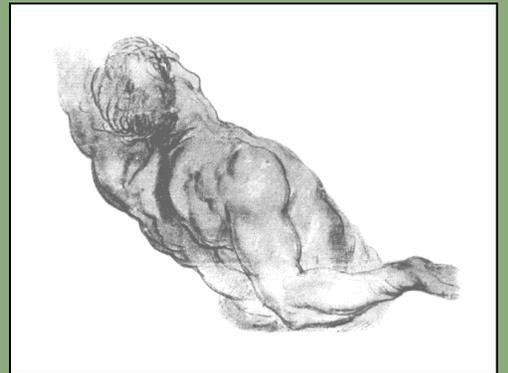


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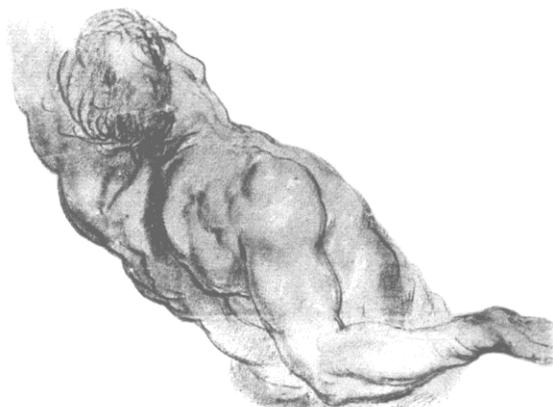


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USABP Mission Statement

The USABP believes that integration of the body and the mind is essential to effective psychotherapy, and to that end its mission is to develop and advance the art, science, and practice of body psychotherapy in a professional, ethical, and caring manner in order to promote the health and welfare of humanity.

The Effects of Compassionate Presence on People in Comatose States Near Death

Jeanne M. Denney

Abstract

This study investigates the effects of compassionate presence on hospice patients in non-communicative states near death, and on the hospice workers offering this compassionate presence (called sitters). Simultaneous measurements of heart rate variability (HRV) were collected from patients and from sitters in self-identified states of compassion with them. Other measures, such as interviews with caregivers and family members, and reports from and interviews with sitters were used to assess effect of these interactions. This study offers possible explanations of responses that comatose patients and their sitters had to the experience of compassionate exchange, explores implications about the dynamics of compassion and suggests directions for future research.

Findings of this investigation were that the patients studied appeared to have significant responses to caring people in their environment, as well as interventions such as prayer, meditation and touch, while the act of sitting also exerted a significant effect on sitters.

Keywords

Dying – Hospice – Burnout – Coma - Compassion

Introduction

In the United States alone, each year over 2.4 million people die. The vast majority of these deaths are neither accidental nor sudden, but are related to disease processes (Hoyert, Kung, & Smith, 2005). Since most disease processes resulting in death culminate in a comatose or non-communicative state for some period of time before death occurs, most Americans – indeed, most people living - will experience this state before their last breath is taken. Yet because there is generally no return to coherence from this state of consciousness, there is still much to be learned about the inner experience of this state or the emotional or spiritual care most likely to help in this transition.

While much has been reported in recent years about how the dying die, and the beauty that this change can hold, most information on the dying is presented as anecdote or story that offers inspiration for hospice workers and bereaved family members, and opens spiritual ideas to others working through life processes. It is not common for researchers to study the non-communicative dying and their responses directly. Indeed, a cursory search of journal articles and periodicals resulted in no direct physiological or psychological studies of this stage of dying. Most studies screened focused on the responses of family or caretakers to death, or on the experiences of dying people while they are still in communicative states. This may indicate either reluctance by researchers to question or investigate the consciousness state of dying person with objective scientific instruments, a feeling that this state is impenetrable, or the conclusion that findings are ultimately irrelevant to life and the living.

Clues to the mystery of the transition out of life are offered by research on the Near-Death Experience (NDE), stories from people who have survived coma and unconscious states, the experiences of people who care for the unconscious, comatose and dying, as well as esoteric and spiritual practitioners. Numerous reports from practitioners and coma patients suggest that the presence of others who are loving or caring is helpful and meaningful for those who venture into unconscious states near death (Boerstler, 1986; Lawrence, 1995; Parker, 1984; Sogyal Rinpoche, 1992; Tosch, 1988; Villaire, 1995). Further, if caretakers are aware and sensitive to their own experience, providing this presence can be transformative for them as well, often leaving them with a changed perspective on their lives (Morris, & Knafel, 2003; Smith 1998; Sutherland, 1990; Whitfield 1998).

This pilot investigation explored the possible effects of compassionate presence on the mental, emotional, or physical states of a dying person and those of people who hold this state of compassionate presence with them. Ultimately, it is an investigation into non-verbal communication with people in the altered state of consciousness. It explores whether it is possible to use direct, instrumental means to study these subtle human interactions and the people in these states of consciousness.

Methods

The primary method used in this pilot investigation was the exposure of people in near death, non-communicative states or coma to a particular experience: that of a loving, respectful and non-invasive presence called compassion, and the measurement of possible effects of this experience on both patient and sitter by several means. This investigation used both

quantitative and qualitative methods. Quantitative measurements were made with The HeartMath Freeze-Framer heart monitoring program on laptop computers with finger sensors for both patient and sitters. Qualitative methods were interviews with families and sitters and descriptive sitter reports. Comparisons were made both within measurement vehicles and between them.

Participants

This project worked with four patients and a total of five sitters including myself. Patients were drawn from a non-residential Hospice population, while sitters were drawn from a population of Hospice volunteers. Patients were residing in two care facilities, one a 203 bed private nursing home, the second a 341 bed public County Sanatorium.

Selection of Patients

Patients selected for this study were to be non-communicative or in a state of metabolic coma in the final stages of life. Patients were in situations in which there was a limited amount of human contact similar to what is being provided by this study. They were also required to have a person qualified by them to give consent for the study on their behalf. Patients were to be female. Finally the patients were to have been in Hospice care for at least one week.

Selection of Sitters

Sitters who provided compassionate presence to patients were UHR trained volunteers selected for experience with relaxation, meditation, or training in healing modalities, body awareness and/or self-regulation of consciousness. Prior to participation, sitters were tested for their ability to hold a conscious, positive state of presence in isolation as measured by the biofeedback instrument, The HeartMath Freeze-Framer.

I attempted to use sitters other than myself in sessions with patients. However, in numerous time-limited situation in which there were no sitters other than myself available for a session or a sitter did not show up for the session, I filled in. As a result, I participated in a total of 10 out of 27 sittings. In this case I operated the software and was responsible for patient finger sensor adjustment as well as providing compassionate presence.

Sitter Training

Before the project began sitters received 2 hours of training to provide education about the project and reduce sitter anxiety through practice. At conclusion, sitters were pre-qualified for their ability to sustain HRV coherence on the Freeze-Framer program in a normal setting. Specifically, sitters were required to sustain a Heart Rate Variability within the medium to high coherence ratio range for at least five minutes of a 10 minute reading. The program setting for this qualifying test was challenge level two, or "normal".

A total of five sitters were trained and pre-qualified for participation.

General Parameters for Sittings

1. States of compassionate presence were held for each patient for no fewer than six contact sessions.
2. During sittings, biofeedback data on Heart Rate Variability for both sitter and patient were simultaneously collected by means of a HeartMath Freeze-Framer heart monitoring system.
3. Pre-project baseline readings were collected from patients before the first sitting to allow for comparison. Adjustments were made to protocols after the twelfth sitting when I began to collect pre-sitting baseline readings as well.
4. Interactions lasted at least 20 minutes per session measured from beginning of instrumental measurement to end.
5. Patients were exposed to different sitters within the study period.
6. Each sitter completed a survey report after each interaction with patients. Reports were completed prior to knowledge of external measurement outcomes (except when I was functioning as both sitter and operator of the equipment).

