intervened between healer and healee. LeShan (1974), Goodrich (1974, 1976), and Winston (1975) were able to observe significant influences upon healees at distant locations when healers used a form of remote healing ("Type 1") in which they used meditation techniques in order to produce feelings of merging with or being "at one" with the healees. LeShan, a psychologist who developed the method, believes that the healer's alteration of consciousness to achieve "oneness" with the healee, along with a strong healing intention, evokes a self-healing process in the healee that facilitates the healee's balancing and recovery from illness and dis-ease.

Physiological measurements have been used in some remote healing experiments. Miller (1980) measured systolic and diastolic blood pressure, heart rate, and body weight in 96 hypertensive patients who participated in a distant healing study. He reported a statistically significant reduction in systolic blood pressure for patients who received distant healing from eight healers, compared to control patients not receiving healing; diastolic pressure, heart rate, and body weight showed no such effects. A more recent study, along similar lines, conducted in The Netherlands by Beutler, Attevelt, Schouten, Faber, Mees, and Geijskes (1988) failed to find significant evidence for a remote healing influence upon blood pressure in hypertensive patients.

Remote Healing Analog Studies

The scarcity of well-designed remote healing studies attests to the difficulty of conducting such studies with actual patients in clinical contexts. It is not always easy to establish accurate pre- and post-healing diagnoses and to properly control or assess the myriad environmental, pharmacological, dietary, exercise, and other physical and psychological factors or treatments that could confound one's observations and lead to ambiguous conclusions. There are also ethical issues involved in properly "blinded" studies and in providing unvalidated remote healing treatments to some needy patients but not to the equally needy patients in a control group. There may be opposition to remote healing treatments by the patients, their families, or their attending physicians. For these and other reasons, researchers have developed an alternative strategy for studying remote healing influences--they have designed and conducted "healing analog" studies. Rather than investigate healers and actual patients in everyday life contexts, researchers have abstracted and simplified the healing interaction in order to create laboratory models or analogs of those interactions. The experiments involve the remote mental influence of living systems (biological "targets") under well-controlled conditions. One arbitrarily selects a target organism, then selects a readily measured aspect of that organism's behavior or physiological activity. An actual healer, or an unselected person playing the role of a healer, then attempts to exert a remote mental influence upon the targeted activity in a prescribed manner. Appropriate non-healing controls are used, with treated and nontreated (control) organisms or activities assigned in a random fashion. The experiment is conducted repeatedly so that results may be analyzed statistically. Precautions are taken to eliminate any conventional influences that could bias the experiment, and the experimental protocol is designed so that any uncontrolled factors would be expected to "randomize out", i.e., to influence both treatment and control conditions equally.

Many healing analog experiments have been conducted within the last 40 years and have been reviewed by Benor (1984, 1986), Braud (1990b), and Solfvin (1984). Statistically significant remote mental influences have been observed in experiments with bacteria, fungus colonies, yeast,

plants, protozoa, larvae, woodlice, ants, fish, chicks, mice, rats, gerbils, cats, dogs, dolphins, and humans. Additional experiments have demonstrated effects upon in vitro cellular preparations (blood cells, neurons, cancer cells) and enzyme activity. The great range of these experiments and their positive results suggest that the ability to mentally influence living systems at a distance may be a widespread, latent, natural ability possessed, to some degree, by all of humankind. The wide variety of obtained effects also suggests that, in principle, one could direct or focus one's remote mental influence so that it could have medically, psychologically, and socially beneficial effects.

Experiments with Electrodermal Activity

In an ongoing research program at the Mind Science Foundation we have been systematically exploring a variety of remote mental influence designs. In these experiments, we have found that individuals are able to remotely influence a wide range of biological target systems including the spatial orientation of fish, the locomotor activity of small mammals, the rate of hemolysis of human red blood cells in vitro, and the muscular movements and mental imagery of other persons. The details of these studies may be found in other publications (Braud, 1990a; Braud & Jackson, 1982, 1983; Braud, Davis & Wood, 1979; Braud, Schlitz & Schmidt, 1989).

Our most extensive research, however, has focused on the remote mental influence of another person's electrodermal activity (Braud & Schlitz, 1983; Braud & Schlitz, 1989; Schlitz & Braud, 1985). In these experiments, a "target" subject plays the role of a healee and sits in a comfortable room while his or her spontaneous skin resistance responses (SRR's) are monitored continuously by means of electronic equipment interfaced with a microcomputer. These SRR's reflect the degree of activation of the subject's sympathetic autonomic nervous system and, hence, the subject's degree of emotional, cognitive, or physical activation or arousal. Higher SRR activity is associated with physiological activation, whereas lower SRR activity reflects relaxation and calmness. In a separate, distant room (typically 20 meters away), the experimenter is stationed with another person, the "influencer", who plays the role of a healer. The ongoing SRR activity of the distant subject is displayed to the influencer by means of a polygraph (chart recorder) and also is objectively and automatically assessed by the computer system. The influencer watches the polygraph as she or he attempts to exert a remote mental influence upon the distant subject. Influence attempts are made during ten 30-second periods; these are randomly interspersed among ten 30-second control or baseline periods during which no influence is attempted. The subject, of course, is unaware of the nature, timing, and scheduling of these periods, and is physically isolated from any conventional energetic or informational signals from the influencer. Thus, the protocol completely eliminates suggestion and expectancy effects.

The aim of the influencer is to either calm, activate, or not influence the distant subject according to a prearranged random schedule. During calming attempts, the influencer relaxes and calms himself or herself, intends and gently wishes for the subject to become calm, and visualizes or imagines the subject in a relaxing, calming setting. During activation attempts, the influencer tenses his or her own body, intends and wishes for the subject to become more active, and images the subject in activating, energizing or arousing settings and situations. During the noninfluence control periods, the influencer attempts to keep his or her mind off of the subject and to think about matters unrelated to the experiment. The influencers may use the polygraph tracings as feedback to indicate how well their influence attempts are succeeding. Alternatively, they may proceed without

such feedback and simply close their eyes and intend and visualize the desired outcomes. We have found that both feedback and nonfeedback strategies are effective.