Protocols for Interacting with Patients

Though patients were not communicative by ordinary means, it was not assumed that they were insensitive to what was going on around them, nor that they could not communicate through body movement of some kind. Patients were greeted by myself and by the sitters at the beginning and thanked at the end of each session. This greeting consisted of taking the patient's hand and speaking to them, telling them who we were, what we intended to do and asking them for a sign of some kind if this activity is not alright with them. Specific suggestions for a "no" response were often made based on patient capacity, such as blinking eyes, squeezing hands or moving head.

Sitters were instructed to sit within two to four feet of the patient and to maximize their sense of connection with the patient. Freeze-framer sessions were initiated when introductions were concluded, HRV sensors were in place and sitter was comfortably situated. Sitters were encouraged to experiment with breath synchronization or position during the session if they felt that it enhanced the sense of connection.

Aside from greetings and closure the project was originally intended to be an investigation of silent, non-physical contact and interaction. However, later in the project, touch, prayer and meditation were experimented with and will be described below.

Data Collection

The Freeze-Framer program used in this project was designed and is marketed by the Institute of HeartMath as an interactive learning program for prevention, management and reversal of stress in general populations. It includes a patented heart monitor system (software and sensor) that processes heart rate data and develops graphical images of HRV, as well as other parameters. Using this technology, the Institute of HeartMath (IHM) has done research on correlations between emotional state and HRV to help people in the general population learn and maintain more optimal states of well-being as understood by IHM. Because Freeze-framer was available, portable and because there was a body of research connecting HRV with states of unease and well-being, it was the biofeedback device selected for this use in this study.

One important heart behavior that IHM identified and studied was the tendency of the heart rate to vary in a consistent, sinusoidal oscillation during periods of emotional well-being. This pattern is called Heart Rate Variability (HRV) *Coherence*. IHM research also showed that the HRV of one person can have an effect on, or can “entrain”, the HRV of another person. (McCarty, 2003) Further, IHM research has suggested that an individual’s coherence can be influenced by a phenomenon of group coherence, or the effect of a group of others. (Childre and Martin) Analysis of HRV, then, offered the possibility of evaluating the emotional states of non-verbal patients and the effects of relationship with another.

In addition to biofeedback and coherence measurements, possible effects of states of presence were evaluated through interviews with family and/or caretakers and sitters as well as written sitter reports.

Results

At the completion of this study, a number of factors were identified for analysis. Findings of this review are summarized below.

Patient Responses to Sitzings

After review of HRV data it appeared that, though there were differences in receptivity and responsiveness, most patients were responsive to most sitters. Responsiveness in this context was defined as discernable patterns or changes in patient HRV that coincided with the sitting, or with the sitter patterns, changes or actions. As discussed above, responses to sitters were often very subtle. These responses are discussed more fully below.

Patient Coherence and HRV

Patient Coherence was analyzed and compared with baseline measurements and post-sitting measurements. One of the first clear findings of the study was that coherence parameters developed by studying healthy people were not a parameter useful for directly evaluating patient well-being near death. Three of four patients were not able to sustain much heart coherence as monitored and analyzed by the Freeze-Framer heart monitoring system. Patient coherence was variable, but generally low. In some cases (such as a patient who was on a ventilator) it was nearly non-existent. Indeed, each patient seemed to have characteristic patterns of HRV, but these patterns were often unstable, influenced by medical conditions, medications and medical implements, and subject to sudden change. As a result, pre-project baselines did not provide a useful measure of the normative state for the patient. As noted above, pre-sitting baselines were introduced in the twelfth sitting and thereafter, providing more accurate measures of the influence of the sitter.

Comparisons with available baselines showed that patients had an increase in coherence in 14 out of 28 sittings, and a decrease in patient coherence in 6 out of 28 sittings. In 7 of 28 sittings there was no significant change in coherence (changes of 1% were not considered significant). In one sitting, coherence values were undecipherable.

The most neurologically damaged patients were understandably the least responsive to sittings in terms of coherence. A patient I will call Pamela who was both on a ventilator and the most heavily medicated patient, was the least responsive to anyone in her presence other than her husband. However, even Pamela showed evidence of subtle responses to sitters.

Two patients had post-sitting baselines measured for one sitting each. These measurements occurred immediately after a sitting in which the patient either lost coherence or had a very minor change during the sitting. Interestingly, in both post-sitting baselines there was an overall increase in final coherence over pre-sitting baseline and sitting measurements.

Table 3.
Coherence Scores in Sitting #15 and #27

	Pre-sitting Baseline		Sitting		Post-Sitting Baseline	
	Medium	High	Medium	High	Medium	High
Pamela	0%	0%	1%	0%	0%	6%
Maureen	15%	4%	8%	4%	21%	15%

Sitter Coherence

The most clear and unanticipated result of this investigation was that with few exceptions sitters were *unable to maintain the level of heart coherence at the bedside of a patient that they had achieved in their qualification test*. Sitters did not achieve periods of continuous coherence for most sittings. An analysis of sitter coherence was tabulated and is provided in Appendix K. The average loss of sitter coherence with respect to the qualifying sitting was 56%. Values are tabulated in the table below.

Table 4.
Percent Reduction in Average Coherence with respect to Qualification

Sitter A – Beth	-63%
Sitter B – Cynthia	-68%
Sitter C – Sally	-72%
Sitter D – Ellen	-22%
Sitter Z – Jeanne	-57%

At first this striking loss of coherence was attributed to self-consciousness and the effect of participation in a study. However, the consistency of this result throughout the study suggested that the setting, the sensitivity of the sitter and possibly the activity itself, may have played a part in this outcome. It suggests the possibility that being in groups of persons in states of need or distress may have the effect of lowering the HRV coherence of people who come into that group, an outcome that IHM research would likely have predicted based on the theory of entrainment.

The settings in which this work was done were medium to large convalescent facilities. The pain, suffering and loneliness of many individuals, combined with the fact that these facilities are manned by overburdened staff, likely had the effect of lowering the coherence level of sitters whose expressed purpose was to be a compassionate present witness. Clearly, because the coherence of others in the environment was not directly measured, this theory is only based on a subjective experience of stress in these environments. However, the idea that coherence in groups of this nature may be low is supported by research on the HRV of people who are ill and elderly, as well as research that suggests that there is a high level of stress on caregivers in health facilities. (McCraty and Atkinson, 1996; Aiken, Clarke, et al., 2002).

Another possible explanation for the lowering of sitter coherence is that training and preparation of the sitters was inadequate. However, while poor training and lack of experience might explain low coherence values, it does not explain why all sitters did significantly better in their qualification sessions at a time when they had no experience with patients. Other explanations will be explored below.

Aside from the issue of reduction of sitter coherence with respect to qualifications scores, there was a significant difference between sitters in the field. Mean coherence scores for each sitter are summarized below.

Table 5.
Mean Sitting Coherence Scores for Sitters

	Medium	High
Beth	12%	21%
Cynthia	18%	11%
Sally	16%	6%

Ellen	21%	56%
Jeanne	19%	35%

Sitter's Response to Sitzings

Review of coherence scores, above, indicates that there was some degree of struggle or discomfort with the experience for sitters on an unconscious level, at minimum, during sittings. This was echoed in several sitters' conscious reflections on their experience. However, though interviews with sitters indicated that the overall post-sitting effect on them was varied, the experience seemed to have generally supported their personal growth. Four of five sitters (including myself) noted feeling good about what they had done for a variety of reasons. Cynthia reported the feeling that her heart was more open, that she had more presence and fewer judgments. She also noted feeling the "embarrassment of riches" of her present life and health. This experience deepened her gratitude for mobility and awareness. She noted "a deepening appreciation for this stage of life"(referring to the end of life). Beth felt more neutral about the experience itself, but felt good about herself as having been a participant in a study. Sally felt good about having been part of the study and having been a witness to the comatose state of Pamela. Two sitters (Sally and Ellen, both sitters of Pamela) seemed to feel more sober or as if they had been wakened to a very different reality. Sally stated, "I felt like I did coming home after visiting a foreign country. There was no way to communicate the experience and it was hard not to be able to be able to share it." Ellen said: "When you leave people who are talking, you feel kind of uplifted. I left these patient's in a quieter state...I left there feeling a little more melancholy... I was able to feel the compassion. That was the same. But I was wondering if it was meaningful for these people."

Four of five sitters said that they would be willing to do this again. Sally qualified her affirmative response to the question of whether she would do it again with "...but I would be more conscious of the fact that it would take me on my own journey." Ellen (interestingly the most coherent sitter) stated that she would not seek this experience out again. "I like to converse and see at least an apparent exchange. I wouldn't seek it out." It is interesting and possibly significant to note that Ellen was technically the most coherent sitter and the sitter least available for participation. The irony of Ellen's coherence and response is discussed further in the Discussion below.

Sally expressed a similar anxiety, however she seemed to understand this experience as a positive challenge. Sally stated that this experience had "allowed me to hold more questions." She noted that being able to hold more questions was her definition of being more alive. "It was life-affirming in the farthest possible way, though the surface was disturbing."

In sum, having listened to the experiences of the sitters I would characterize most all responses, even Ellen's, as providing evidence of growth and personal evolution through the experience of sitting with a form of existence that was new to them and that raised new questions. No sitter was resoundingly overwhelmed, disturbed, depleted or depressed by the experience. Sitters seemed to internalize the experience with different levels of intensity, and interpreted the experience based mainly on how it related to personal issues and questions.

Evidence of Relationship

Evidence of Relationship was evaluated through the careful examination of HRV graphs and coherence scores and comparison of these with sitting notes. Relationship in this context was evaluated by apparent influence of one person on the other. The following is a list of the types of responsiveness that was noted when HRV graphs were analyzed.

Simultaneous Response. The most obvious and pervasive evidence of relationship in sittings was what I chose to call simultaneous responses. These were places in the HRV graphs where changes occurred simultaneously in sitter and patient HRV. In 24 decipherable sittings, simultaneous responses were noted in 23 sittings. In three of the remaining four of the 28 sittings, the reading was undecipherable because one or the other of the participant's readings was not clear. In only one clear reading was no evidence noted.

Cross-Influence. Cross-influence is a specific type of simultaneous response. It was not observed often, but its presence certainly seemed to indicate a particular type of relational dynamic: that in which one participant takes on or trades an HRV pattern with another. This was identified in 6 out of 28 sitting but may have occurred more. Five of these occurred with myself as sitter.

Coherence. Though coherence scores themselves did not prove a simple, direct way to evaluate patient well-being, they did prove to be important in providing evidence of relationship. A few additional observations are made here with respect to particular relationships.

The most profound evidence of relationship was seen in review of the coherence analysis for Patient Pamela. Pamela had the lowest coherence of any of the patients and seemed impervious to influence by others in her presence. She had severe neurological damage, was on a ventilator and was heavily sedated. The total coherence for Pamela ranged from one to six percent, with little significant difference between sitters. Further, the coherence score of the sitter did not seem to have a significant impact on her coherence. However quite by chance at the beginning of the project, Pamela's coherence

was measured in the presence of her husband at his request. Her coherence score with her husband, Larry was over nine times greater than the average score with sitters (28%), even though Larry’s coherence itself was relatively low (8%). This result seems to suggest that there is a factor of loving relationship that has a positive effect on heart coherence, but is not causally related to another’s coherence through entrainment.

The second evidence of a relationship and its effect on coherence could be seen in the exploration of Patient Anna and Sitter Beth. In sitter interviews, Beth stated her strong attraction to and fascination with Anna. Examination of Anna’s coherence scores showed that Anna had approximately twice the coherence with Beth as any other sitter. Beth’s coherence with Anna was more consistent and was higher than her overall average for sittings. Unfortunately there were no pre-sitting baselines done for these sittings that might have shown Beth’s influence on Anna more clearly.

The third evidence of relationship seen in coherence analysis was subtle but could be seen after an examination of Karen’s coherence data with myself. I had been working with Karen for about 10 months as a hospice volunteer and had paid her 20 visits prior to the project beginning. I had never known her in a non-comatose state, however there were many times where I perceived that we had a good connection, a perception I gained through my own meditative state. Though my averages with her were in fact higher than other sitters, it did not appear to be a large difference. However, two things were noted after reviewing these numerical averages.

First, Karen died approximately six weeks after my last sitting with her (Sitting #13) after many years in a brain damaged and comatose state. This last sitting, in which there was very little coherence (combined coherence of 3%), took place over two months after the main body of all other sittings with Karen. There is a considerable contrast between this last sitting and Sitting #9 with me (combined patient coherence of 19%) which was markedly different than her scores with other sitters or her baseline figures. It seems very possible that her near-death state may have lowered her capacity to demonstrate heart coherence at a level that is recognized by the Freeze-Framer. If this were true, it would have negatively influenced her average coherence figure with me.

A second curious occurrence between Karen and myself also underlined the possible effect of relationship and may have distorted calculated figures. In Sitting #7 with Sitter Beth, Karen demonstrated her maximum coherence peak when I walked near her bed to make an adjustment 17 minutes into the session. This accounted for at least half of the coherence that Karen demonstrated in that session with Beth. The other half was demonstrated in the first few minutes of the session when I was also nearby. It seems unlikely to me that this was a coincidence. Since this was recorded as coherence with Beth, this probably inadvertently distorted these comparisons. If these factors were to be removed (ignoring her last session with me and reducing Beth’s coherence in Sitting #7 by 50%), Karen’s total coherence with me would be approximately four times that of other sitters.

Changes in Patient Amplitudes During Sitter Coherence. An interesting phenomenon observed in this study was that typical amplitudes of patients would often change, either decrease or increase during periods of sitter coherence. For example, the “jagged hill” pattern of Karen would often flatten. Or, at times the nearly flat pattern of Pamela would begin to have a long slow hill pattern.

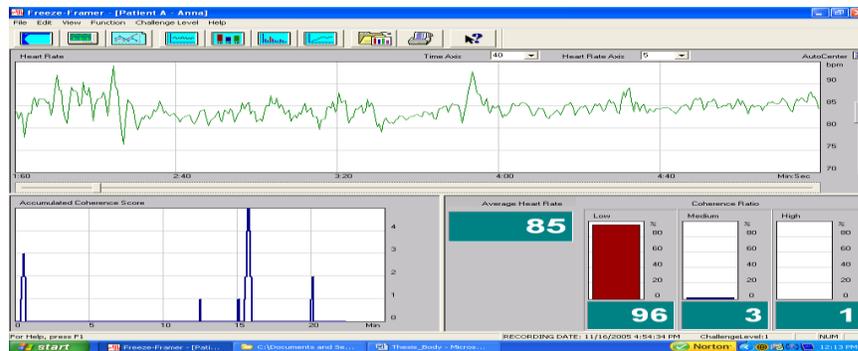


Illustration 1a - Patient A with Sitter B in Sitting # 2

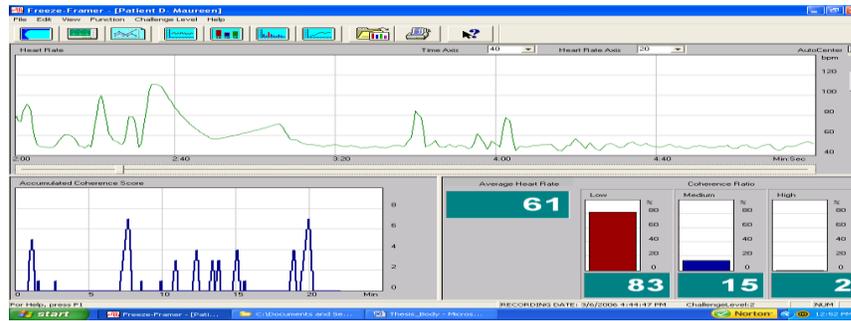


Illustration 1b - Patient D with Sitter D in Sitting #28
Examples of Flattening during Sitter Coherence Period

Though many examples were not as clear as these, this type of shift was noted in 17 out of 24 decipherable sessions. It was not noted in 7 out of 24 sessions. Four sessions were indecipherable.