Thus far, we have completed 15 electrodermal remote influence experiments, with the number of subjects in each experiment ranging from 10 to 40. In all, there have been 323 sessions conducted with 271 different subjects, 62 influencers, and 4 experimenters. The experiments have been quite successful. Thirteen of the 15 studies yielded overall results in the expected direction. Six of the 15 experiments (40 percent) were independently significant statistically (i.e., had p's less than .05); this is to be compared with the 5 percent experimental success rate expected on the basis of chance. Fifty-seven percent of the individual sessions were successful (i.e., yielded results in the expected direction); this is to be compared with the 50 percent session success rate to be expected on the basis of chance. The series as a whole yields a combined (Stouffer) z score of 4.08, with an associated p = .000023 (i.e., odds against chance of approximately 50,000 to 1); the average effect size for all experiments is 0.29. Recently, we have completed additional experiments with 32 new subjects (Braud, Shafer & Andrews, 1990); these experiments also yielded significant outcomes. We conclude that an individual is indeed able to directly, remotely, and mentally influence the physiological activity of another person through means other than the usual sensorimotor channels.

LeShan (1990) has discussed four interpretations or explanations of the means through which distant healing is accomplished. These are classes of explanations that have been offered by various healers. In these four interpretations, healing effects are attributed, respectively, to: (a) divine intervention, (b) spirit intervention, (c) some type of "energy" mediator, and (d) increased "self-repair" on the part of the healee that is induced by the healer and the healee sharing in a unitive experience. Interpretations (a) and (b) are well known and require no additional elaboration. Interpretation (c) will be treated below. Interpretation (d) is the one preferred by LeShan himself and was discussed in an earlier section of this paper.

Explanations

Similar interpretations could be offered for the effects observed in our remote influence experiments. We ourselves, however, believe that there are two general classes of explanation for our obtained effects. The first is that the effects are mediated by an unusual form of "energy"--either an unfamiliar form of physical energy or a novel, quasiphysical energy that has unusual features. The "operating characteristics" of the remote influence effect are unusual. It does not vary in a familiar manner as a function of spatial distance or time, and it is not influenced importantly by physical barriers, shields, or the nature of the particular system that is "targeted". Perhaps the only conventional energy that may qualify as a potential mediator is extremely low frequency (ELF) electromagnetic radiation. The latter has excellent "penetrating" properties and can travel great distances. Some investigators, notably Persinger (1979), have seriously advanced ELF fields as mediators for the anomalous effects we have been discussing. The major problems with possible ELF mediators, however, are that (a) they would have to behave in highly unusual ways with respect to time in order to explain the time-displaced mental effects that have been observed in certain experiments, (b) they would have to carry more information than they would appear capable of carrying, and (c) they would have to be encoded by the influencer's brain (or other bodily process) and decoded by the subject's brain (or other bodily process) in ways that we do not

understand and for which we have no known mechanisms. Therefore, an ELF-mediated carrier remains, while not entirely impossible, a highly implausible hypothesis.

The second explanation of our obtained effects is that mind is nonlocal and that under special conditions its nonlocal nature is manifested. According to this view, energy or information does not "travel" from one place to another or from one mind to another, but is already "everywhere". The influencer's mind and the subject's mind may not really be as distinct, separate, and isolated as they appear to be but, rather, may be profoundly interconnected, unified, omnipresent and omniscient. What is available to one mind may be available to all minds and may already be part of all minds in what is analogous to a "holographic" form.

Connectedness

The prayer and remote healing findings reviewed in this paper strongly suggest a profound interconnectedness among people. Indeed, it is difficult to understand how such anomalous interactions could occur if an underlying matrix of subtle yet important connections among people did not exist. The existence of such connections is compatible with the ontological, epistemological, and ethical teachings of many of the world's religious, spiritual, meditative, and mystical traditions. Interestingly, the findings, models, and theories of leading thinkers in the physical, biological, and psychological sciences are becoming increasingly consistent with the common worldview and perennial wisdom of these traditions. Extensive and lucid expositions of these consistencies, along with other relevant discussions, may be found in works by Bohm (1980), Dossey (1982, 1989), Eccles (1980), Huxley (1945), Jung (1973), LeShan (1974), Pribram (1976), Sheldrake (1981, 1988), and Wilber (1982, 1984).

William James (1902), Walter Houston Clark (1958), and other important figures in the psychology of religion have expressed the view that all expressions of religion grow out of the mystical experiences of individuals--that religion (or, better, spirituality) is the inner experience of someone who senses a "Beyond" and is reflected in the behaviors of individuals as they attempt to harmonize their lives with that Beyond (Clark, 1979). The processes that underlie effective prayer and effective remote healing provide a glimpse of such a Beyond. The success of these and similar studies indicate that there are ways of empirically exploring the interactions of individuals with that Beyond, that matrix of interconnections that makes these interactions possible. There is an increasing realization that these and other connections contribute importantly to health and well-being. Physical, mental, and spiritual balance and wholeness are facilitated when one recognizes and experiences the connections between different parts of the mind, between the mind and the body, between people, and between people and all of Nature. The exploration of the nature of these connections is an excellent focus for cooperative scientific, clinical, and practical studies.

The findings examined in this paper provide a glimpse into exceptional experiences and more extended potentials that are available, under certain conditions, to all of us. They also provide an empirical foundation that is consistent with the existence of the healing possibilities which are described in the world’s major spiritual traditions.

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