Changes in PNS Mediated Responses. A PNS mediated response is a response due to the fact that the PNS is suddenly activated or interrupted, and which results in a sudden change in heart rate. The presence of this type of pattern in a normal population is usually considered a sign of incoherence, or an indicator of stress or anxiety (McCraty & Atkinson, 1996). The graphs were reviewed for signs of whether PNS mediation increased or decreased during the sitting. In 24 decipherable sittings, PNS mediation was decreased in nine sittings. There was no change in PNS mediated patterns in eight sittings. There was an increase in PNS mediation in six sittings. In three sittings, there was a mix of responses, including both decrease and increase.

Discussions with IHM researcher, Rollin McCraty, pointed out the fact that in the state of overall instability that this population exhibits in HRV, even the smallest stimulation could provoke PNS-mediated responses, even if they were a result of excitement. His opinion was that this was not necessarily a negative response, but rather a sign of the nervous system attempting to activate the body (R. McCraty, personal communication, April 24, 2006).

One interesting thing to note concerning Patient Maureen is that she exhibited more overall capacity for reactivity to sitters in her presence than other patients. She was also the patient who demonstrated the highest coherence in baseline measurements, and who had the greatest amount of loving contact and family relationship in her life. All of these facts seem to confirm the assertion of IHM that people who are in loving relationship are “better able to receive cardiac signals from others” (McCraty and Atkins, 2003, p.12).

Other Evidence of Relationship. Further evidences of relationship could be seen in the exploration of touch, prayer and meditation that was introduced in later sittings. These findings will be discussed further below.

Phenomenon of Cross-influence

In numerous examples in this study there were situations in which it appeared that the sitter took on patterns or characteristics of the patient’s HRV, such as shifting to more PNS mediation, taking on similar amplitude and quality oscillations, shifting to similar peak spectrum ranges or heart rates. In some cases the patient simultaneously seemed to benefit from this shift, either by becoming more coherent or by experiencing a more normalized HRV pattern, for example with less PNS mediation. I am choosing to call this phenomenon “cross-influence”.

The first and most dramatic observation of this occurred when I was present as a sitter, therefore watching laptops during the sitting. Because I am somewhat proficient at coming into coherence using the Freeze-Framer, when I noticed that I was not in a coherent pattern I tried to come into one by deepening my breath and focusing on my heart. I was able to do this, but I noticed that in order to do this I had to interrupt compassionate focus on the patient, remove my focus from her and put it onto myself. When I became aware of her again, my coherence level instantaneously dropped. Later in the same session when I was again in a coherent pattern, the patient began to show signs of intense discomfort of some kind, which did not seem to me to be physical. I chose to make physical contact with her and placed my hand on her leg. At the same minute that contact was made, my HRV became incoherent, and the patient technically (by Freeze-Framer) came into coherence and exhibited reduced HRV amplitudes, though the patterns did not appear to be sinusoidal. That pattern was repeated in a later episode within the same sitting. See Illustration No. 2 below.



Illustration No. 2a – Sitter Z with Patient A – Sitting #6

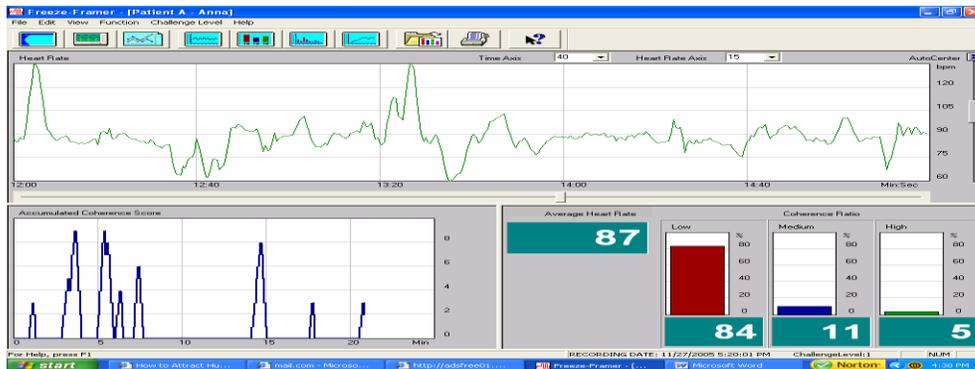


Illustration No. 2b – Patient A with Sitter Z – Sitting #6

Note that my pattern became similar to Anna’s as if I were “taking it on”, while Anna’s amplitudes shift to a range similar to mine previous to contact. It is unfortunate that these effects occurred with myself, as researcher, in the role of the sitter. However, if I had not been the sitter and therefore monitoring the laptop while also doing the sitting, I probably would not have been able to experience the simultaneity of these events as observer of both inner experience and external readings.

It seemed that this effect was more likely to happen with certain sitters than with others. Cynthia and I were the sitters with whom this phenomenon was identified.

Effect of Touch

As noted above, there were times during this study when touch was used, either to respond to a perceived patient need, or was deliberately added at the end of a session as a part of the investigation. There were usually clear responses to touch, in patient and/or sitter. Generally, touch created a destabilization of the patient’s HRV pattern and an increase in amplitudes. Often a destabilization of the sitter’s HRV pattern would also occur. Most commonly, the HRV amplitudes would increase at the moment of touch and for some period afterwards. See Illustration No. 2 below. This pattern might be considered a negative response, indicating possible startle, but it is not clear that disruption of HRV is a long-term effect of touch in either sitter or patient. Note that touch was introduced at the end of the session at or near 20 minutes.

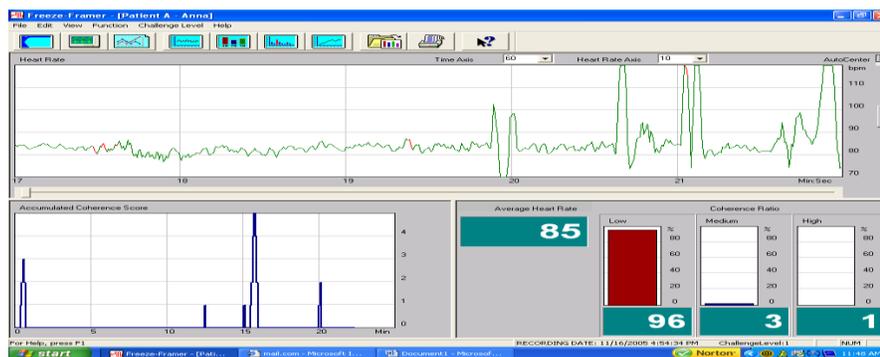


Illustration No. 3 – Example of Patient Response to Touch Sitting #2

Touch was noted with time correlates in a total of 15 sessions. Patient response was noted in 9 out of these 15 sessions. In five of these sessions I was unable to determine a response or it was unclear for some reason, such as finger sensor placement. In one session there appeared to be no response. Sitter HRV response to touch was also noted in 9 out of 15 sessions. Sitter and patient demonstrated a simultaneous response to touch in six sittings.

Unfortunately, many of the examples of touch were used at the end of the sittings, added experimentally to non-contact sittings. As a result, there are not good examples of the effects of touch over time. The example given below in the case of touch used with meditation (see Illustration 5a and 5b below) does seem to indicate a possibility that the startle response might at some point give way, or that touch might be a source of comfort in the context of a trusting relationship. This may have been a part of the relatively high coherence of Pamela with her husband, who was continuously stroking her nose during his sitting with her.

Effect of Prayer and Meditation

Though there was not originally an intention to explore the effect of this parameter in this study, as the study ran its course different questions emerged. The effect of prayer and meditation came into the study because I had regularly used meditation at the bedside of non-communicative patients in order to establish a mode of communication with them. This was a normal form of my bedside presence. As the study progressed with myself as a sitter, I began to become curious about the effect of this activity on patient HRV. This technique was not one that I could easily describe for other sitters to explore. However, the use of prayer at the bedside of patients is widely used as a method for helping the dying in many spiritual traditions. Many people have a working understanding and active practice of prayer. Cynthia in particular, an interfaith minister, had a strong connection to the use of prayer as spiritual practice. For these reasons I asked three sitters to experiment with the introduction of prayer at a given point in their sittings.

The introduction of silent prayer was explored in seven sittings in the later part of the study, one with Patient Karen and six with Patient Maureen. The instructions for this prayer were for the sitter to simply to ask silently for spiritual help for themselves and the patient using any spiritual images, identities or words that felt sacred to them.

Sitter responses to prayer were noted in five out of seven readable sittings. Patient responses were noted in six out of six readable sittings. All but one of these responses appeared to be in the direction of increased regularity and evenness of HRV oscillation, though there was often an initial disturbance or increase in amplitudes around the time of the prayer. See Illustrations 4 and 5 below. In most cases, prayer had the effect of lowering and evening amplitudes for sitters. However, in one sitting when meditation was used with touch it had the effect of increasing amplitudes (See Illustration 6a). It is noted that this increased amplitude was within a coherent pattern. This is generally a positive shift.



Illustration 4a – Effect of Prayer on Sitter B-Sitting 23

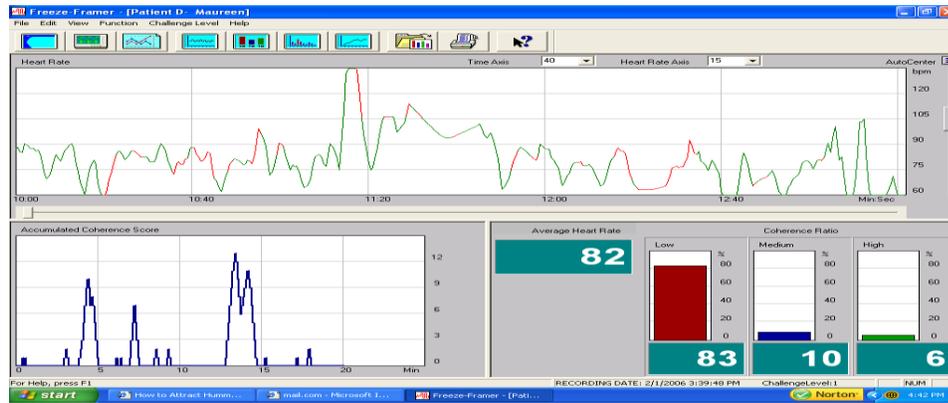


Illustration 4b - Effect of Prayer on Patient D – Sitting 23

Prayer was noted to have been introduced near 12 minutes. Note that these illustrations are one frame apart, so that the peak in the Patient HRV occurs just before the peak in the sitter’s HRV.

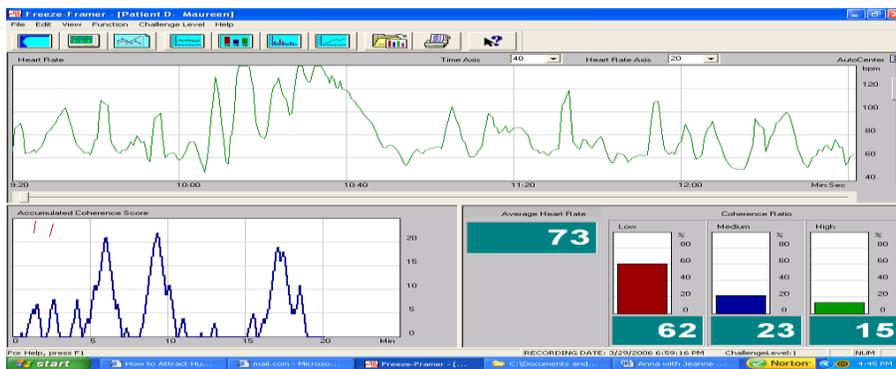


Illustration 5a - Effect of Prayer on Patient D- Sitting 28

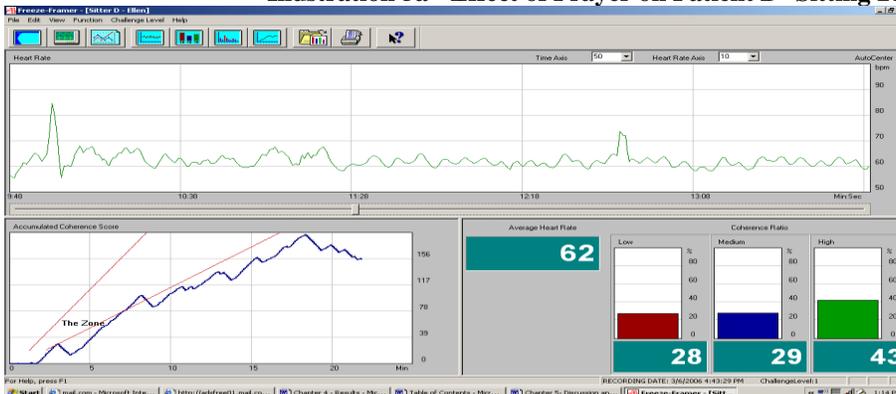


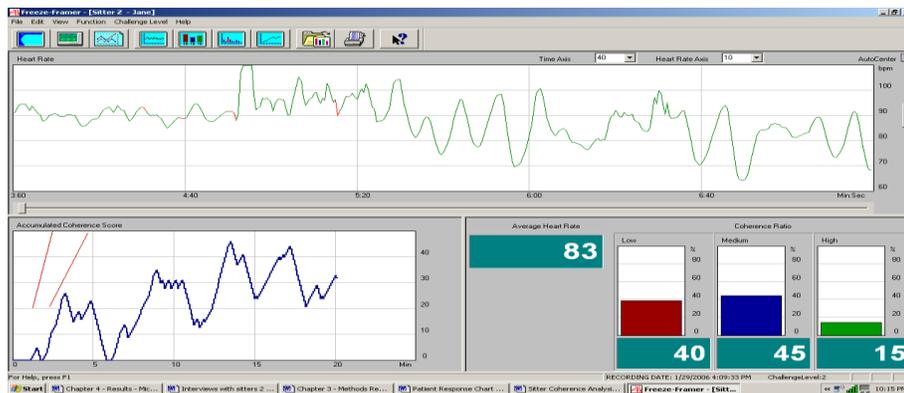
Illustration 5b - Effect of Prayer on Sitter D- Sitting 28

Prayer was initiated between 11 and 11:30 minutes in Sitting 28. Note that sitter response appears as a low, even pattern. In both examples given above, Patient D seemed to have anticipated the prayer offering and exhibited higher amplitude oscillations or peaking before the sitter actually to offered the prayer. During this interval I would have been near both sitter and patient prompting the sitter that this might be a good time to consider offering a prayer. My proximity could also have been a factor in this response.

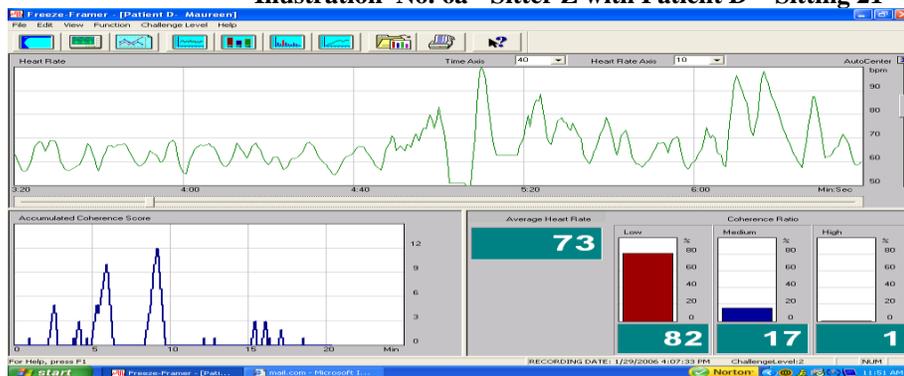
One of the most interesting anecdotes concerning the use of prayer was observed in Sitting 25, the sitting in which there was not technically a positive response. In this sitting between Cynthia and Maureen, Sitter Cynthia offered a prayer that was later reported to include affirmations of infinite love, God, and invocations of Jesus and Mary. At just this point, Patient Maureen made a loud and articulate exclamation: “Be quiet!” While this may have been coincidental, it was very unusual for Maureen to use clear, discernable speech and her response seemed poignantly related to the subject matter. Cynthia had no idea that Maureen was reported by her husband to have become resistant to Catholic religious figures and rituals. In a later, different prayer in the same sitting, Maureen shifted into coherence. Cynthia reported her perception that

Maureen seemed to “relax into it and fell asleep.” This experience obviously raised the possibility that patients not only might be positively affected by the introduction of prayer, but that they may be sensitive to the actual content and imagery used in prayer and may also have extremely personal responses to the content. While the sitter showed a sharp increase in amplitude at the point of this prayer, it is possible that this response was a response to Maureen’s unexpected words rather than to the prayer itself.

The meditation technique that I have used with hospice patients as a volunteer was noted in a total of eight sessions. This technique involved finding a mental image of the patient and observing the patient within this meditative state, as well as my interaction with her. Unfortunately, because this type of tracking was not an original focus of this investigation, a timeline correlation with this technique was made in only two later sittings (Sittings 13 and 21). There was an observable change in the my HRV with Karen in Sitting 13, and a probable shift in Karen’s at about the time of this introduction of both prayer and meditation. In Sitting 21 with Maureen (See Illustration 5a and 5b below), there was a shift in both patient and sitter HRV. Note the disruption of sitter pattern at five minutes when touch was reported and prayer was begun, and that within approximately 30 seconds the pattern changed to a deeper, more coherent sinusoidal pattern.



**Touch and Meditation Used Together
Illustration No. 6a - Sitter Z with Patient D – Sitting 21**



**Touch and Meditation Used Together
Illustration No. 6b - Patient D with Sitter Z – Sitting 21**

In sum, though it was necessary to screen these sittings with an expanded timeline, there seemed to be significant evidence that touch, prayer and meditation all have the capacity to influence the dying in ways that were generally positive for the patients and sitters investigated in this study.

Conclusions

Review of HRV data, reports and interviews, seems to provide evidence of interaction between sitter and patient in these sittings as well as probable influence of techniques such as prayer, touch and focused meditation on HRV. These results were sometimes calculable, such as information that was generated by the Freeze-Framer coherence analysis, but more often were observed by a close, simultaneous investigation of the HRV patterns of patient and sitter.

In sum these results seemed to suggest the following ideas:

- 1) Patients near death have highly unstable HRV patterns. Changes in these patterns seem to indicate significant sensitivity to people in their environment.

- 2) Even profoundly brain-injured patients seem to differentiate between caregivers that they are familiar with and those that they are not familiar with.
- 3) Patients may be affected by very subtle aspects of the people in their environment, such as their thoughts and intentions.
- 4) Loving relationship appears to be a significant factor in a patient's response to a sitter regardless of the sitter's level of coherence.
- 5) Relationship may be developed with caregivers even if the caregiver has only known the patient while they were in a non-communicative state.
- 6) The heart coherence of sitters is significantly reduced when engaging in compassionate presence with people near death in large institutions. This reduction may be related to nature of the care environment, the level of concentrated distress patients have in a care environment, or it may be an aspect of the activity of compassionate presence itself.
- 7) The interventions of touch, prayer and meditation in sittings appears to have a significant effect on the HRV patterns of patients and sitters in many cases .

A discussion of these findings and conclusions follows below.

Discussion and Conclusions

Clearly the subtlety of response of these patients might have been easier to study and monitor with a tool designed specifically for them, one that could more objectively analyze parameters specific to their highly sensitive condition. The parameter of HRV coherence is probably not such a parameter, in that it measures an offset from a relatively ideal form generated by a healthy population in ideal circumstances. Trauma, illness and dying are not such circumstances. It appears possible that different forms govern these physical conditions. Nevertheless, though there were limitations to the application of FreezeFramer in this study, biofeedback measurement of non-verbal somatic communication (or presence) with a highly sensitive population offers insights into not only hospice and critical care work, but may give insights on work with verbal populations as well. The wide-ranging evidence of response and reactivity observed in these patients shows that there is somatic sensitivity to persons in their environment and the capacity for relationship even when that relationship is established in a non-communicative state. These results support the possibility that somatic or energetic communication may be operative in care relationships in normal populations, and that these relationships might similarly be influenced by interventions such as prayer, touch and meditation.

Finally, the obvious issue of effect of compassionate presence on the caregiver was raised by the responses of sitters in this study and will be discussed further below.

The Study of Sitter Coherence

Reduction in sitter coherence was the most clear and consistent results of this pilot investigation. It suggested the possibility of group coherence or incoherence, and that this phenomenon may exert influence on individuals that enter groups. However other explanations for this result must also be considered. Reduction of sitter coherence scores in care facilities could have been a result of the activity itself (compassionate presence and witness), or emotional responses to the environment or the state of the patients in them.

Sitter interviews made it clear that each sitter had some degree of struggle with either the environment or contact with the reality of the patients they sat with. This was particularly true of sitters who were with relatively young patients in long-term comatose states. Sitters were often absorbed in speculating about the patients' lives and whether this was or was not a fair situation for them. Sitters Sally, Cynthia and Ellen all noted that they became involved with questions of their own mortality and the projection of themselves into this situation during sittings and after. This may have provoked an unconscious anxiety that was not conducive to coherence. If this is the only explanation, however, it does not explain why there is such a wide variation in sitter coherence loss, from 22% to 72%.

It was particularly unfortunate that Ellen, the most consistently coherent sitter, was only available for three sittings in this study, two of which were with Patient C. With such a small sample of sittings, it is not easy to draw conclusions about why Ellen lost significantly less coherence than other sitters involved with the project. IHM commentary has suggested that people who are more coherent are indeed less vulnerable to the incoherence of their environments. (McCarty and Atkinson, 2003, p.12)

Certainly Ellen demonstrated similar anxiety about the patient situation as other sitters, if not more than other sitters. She was the only sitter who said that she would not wish to seek this kind of contact as a volunteer again, for example. This may have been one factor in the fact that I was only able to engage her in three sittings. This raises a possibility that the lower percentage reduction in her coherence scores may have also occurred in part as a self-protective response. However,

my speculation is that Ellen may have had a deeper effect on patient coherence when she was more vulnerable herself. This may have had the effect of lowering her coherence. This interpretation was influenced by my own experience as a sitter in which I noticed difficulty actually focusing on the patient while holding a coherent state. The possibility that contact may sometimes be *inversely* related to coherence in situations like this is discussed further below.

In analyzing my own coherence loss (-57%), I note that my experience was significantly different than other sitters and was probably influenced by different factors. It was clear from observing session recordings that my own coherence loss was affected by acting as both sitter and project administrator, the activities of adjusting patient finger sensors, monitoring the power supply of two laptops or answering the questions of staff members during sittings. Further research projects would ideally eliminate this dual role.

Cross-influence and the relationship between compassion and coherence

A preliminary assumption of this study was that heart coherence, or the achievement of states of well-being, gratitude, or appreciation, is in some way related to states of compassionate presence and loving relationship. However, this study opened the possibility that there may be fundamental differences between the dynamic of compassion and personal HRV coherence that were not fully anticipated. Compassion by its very nature may require a measure of resonance with, experience of, or perhaps even an energetic “taking on” of another’s pain and suffering similar to the Buddhist practice of Tonglen (Sogyal Rinpoche, 1992). It does not seem difficult to imagine that this would have a short-term effect of destabilizing a sitter’s personal sense of well-being as he or she contacts the experience of suffering, particularly in environments where there is overall lack of coherence. In this situation the dynamic of coherence did not seem to be simply modeled as one person directly drawing another into their coherence by simple entrainment.

If one person’s willingness to be affected by the suffering of another is a true dynamic of compassion, it raises important questions for therapists and caregivers. First, it raises the question of whether this experience has an enduring negative effect on a helper’s HRV, such as the phenomenon of vicarious trauma, or whether ultimately this contact can engender positive growth leading to an expanded heart and a more coherent HRV. When a patient appeared to have a negative response to a sitter or reduced coherence in a sitting, it was unclear whether this was simply short-term destabilization (such as a startle reflex, the sign of excitement or the adjustment to an unknown person in their presence) which ultimately had a positive influence on the patient as the relationship developed, or whether it was a simple negative response that contributed to a longer-term degradation of the sense of well-being. These questions are raised, but not fully explored in this study except in sitter and family interviews and two post-sitting baselines that were done. Though the sample is inadequate, these seem to indicate that effects of these sittings endured beyond the theoretical limits of the project, and that these effects may have been positive for some sitters and patients regardless of the short-term response.

If this is the case, the question of what it is that allows the disruption of coherence to be processed into positive growth for some caregivers and patients becomes particularly interesting, especially at a time when the causes of emotional burnout, compassion fatigue, vicarious trauma and caregiver depletion are being actively researched and debated (Brotheridge & Grandey, 2002; Alderidge, 1994; Bolton, 2000). More study on the somatic effects of this issue would be a very worthy endeavor with implications far outside of care of the dying. My speculation on this issue is that without relationship and the ability to feel into and recognize another’s pain, as well as the capacity to feel the truth of our own pain in their presence, there is probably little that we can do for others even with perfect coherence. On the other hand, without a way to work through emotional responses to the other’s pain, or some way to be held in or process the pain that is encountered in this experience into personal growth, these experiences may become difficult for a caregiver to sustain and contribute to caregiver burnout. It is noted that volunteers in this study had much less exposure and much more support than typical caregivers for the dying do.

The increasingly intense and rigid requirements of institutional care facilities on caregivers do not commonly allow for this type of self-care. A caregiver’s emotional or spiritual system that might normally be sustaining and enervating, may shut down in response to the daily experiences as a result. Feeling deeply in response to others in a context of positive self-care may be part of what allows caregivers to maintain and expand their capacity for helping. Another possible theory is that the requirements for rigid perfectionism of any kind, including the requirement to be in an optimum coherence state, may create a bind or a split when confronted with the reality of a person suffering or in the process of dying. To enter into the experience and resonate with pain may perhaps be a natural, indeed healthy, function of the human heart. To deny this capacity in the face of another may create a split that in the long run depletes enthusiasm for the activity of caring, or resistance to the experience of connection.

The Capacity for Relationship Near Death

Though the sample was too small to draw firm conclusions, the apparent effect of relationship in this investigation did not seem coincidental. This fact should be investigated more deeply with this population in further studies for several reasons. First, clearly, there is an advantage to understanding more about patient needs and care in this state. There is a

strong indication that relationships exist up to the point of death and that there may be need for compassionate relationship and support at this juncture. Second, if the responses of the two spouses I worked with were any indication, this information could provide tremendous relief and hope to family members of people in non-communicative states near death. The question “Does she know that I am here?” weighs very heavily on the hearts of the family members that I worked with in this project and elsewhere. Understanding more about how people in these states perceive and respond could greatly enrich the sense of meaning, depth of exchange and closure at this point of life.

Families commonly feel that their loved ones know them and comment on their loved one’s preferences and emotions. It is also unfortunately common for family members to be told that their loved ones cannot possibly perceive their presence due to neurological damage or intellectual impairment. Both husbands that I worked with had had very difficult experiences of this nature with medical authorities that had caused them to doubt their felt sense of connection to their spouse. Both men independently reported depression and anger that lasted a significant period of time after such incidents. Even if this study had no net influence on patients, the confirmation of enduring family ties and of the validity of felt senses in relationship is itself an important reason to pursue further work in this area.

The Use of Prayer and Meditation

Because prayer is one of the most widely used interventions at the bedside of the sick or dying, it seemed useful to explore its effects. The short-term effects on HRV appeared to be clear, particularly on patients. The degree to which this was true was surprising. A better controlled experiment of the somatic effects of prayer would be exceptionally interesting and useful, particularly given the number of prayer studies now being debated (Benson et. al., 2006; Byrd, 1988; Targ et. al., 1998). Most likely, study with this instrument will not demonstrate the long-term effects of prayer, but only the short-term energetic shifting of HRV that might occur before, during and after a prayer, similar to the physiological response to prayer and meditation that has been investigated by Herbert Benson and others, termed the “relaxation response” (Benson & Klipper, 1976). However in this case, prayer is being offered on behalf of others without their conscious volition. It would seem useful to have a working understanding of the patient’s spiritual history and disposition before undertaking such an exploration. Meditation similarly might be usefully explored for somatic effect.

The Use of Touch

The effect of physical touch was more difficult to interpret in this study. Because touch is a means of communication that is commonly used with the ill and dying, the importance of looking at its effects seems clear. I did not feel that many conclusions could be drawn from the responses to touch in this investigation, other than that there was often what appeared to be a startle response in both patients and sitters. More investigation of this nature that focuses on the longer-term ramifications of touch would be useful.

Interestingly, off-body or therapeutic touch when introduced often seemed to evoke similar responses as physical touch. This fact seemed to confirm the sensitivity of patients at this point in their life process. However, more deliberate work would need to be done to draw any conclusions about the effect of off-body touch.

Reflections on the Nature of Caregiving and the Caregiving Environment

The largest unanswered questions left by this study are questions about appropriate and inappropriate caregiving, the nature of caregiving environments and the long-term care of caregivers. Even within a small sample such as this one, there were different models of care and concepts of caregiving brought by every sitter as well as different states of presence. The idiosyncrasies of each caregiver in such a small sample make evaluations of appropriate or inappropriate care, or presence, nearly impossible. Each person had a very unique offering. Still, I offer my own observations and interpretations.

The model of care held by researchers at the HeartMath institute are that holding a state of coherence itself is possibly an optimum model of caregiving, in that he or she will automatically create conditions for others to come into such states. Fear, frustration and anxiety are negative emotions to be overcome with positive attitudes, reflections on love and gratitude (Childre & Martin, 1999). Indeed these are powerful techniques for people to use in their own process of growth and it is hard to argue that these actions do not have a profound effect on others who are fully engaged with life. However, this project was reflecting on a different state of being and a different process than the one of self-improvement, or the project of coming expansively into life and productivity. It is difficult to expand a model of self-improvement into an over-reaching model of healing or helping near death.

In my own experience as a healing practitioner and hospice worker, healing does not have to do only with the accomplishment of expansion and order, but includes a traditionally shamanic penetration into a world of distortion, chaos, darkness and pain, including the facts of death and dying. The facilitation of other people’s healing has to do with providing compassionate presence through these processes. Compassion and presence in this view may require helpers to have a demonstrated capacity to go into these states themselves, and the capacity to come out of them again in a renewed state. In short, healing processes and optimization processes are both useful and in their essence may be different. It seems likely to

me that we will find that patterns of HRV coherence, while a very useful parameter, must be meaningfully qualified or redefined in order to be applied as an evaluative tool within a relational healing or helping construct.

The capacity for sitters to be emotionally and somatically affected by their environment or the patients they encounter does not appear to me to be necessarily negative, nor necessarily an indication of over-care as IHM defines it, a definition which includes ideas like worry, anxiety and over-attachment (Childre & Martin, 1999). In fact, in my view, somatic-emotional presence and response is probably a natural and healthy response to people at end of life if appropriate boundaries are maintained and helpers have opportunities to support and integrate their experiences, thereby stimulating their own growth.

Optimally, caregiving environments would be supportive of the longer-term needs of caregivers, families and patients. In terms of patient needs, this investigation suggests the possibility that patients may be best served by smaller, less concentrated environments (such as low density rooms, private homes or smaller hospice facilities) that are particularly designed for their needs and the needs of their caregivers.

Patients appear to need supportive relationship with regular, loving caregivers. It seems obvious that this contact would be enhanced if the caregivers understood and felt that patients were aware of them. Another need is for care to be taken of the extreme sensitivity that patients have near death. This would include the reduction of unnecessary startling or disharmonious noises, such as shouting, loud televisions, cleaning equipment, as well as gentleness and courtesy when touching or moving these patients. An environment of peace, courtesy and respect is optimum. Because patients appear to be so sensitive to the states of others in their presence and their sudden introduction, it might also be best for people entering rooms of the dying to have a method for preparing themselves and becoming attuned to the patient before entering. Support of families and caregivers might include things like rooms for their rest and rejuvenation and counseling support for the expression and exploration of their experiences.

Conclusion

This pilot investigation attempted to expand understanding of the passage of end-of-life and the influence that compassionate presence can have on those near death. This project used research developed by the Institute of HeartMath and the heart monitoring system, Freeze-Framer, which was developed to track the heart's variability patterns. Results were interpreted using HeartMath research, which links emotional states with heart rate variability behavior. The work of this study has also been guided and the results interpreted by the experience of the hospice and death and dying movements and the writings, teachings and practices of Tibetan Buddhism.

This pilot investigation indicates that patients are sensitive to relationships and people in proximity at end-of-life. It also indicated the possibility that patients are capable of forming new relationships, even in non-communicative states, and are reactive to interventions such as touch, prayer and meditation. That the environment in which caregiving occurs has an effect on caregivers also seemed to be strongly suggested by this investigation. This investigation raised questions about the nature of caregiving environments on patients and discussed different thoughts about caregiving for this population.

The governing role of the human energetic heart through the process of dying is one that has been noted by esoteric traditions. It has also been witnessed by many people's work with the dying, as well as those of many caregivers and families. The human heart, in its physical and emotional forms, appears to be a crucible that holds the potential of transforming our mental, emotional and physical bodies during our lives, and of facilitating their great change in form from one state to the other during death.

The processes of death are certainly not insignificant to life processes or the living, as we are always undergoing these processes if we are fully engaged with life. If this is true, the study of the human heart through the end-of-life passage may be significant in developing an understanding of the transformation of the human spirit at all ages, and advancing the mythologies of death and the promotion of meaning. Indeed, though this idea is not widely held in western culture, the idea that the dying are in fact doing something of great importance in the larger world, and that it is exceptionally important to support them in doing this work well is a tenet of Tibetan Buddhism.

At the very least, deepening our understanding of this process is important to the comfort and care of the dying and their caregivers. Since a comatose state is a passage experienced by the vast majority human beings before they die, this may be reason enough to advance understanding of relationship with people in non-verbal states near death.

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Biography

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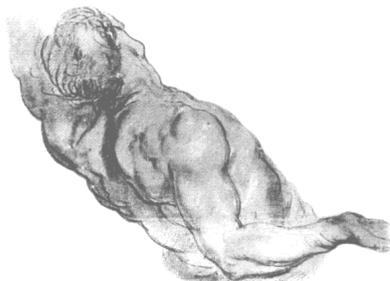
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CRITERIA FOR ACCEPTANCE

How does material in this manuscript inform the field and add to the body of knowledge? If it is a description of what we already know, is there some unique nugget or gem the reader can store away or hold onto? If it is a case study, is there a balance among the elements, i.e., back ground information, description of prescribed interventions and how they work, outcomes that add to our body of knowledge? If this is a reflective piece, does it tie together elements in the field to create a new perspective? Given that the field does not easily lend itself to controlled studies and statistics, if the manuscript submitted presents such, is the analysis forced or is it something other than it purports to be?

PURPOSE

This peer-reviewed journal seeks to support, promote and stimulate the exchange of ideas, scholarship and research within the field of body psychotherapy as well as an inter-disciplinary exchange with related fields of clinical practice and inquiry.

To ensure the confidentiality of any individuals who may be mentioned in case material, names and identifying information have been changed. It must be understood, however, that although articles must meet academic publishing guidelines, the accuracy or premises of articles printed does not necessarily represent the official beliefs of the USABP or its Board of Directors.

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SUBMISSION GUIDELINES AND SPECIFICATIONS

First consideration will be given to articles of original theory, qualitative and quantitative research, experiential data, case studies, as well as comparative analyses and literature reviews. Submission of an article to the *USA Body Psychotherapy Journal*

represents certification on the part of the author that it has not been published or submitted for publication elsewhere.

Initial submission should be e-mailed to jacarletonphd@gmail.com as an attachment in Microsoft Word.

Manuscript should be double-spaced in 10pt. type, with at least a one inch margin on all four sides-please include page numbers, otherwise manuscript should be free of other formatting.

Title, full authorship, **abstract of about 100 words and 3-5 key words precede the text.** Please include an endnote with author's degrees, training, mailing address, e-mail fax, acknowledgement of research support, etc.

Authors are responsible for preparing clearly written manuscripts free of errors in spelling, grammar, or punctuation. We recognize that the majority of contributors are not professional writers, nor do they function in a publish or perish mode. Furthermore, we are aware that the work of our profession is sometimes pragmatic, associative, intuitive, and difficult to structure. However, a professional journal such as we envision normally accepts only pieces that are fully edited. Therefore, we may occasionally suggest that writers find a reviewer to edit their work before it can be accepted. We will suggest names of possible editors if requested.

References: References within the text should include author's surname, publication date and page number.

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LETTERS TO THE EDITOR

The editors are eager to receive letters, particularly communications commenting on and debating works already published in the journal, but also suggestions and requests for additional features or departments. They may be sent to the email address below. A selection of those received will be published in the next volume of the journal.

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